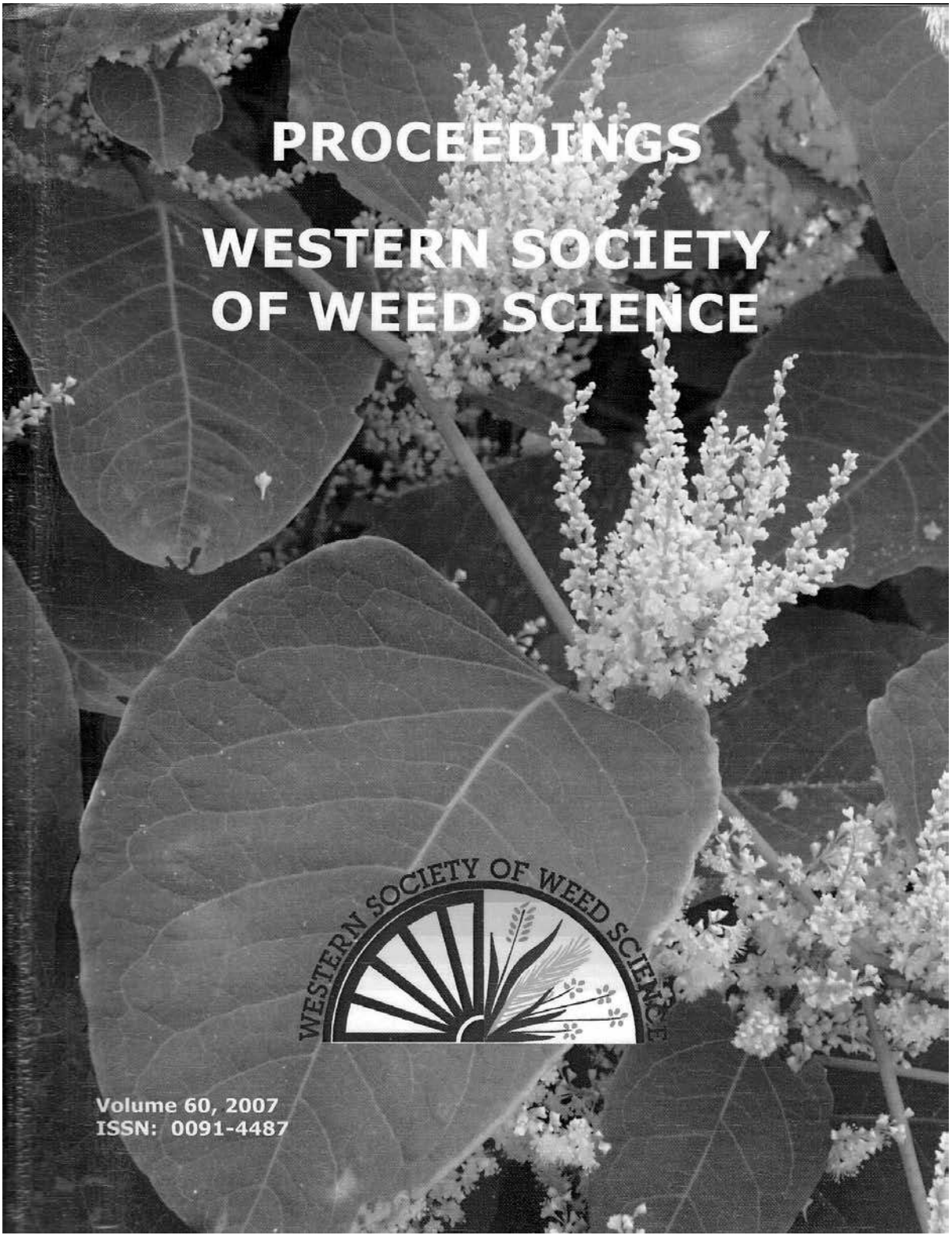
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HILTON PORTLAND & EXECUTIVE TOWER

PORTLAND, OREGON

PREFACE

The Proceedings contain the written summary of the papers presented at the 2007 Western Society of Weed Science Annual Meeting plus summaries of the research discussion groups and of the business transacted by the Executive Board. Authors, crops, weed, herbicides, and keywords are indexed separately. Index entries are published as received from the authors.

Copies of this volume are available at $20.00 per copy from WSWS Business Manager, 205 W. Boutz, Bldg. 4, Ste 5,Las Cruces, NM 88005.

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GENERAL SESSION

RISING ABOVE THE CLOUDS: WSWS FUTURE IN A CHANGING WORLD. Kassim Al-Khatib, Agronomy Department, Kansas State University, Manhattan, KS 66506.

I want to welcome everybody to the 60th annual meeting of WSWS. Thank you for the vote of confidence for electing me as the President of our society. It is an honor and privilege to serve you. First of all, I would like to thank Ron Crockett for welcoming us to beautiful Portland and for setting up an outstanding program. I would like to extend my appreciation to all the program committee members; Joe DiTomaso and Joe Yenish and many others. Special thank to Carol Mallory-Smith and her local arrangement committee for working with the hotel and with the program committee to set up such a good meeting. I would like to thank all the sponsors for society reception and business meetings, student activities, and meeting breaks. Thanks to Phil Banks for his services and WSWS is very fortunate to have him as the Business Manager. He is highly energetic and motivated to further improve WSWS function in order to serve members and the weed science. Phil brought a lot of excitement and energy; I enjoyed teaming up with him.

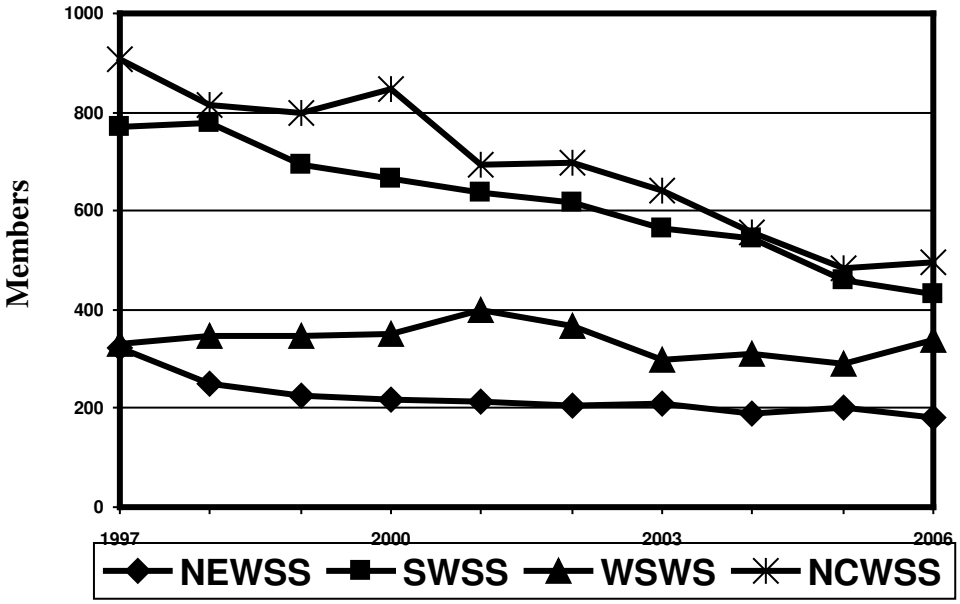
You will notice that there are two major changes to our traditional meeting format. This meeting is one day longer than previous meetings. Last summer, WSWS Board of Directors decided to organize a special symposium at the end of each annual meeting. The subject of the symposium should address weeds or issues particular interest within the region where the annual meeting is held. The special symposium will not replace the regularly scheduled half-day-symposium that is organized by Program Chair during the meeting. The purpose of such special symposium is to provide educational program that might attract local people. We hope advertising such symposium in advance will provide opportunities to federal and state people to attend the annual meetings. The committee for the special symposium selected knotweed as a topic for the special symposium in this meeting and *Arundo donax/Phragmites australis* topic will be for Anaheim meeting in 2008. The pre-registration for special symposium in this meeting overwhelmingly indicated great support for this type of educational program.

Another new change in this meeting is the orientation sessions that will be provide to new members and officers. Phil Banks will brief the new offices about their duties and responsibilities to improve productivity. He will also meet with new members answering questions and listen to their input.

This is the fifth time that WSWS annual meeting is to be held at Portland. The first time was in 1947 when the society was small and the meeting had few papers dealing mainly with weed control with 2,4-D. However 60 years later, we are meeting in the same city but as a different society. Today, WSWS is stronger than ever, more diverse and extremely relevant. One of our greatest strengths is the willingness of our members to contribute talent and valuable time to the society. I need to thank all of you for your devotion to WSWS and its mission.

I am pleased to report that WSWS is doing very well. There are several reasons to make that statement. We are financially strong, our financial investments continue to grow; we continue to sell more than 500 copies per month of 'Weeds of the West' that brings significant income to the society. We start to generate some income from marketing educational materials on our website and we hope that this stream of income will continue to grow in the future. Number of sustaining members increased in the last two years, which further contributed to improvement of the financial conditions of the society.

The WSWS has a rich history; it has been highly successful organization to serve the needs of weed science professionals throughout the western region. For many decades, WSWS has experienced healthy membership, meetings were well attended and robust, and there were enough members volunteering for leadership and support roles. However, during the last decade, both internal and external factors excreted pressures on most of the regional weed science societies, including WSWS. The pressure, however, was less on WSWS compared to South Weed Science Society (SWSS), North Central Weed Science Society (NCWSS), and North East Weed Science society regional societies (NEWSS). The regional societies lost almost half of their membership in the last ten years, while WSWS membership has been relatively stable.



Decline in membership of the regional weed science societies was related to continuous evolution of agriculture: introduction and shift to biotechnology products resulted in industry consolidation and less overall reliance on conventional pesticides; smaller weed science academic work forces; professional organizations serving related aspects of weed science attracted the members away from weed science societies; internet and information technology

replaced meeting as the primary information source and method of contacting colleagues; and finally regional weed society did not change and kept the same basic annual meeting format. In contrast, WSWS membership has been stable with slight increase in the last two years. In my opinion, this strength of WSWS membership in down turn times is due to the quality and value that WSWS provides to its members.

We have excellent and successful meetings that provide opportunity to exchange ideas, learn new skills, and networking. Relevant weed science subjects, discussion sessions, and timely symposia are the key to our meeting success. WSWS vision did help us survive the difficult time. There have been tremendous changes in our country and the industry over the last decade. Rapid change in technology and the economy is causing changes in our discipline. WSWS has always been ready and prepare to take advantage of the opportunities. For example, WSWS recognized early on that invasive weed species is a major growth area in weed science therefore invasive weed species and its management was incorporated in our organization. Our meeting provides complete package of weed management to multiple disciplines. This strength must not be allowed to slip away. WSWS must continue to have the vision to prepare for the changing world.

Successful and vibrant organization must have a strong membership base; both current and new members are essential to our future. Getting these people to our annual meeting is very important. The formula for recruiting new members and keeping current members active is to provide value and perhaps of even greater importance, is effectively communicating how our activities create the value. We must ensure that current and prospective members are aware of why they need to belong to WSWS and why attending our meeting is valuable.

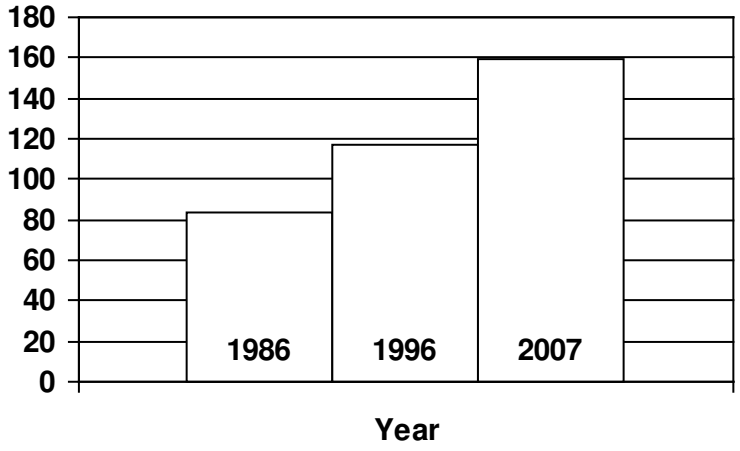
Diversity is strength of WSWS. We have always been an inclusive not exclusive society. Subject matter and membership diversity are major assets of WSWS. This year, our membership represented 32 States and two providences, and represented by several identities including universities; seed, chemical, and equipment industries; federal agencies; private consultants; and state agencies and counties. We must continue to welcome new members to our society and continue to offer a diverse program of high quality and value that is attractive to all segments of the membership. We actively need to reach out to groups who might benefits from attending our meetings.

WSWS Membership Distribution in 2006

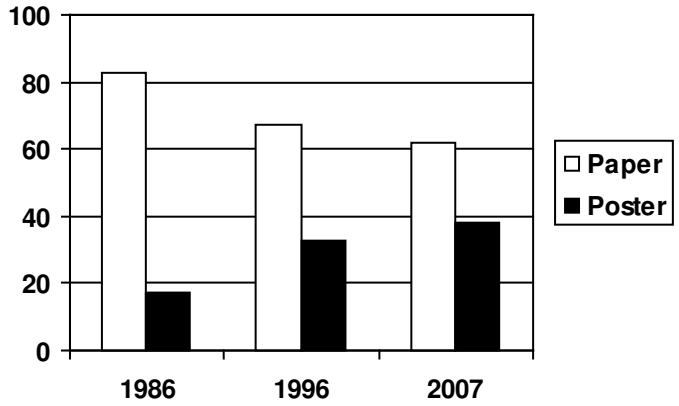
- University 35%
- Students 9%
- Federal 10%
- State 4%
- County 5%
- Companies 24%
- Consulting 6%
- Retired 3%
- Others 4%

Although our society is small, members are very active and the society is relevant. Number of papers presented in our annual meeting continues to grow. Oral paper presentations that were common during annual meetings in the past 20 years are gradually replaced by posters, discussion sessions, and symposia. Range and pasture session that used to be small is currently a major and popular session. The face of our society and the annual meeting has changed, and we need to continue to evaluate who we serve and what we should do to provide value and services to remain relevant and successful.

Total papers and posters presented at WSWS annual meeting



Papers vs. posters presented at WSWS annual meeting



The involvement and engagement of our student members is critical for the success of WSWS. Student members are the future of this organization. They are and will be the next weed science professionals and can bring fresh new perspective to this organization. WSWS Board of

Directors always explores new means to enhance students involvement. WSWS has recently adopted several initiatives to enhance student involvement including student's representation at the board of directors. I encourage each of you to come up with new initiatives to enhance student's professional development and involvement.

We should not become complacent with past and present of WSWS success. Agriculture and weed science are changing and advancement in weed biology, weed ecology, genomics, application technology, information technology; development of ecological based weed management practices, and using GIS and GPS in weed management are so rapid. WSWS must reflect the significant changes in weed science and management as well as the work environment. We will have more opportunities to strengthen WSWS if we understand and foster these changes.

I would like to conclude by saying we have a strong and relevant society and I am excited about the future of WSWS and the opportunities that lie ahead. Our challenge is to maintain what we do collectively so well, identify opportunities and take advantage of it. Finally, I would like again to thank the members for the opportunity to serve as President of WSWS. Please enjoy and have a good meeting in Portland.

POSTER SESSION

EFFECT OF ENSILING ON THE ALKALOID CONTENT OF POISON HEMLOCK (*CONIUM MACULATUM* L.). Amy Peters*, Oregon State University Extension Service, Myrtle Point; Marsha Booth, University of California, Davis; Ken Andersen, University of California Cooperative Extension, Eureka; Cassie Bouska, Oregon State University Extension Service, Myrtle Point; Mike Gamroth, Oregon State University, Corvallis; and Birgit Puschner, University of California, Davis .

Poison hemlock (*Conium maculatum L.)* is toxic to many species of livestock, especially cattle, is present in many pastures during the growing season, and is often unavoidably incorporated into hay or silage. The effects of the ensiling process on the concentrations of two toxic alkaloids present in poison hemlock, coniine and γ-coniceine, were examined from samples of poison hemlock from Coos County, OR, and Humboldt County, CA. The concentration of γ-coniceine decreased during the ensiling process in samples from both counties, with an average decrease of 51% in samples collected in Coos County (two-sided p-value = 0) and an average decrease of 23% in samples collected in Humboldt County (two-sided p-value = 0.0015). However, the initial concentration of γ-coniceine was much higher in Humboldt County samples than in Coos County samples. The concentration of coniine increased throughout the ensiling process, with an average increase of 66% in Coos County (p-value = 0.0001), and an average increase of 222% in Humboldt County (p-value = 0). The initial concentrations of coniine were much higher in Coos County than in Humboldt County. It is recommended that silage known to contain poison hemlock not be fed to livestock.

PROPERLY TIMED INTENSIVE GRAZING BY SHEEP SUPPRESSES MEDUSAHEAD IN CALIFORNIA RANGELAND. Guy B. Kyser*, Joseph M. DiTomaso, University of California, Davis; and Morgan P. Doran, University of California Cooperative Extension, Yolo-Solano.

Medusahead is a Mediterranean annual grass invasive in many western rangelands. Owing to its high silica content, medusahead is poor forage and its litter forms a persistent thatch which suppresses other plant species. Burning can be used to control medusahead but is limited to a narrow phenological window and is restricted by air quality and liability issues. In most cases, herbicides are impractical given the extent of the problem and the lack of appropriate selectivity. Previous work has indicated that under intensive grazing conditions, sheep will graze medusahead and can reduce its cover. The goal of this project was to determine optimal grazing timing and to develop intensive grazing recommendations. Trials were conducted on a ranch in Yolo County, CA, 2002 to 2006. Field sites were divided into 10 m by 10 m plots. Five different grazing regimes (ungrazed, early spring + fall grazing, late spring + fall grazing, early spring + late spring + fall grazing, and fall grazing only) were applied in a randomized complete block design. Cover of all plant species, thatch, and bare ground were measured in spring and summer during each year of the study, in five 1-m^2 quadrats per plot. Grazing in late spring or early spring + late spring reduced summer medusahead cover by 86% to >99% relative to ungrazed plots. Early spring grazing alone reduced summer medusahead cover by 24% to 37%. Spring grazing followed by fall grazing resulted in reduced populations of medusahead in the following spring, reduced thatch, increased forb cover, and increased species richness. The effects of late spring grazing continued to surpass those of early spring grazing. Grazing effects were still apparent, but diminished, in the year after treatment. Thus intensive grazing can be a useful tool for suppressing medusahead and enhancing desirable vegetation but will require multiple years and, probably, integration with other strategies.

COMMON MULLEIN CONTROL IN RANGELAND. Darrell Deneke* and Michael Moechnig, South Dakota State University, Brookings.

Common mullein (*Verbascum thapsus*) is a biennial weed that may be relatively common in rangelands, grasslands, roadsides, or woodlands in several states. However, populations appear to be growing in South Dakota, particularly in the central and southwestern regions of the state. Sites in the Black Hills region have become infested with common mullein after soil disturbance or forest fires. Studies were established in 2005 and 2006 to evaluate common mullein control associated with growth regulator and ALS-inhibiting herbicides approximately two to three months after application. Herbicides were applied to common mullein rosettes in early June of each year. A non-ionic surfactant (0.25% volume of surfactant per volume of spray solution) was added to each herbicide treatment. Treatments that resulted in > 95% control in both years included picloram+2,4-D (280+1,120 g a.e. ha^{-1}), picloram+dicamba+diflufenzopyr (280+18+7 g a.e. ha^{-1}), metsulfuron (42 g a.i. ha^{-1}), or aminopyralid (123 g a.e. ha^{-1}). Aminopyralid rates less than 123 g a.e. ha^{-1} resulted in less common mullein control. Other herbicides that did not consistently result in at least 95% control included dicamba, dicamba+diflufenzopyr, 2,4-D, triclopyr, imazapic, or chlorsulfuron. In a

separate study in 2006, aminopyralid (123 g a.e. ha^{-1}) or aminopyralid+2,4-D (123+975 g a.e. ha^{-1}) applications resulted in > 90% common mullein control.

SICKLEWEED, AN INVASIVE WEED IN RANGELAND. Michael Moechnig*, Darrel Deneke, and Jill Alms, South Dakota State University.

Sickleweed (*Falcaria vulgaris*) is a perennial weed in the Apiaceae family that reproduces by seed or creeping roots. Sickleweed often flowers in August and seeds may be dispersed by shoots that detach at the soil surface and tumble in the wind. Seedlings and shoots may emerge in the fall if precipitation is adequate. Sickleweed has been present in South Dakota for at least the past 50 years, but recent population growth in rangeland has demonstrated its invasive potential. In 1964, sickleweed infested a few acres in southeastern SD and one site near the Black Hills region. In 1993, sickleweed infested approximately 25 ha of the Ft. Pierre National Grassland in central SD, but that infestation has grown to approximately 900 ha in 2006. Sickleweed has been found in grasslands, alfalfa fields, turf, and roadsides in SD. Early studies in 1964 demonstrated the tolerance of this weed to common herbicides. Applications of 2,4-D or dicamba (5 kg a.e. ha^{-1}) resulted in only suppression of top-growth and atrazine (18 kg a.i. ha^{-1}) had little effect on sickleweed growth. A more recent study in 2004 demonstrated > 95% control one year after a fall application of picloram (1,120 g a.e. ha^{-1}), metsulfuron (63 g a.i. ha^{-1}), or chlorsulfuron (52 g a.i. ha^{-1}) or > 95% control after a spring application of metsulfuron (63 g a.i. ha^{-1}) or chlorsulfuron (26 g a.i. ha^{-1}). In a study established in 2003, sickleweed control after a picloram application (1,120 g a.e. ha^{-1}) declined from 89% one year after application to 15% two years after application whereas control with metsulfuron or chlorsulfuron did not decline between the second and third years after application. Results from these studies suggested metsulfuron and chlorsulfuron provided the greatest sickleweed control in rangeland relative to several other herbicides. Research is continuing to identify economically optimal rates of metsulfuron and chlorsulfuron.

LIVESTOCK GRAZING GUIDELINES FOR CONTROLLING NOXIOUS WEEDS IN THE WESTERN UNITED STATES. Linda Wilson*, University of Idaho, Moscow; Jason Davison and Ed Smith, University of Nevada, Reno.

Researchers and practitioners know that carefully prescribed livestock grazing is a highly effective tool to combat invasive weeds. Yet, the practice of prescribed grazing is not widely adopted, largely because information on prescription grazing is not readily available. We assembled and summarized current, state-of-the-art knowledge concerning prescriptive livestock grazing as a tool to manage noxious weeds in the western states. The information was compiled using telephone surveys and literature reviews. A total of 80 surveys were conducted with weed researchers, resource managers, and grazing management practitioners from ten western states. The information was complied into a handbook and CD ROM consisting of color photos and text describing each weed and outlining specific guidelines for using livestock to control the weed as well as the effectiveness of grazing as a management tool. The handbook will be distributed by June 2007 to Cooperative Extension and Natural Resources Conservation Service offices in nine targeted western states, and will be published online. Evaluation of the

handbook will consist of a telephone survey of end users at six months and one year after the handbook is distributed. The evaluation data will include estimates of: 1) usefulness as a resource to CE, NRCS and others; 2) degree of use of the handbooks by the end users; 3) changes in awareness of prescription grazing by CE and NRCS personnel; 4) increases in knowledge concerning livestock use as a weed management tool; and 5) increases in the use or willingness to use livestock as a weed management tool.

RESPONSE OF BRACHIARIA-LEUCAENA ASSOCIATION TO IMAZETHAPYR, BENTAZON AND METRIBUZIN. Fernando Rivas*, Javier Castillo and Luis Ortega, INIFAP, Merida, YUC, Mexico.

Insurgente grass (*Brachiaria brizantha*) and Huaxin (*Leucaena leucocephala*) provide producers a valuable source of forage to feed ruminants; however, information on the effect of postemergence herbicides used to establish Insurgente grass-Huaxin mixtures is not available. Studies were conducted at the Mococha Research Center near Mococha, Yucatan, Mexico, in 2004 and 2005, to evaluate bentazon, imazethapyr and metribuzin on Insurgente grass-Huaxin establishment. Bentazon was applied at 0.8, 1.2 and 1.6 kg (ai/ha), imazethapyr at 0.06, 0.08 and 0.1 kg, and metribuzin at 0.1, 0.15 and 0.2 kg. Also sequential treatments of bentazon (0.8 kg), imazethapyr (0.05 kg), and metribuzin (0.1 kg) were applied for a total of 3 exposures. In 2004, metribuzin significantly injured (33 to 100%) the grass-legume mixture compared to bentazon or imazethapyr treatments (≤ 30%) at 14 days after initial treatment (DAIT). Similar weed control (82%) was observed with metribuzin and bentazon, whereas control with imazethapyr was 70% at 28 DAIT. Insurgente grass yield was similar (P>0.05) among all herbicide treatments (7.6 to 11 Mg/ha). Huaxin yield was significantly reduced when metribuzin was applied, regardless of herbicide rate. In 2005, Huaxin injury from metribuzin was 55 to 94% and greater than that observed on Insurgente grass (10 to 23%). Weed control was poor (0.05) to the weed-free control. Imazethapyr or bentazon were harmless on Insurgente grass and Huaxin. The sequential application of both imazethapyr and bentazon improved establishment of the grass-legume mixture.

GENETIC VARIATION OF THE ALKALOID SWAINSONINE IN LOCOWEED SPECIES OF NEW MEXICO. Carol Lange*, Amber Vallotton, and Tracy Sterling, New Mexico State University, Las Cruces.

Locoweeds are leguminous plants (Fabaceae) belonging to the *Astralagus* and *Oxytropis* genera and contain the alkaloid swainsonine (1,2,8, -trihydroxyoctahydroindolizine). When ingested, swainsonine acts as an inhibitor of α-mannosidase, thereby preventing the complete metabolism of oligosaccharides, leading to brain damage and possibly death. Swainsonine content varies among collection sites, species, and varieties; therefore, the purpose of this experiment was to determine the role of genetics in swainsonine production to better predict impacts on livestock. A field survey of major locoweed genera, *Astralagus mollissimus* and *Oxytropis sericea*, native to New Mexico was conducted in May 2004. At each site, ten leaves from 15 different plants were collected and bagged for swainsonine analysis. Additional plants from these sites were transplanted into pots and grown in a greenhouse. Leaf tissue was sampled from greenhouse-

grown plants in October and December of 2004, and February, April, June, and August of 2005. Tissue samples were extracted using small-scale liquid/liquid extraction and swainsonine content was determined via liquid chromatography. *A.m.* var. *earlei*, *mollissimus*, and *bigelovii* and *O. sericea* possessed the most swainsonine. *A.m.* var. *mathewsii*, *mogollonicus*, and *thompsonae* possessed the least swainsonine, along with *O. lambertii*. Swainsonine levels remained uniformly high for *A. m.* varieties, particularly with *mollissimus* regardless if field or greenhouse grown. In conclusion, swainsonine is more genetically than environmentally dependent for each locoweed species and variety.

MUTUALISM OR PARASITISM: WHAT IS THE NATURE OF THE SYMBIOTIC RELATIONSHIP BETWEEN LOCOWEED AND ITS FUNGAL ENDOPHYTE, EMBELLISIA. Matt Pinch*, Irene Calderon, Amber D. Vallotton, Rebecca Creamer, and Tracy M. Sterling, New Mexico State University, Las Cruces.

Locoweed genera, *Astragalus* sp. and *Oxytropis* sp. contain the toxic alkaloid, swainsonine. These poisonous plants are found throughout rangelands of the western United States and are responsible for significant losses in livestock. The fungus, *Embellisia* sp. was recently identified in locoweeds, and is responsible for the production of swainsonine in these plants. The fungus originates in the seed coat, and is not present in locoweed plants cultured without seed coats. Under sterile culture, swainsonine production increased in silky crazyweed (*Oxytropis sericea*) plants under water deficit. To determine the relationship between the fungus and its host, plant growth and swainsonine production in *O. sericea* plants were evaluated in the presence and absence of *Embellisia* under water deficit and well-watered conditions. Seeds were divided into two groups: with seed coat (WC) and without seed coat (NC). Seeds were germinated in sterile water agar for 6 days, and transferred to magenta boxes containing ULT-O media and grown for 30 days. After the initial 30 days, WC and NC plants were divided into three water deficit treatments, and cultured in ULT-O media containing 0%, 16%, and 32% polyethylene glycol to impose water deficit, and grown for another 30 days. At the end of the experimental period, plants were harvested, and root and shoot lengths, and fresh and dry weights were measured. Relative water content, leaf areas, total number of leaves, and swainsonine content were also measured. There were no significant differences in growth or water use between WC and NC plants, or between water treatments. Swainsonine content will be presented.

HYBRIDIZATION BETWEEN TWO NON-NATIVE INVASIVE SPECIES: YELLOW TOADFLAX AND DALMATIAN TOADFLAX. Caren E. Fleischmann*, Christopher E. Menard, Sarah M. Ward, Colorado State University, Ft. Collins; and Sharlene E. Sing, Montana State University, Bozeman.

Yellow toadflax (*Linaria vulgaris*) and Dalmatian toadflax (*Linaria genistifolia* ssp. *dalmatica*) are considered two distinct species in Europe, where their native ranges do not overlap. Both species have been introduced into the US and are listed as invasive weeds of forest and rangeland in all Rocky Mountain states. Although these species have different microhabitat preferences, at some Montana locations yellow and Dalmatian toadflax grow in sufficient proximity for cross-pollination to occur. Fifty-nine plants with intermediate leaf and floral

morphology were collected from two of these sites in 2005 and 2006 and grown in a greenhouse at Colorado State University. Hybrid index scores for these plants based on leaf length-width ratio, floral structure, seed type and growth form ranged from 0.27 to 0.78. Combinations of species-diagnostic ISSR markers from both yellow and Dalmatian toadflax have been observed in a subset of morphologically intermediate plants, confirming their hybrid identity. Hand-pollination under controlled conditions to generate known interspecific hybrids produced seed in 49.1% of crosses with yellow toadflax as the female parent but only 10.9% of crosses with Dalmatian toadflax as the female parent, suggesting some nuclear-cytoplasmic incompatibility. Field-collected hybrid plants are fertile and some set seed when self-pollinated, although both parent species are self-incompatible. Additional characterization of yellow x Dalmatian toadflax hybrid and backcross progeny is needed to determine whether hybridization and potential introgression between these invasive species will present additional management challenges.

THE EFFECTS OF PUCCINIA JACEAE ON YELLOW STARTHISTLE COMPETITION AND GROWTH. Jon M. O'Brien*, and Joseph M. DiTomaso, University of California, Davis.

New bio-control rust, *Puccinia jaceae* var. *solstitialis*, was introduced to control yellow starthistle (*Centaurea solstitialis*) in 2003. To test the effects of the rust on the weed under field conditions, we are performing two ongoing experiments. The objective of the first experiment is to examine the effects of the pathogen on the competitive ability of yellow starthistle (YST). Another objective is to gain insights into the nature of the competition between YST and the common rangeland annual grass wild oat (*Avena fatua*). Using a replacement series design, YST was planted in five proportions (100:0, 75:25, 50:50, 25:75, and 0:100) with wild oat. The objective of the second experiment is to test the interaction of the rust with two common insect bio-control agents (*Eustenopus villosus* and *Chaetorellia succinea*) at three YST densities (5, 16, and 64 plants per meter^2). In both experiments in 2006, infection rates were monitored and recorded over the field season, chlorophyll rates were measured, and dried biomass and seedheads per 150 grams biomass were taken. Insect attack rates are also being determined on a subset of seedheads. Contrary to what was originally believed, under ideal growing conditions, the rust spreads rapidly in the first season after inoculation. Although there was some contamination of our uninoculated control plants, the untreated controls were less infected than the treatments. Initial regression analyses suggest that the rust may not have an effect on the overall biomass or seedhead production of YST, under normal conditions. There is potentially a negative correlation between increased rust infection, and total leaf chlorophyll levels. Initial relative crowding coefficient values indicate that the rust decreased the competitive ability of yellow starthistle with wild oat by about 60%. Increased proportions of wild oat seem to have a negative impact on YST, regardless of rust infection. We hope to gain a greater understanding of the effects of the rust on YST, as well as the nature of the competition between YST and wild oat, with the data from a second field season.

AMINOPYRALID (Milestone™): NEW RESEARCH RESULTS OF EFFICACY ON NOXIOUS AND INVASIVE WEEDS. Joseph M. DiTomaso and Carl Bell, University of California, Davis, CA; Celestine A. Duncan, Weed Management Services, Helena, MT; Robert G. Wilson, University of Nebraska, Scottsbluff, NE; Joe Yenish, Washington State University, Pullman, WA; Mike Moechnig, South Dakota State University; Mary B. Halstvedt, Dean D. Gaiser, Robert A. Masters, Vanelle F. Peterson*, Byron B. Sleugh, and Randy L. Smith, Dow AgroSciences LLC, Indianapolis, IN.

Aminopyralid (Milestone™) is a new herbicide developed by Dow AgroSciences for managing noxious and invasive plant in range and pasture, rights-of-way, and other non-cropland sites that controls over 50 susceptible herbaceous broadleaf plants including yellow starthistle (*Centaurea solstitialis*), Canada thistle (*Cirsium arvense*), and spotted knapweed (*Centaurea maculosa*). Multiple research trials in California, Idaho, Montana, Nebraska, Oregon, and Washington were initiated in 2005 and 2006 on non-cropland sites to assess the efficacy of aminopyralid on weeds not previously tested. Experiments were conducted to assess efficacy of aminopyralid at 0.75, 1.25, and 1.75 oz/A (3, 5, and 7 fl oz product/A of Milestone) applied with CO2-pressurized backpack sprayers in spray volumes of 15 to 20 GPA. Percent visual control was taken at 73 to 378 days after application. Common mullein (*Verbascum thapsus*), Scotch thistle (*Onopordum acanthium*), purple starthistle (*Centaurea calcitrapa*), rush skeletonweed (*Chondrilla juncea*), St. Johnswort (*Hypericum perforatum*), meadow knapweed (*Centaurea jacea*), tall buttercup (*Ranunculus acris*), and Italian (*Caduus pycnocephalus*), woolly distaff (*Carthamus lanatus*), and artichoke thistle (*Cynara cardunculus*) response to aminopyralid were assessed in the experiments. Milestone at 1.25 and 1.75 oz/A provided excellent control of woolly distaff thistle (92/100%), rush skeletonweed (92/95%), St. Johnswort (87/99%), and tall buttercup (100%) about 1 year application. Milestone at 1.75 oz/A provided excellent control of meadow knapweed (99%), artichoke thistle (90%), and Italian thistle (88%) 1 year after application. Seasonal data showed excellent control of purple starthistle (98/100%) at 0.75, 1.25, and 1.75 oz/A and mullein (85/96%) at 1.0 and 1.75 oz/A, respectively. Based on the efficacy data these weeds were added to the Milestone label in 2007.

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CONTROL OF BIRD VETCH (*VICIA CRACCA*) IN ALASKA. Steven S. Seefeldt*, Jeffery S. Conn, USDA-ARS, Fairbanks, AK; Brian E. Jackson, and Stephen D. Sparrow, University of Alaska Fairbanks, Fairbanks.

Bird vetch is a perennial Eurasian plant which, unlike many exotic weed species, can invade low fertility areas that have not been disturbed. It also is found in pastures, woodland, and tall forb communities. Bird vetch is expanding along Alaska roadsides, in urbanized areas, and in low density aspen and spruce stands. A replicated greenhouse study was conducted in 2005 and again in 2006 to determine efficacy of six herbicides for bird vetch seedling control. Bird vetch seedlings were tolerant of reduced rates of chlorsulfuron, and 2,4-DB; however, they were

completely controlled with clopyralid, dicamba plus diflufenzopyr, triclopyr, and 2,4-D at a 1/4 to an 1/8 of the full label rate. These results were used to develop a replicated field study in the summer of 2006. Clopyralid, triclopyr, and 2,4-D were applied at three rates (1, ½ and ¼ of the full label rate) and applied at two times in the growing season, when bird vetch was in early vegetative growth (June 30) and just before bird vetch flowering (July 24). All three herbicides were more effective when applied earlier compared to later, however only clopyralid provided acceptable control (>95%) when applied early at 105 and 53 g ai/ha. The results of this research will be used to develop methods for controlling bird vetch in Alaska.

WEED CONTROL IN THE DUBOIS CROWHEART WEED MANAGEMENT AREA. Robert Finley* Fremont County Weed & Pest Control District, Wyoming.

In the fall of 2001, steps were taken to establish a weed management area in the upper country of Fremont County Wyoming. Early participants in the effort were, the Shoshone National Forest, Dubois-Crowheart Conservation District and Fremont County Weed and Pest. The Dubois Crowheart Weed Management Area (DCWMA) soon added representatives from the Wyoming Game and Fish, Wyoming Department of Transportation, Bureau of Indian Affairs, Shoshone and Arapaho Tribes, Bureau of Land Management, and University of Wyoming Extension Service. All of these entities have signed a Memorandum of Understanding agreeing to work together toward the specified goals. Private landowners are invited to participate. The goal of the DCWMA is to improve weed control in the upper country by preventing the introduction of new weeds and rapidly eradicating any new infestations that are found. The efforts of these various entities over the last five seasons have shown promise for the concept of integrated weed management. Various methods of weed control have been used including chemical spraying, mechanical removal, biological control (with both insects and goats) as well as management changes along with all the other methods. Within this large framework, several smaller special projects have been implemented including public education, the Oxeye Daisy project on Horse Creek, and the Saltcedar project on Bull Lake. This poster is mainly a pictorial testimony of the work and progress in the DCWMA.

FALL APPLICATIONS OF RIMSULFURON IN RANGELANDS FOR THE CONTROL OF DOWNY BROME AND MEDUSAHEAD. Ronnie G. Turner*, Jerry R. Pitts, Michael T. Edwards, Norman D. McKinley, C. William Kral, Craig Alford, John D. Cantlon, DuPont Crop Protection, Wilmington, DE .

Downy brome and medusahead are non-native, winter annual grass species that are rapidly invading rangeland communities across the western United States. Tests to date with the low use rate, sulfonylurea herbicide, rimsulfuron, have shown excellent results in controlling downy brome and good activity on medusahead. The studies were established in rangeland sites using a randomized complete block test design containing a minimum of three replicates. Plots sizes ranged from 10 by 30 feet to 10 by 50 feet and the application timings for these tests occurred from late October to early December. In the test site evaluations made the following spring, a rate response was observed in the rimsulfuron alone treatments where the higher rates tested of 0.75 oz ai/A and 1 oz ai/A plus a surfactant were providing an average of 98% control of downy

brome. In a smaller number of medusahead trials that were established in the same time frame, rimsulfuron alone at 1 oz ai/A plus a surfactant was providing an average of 90% control. These studies indicate that late fall applications of rimsulfuron could be an excellent tool to help manage these two invasive weed pests and aid in restoring infested rangeland to productive use.

EVALUATION OF HERBICIDE TIMING IN CUCUMBER. Timothy W. Miller and Carl R. Libbey*, Washington State University, Mount Vernon.

Three plantings of pickling cucumber (cv. 'Calypso') were seeded at approximately one month intervals in the spring and summer of 2005 and 2006. Herbicides evaluated were halosulfuron, ethalfluralin, s-metolachlor, dimethenamid-P, clomazone, and bentazon. Herbicides were applied preemergence and postemergence at similar timings for each planting. Clomazone at 0.28 kg ai/ha was applied preemergence to two of the four rows in each plot to determine the impact of additional herbicide to the broadcast treatments. Evaluations of all treatments revealed that, the additional clomazone slightly increased early crop injury in 2005 but did not statistically affect crop density or fresh crop biomass in 2006. This enhanced weed control improved cucumber growth (vines and fruit) 1.1 kg/plot and resulted in an 8-fold decrease in weed biomass in 2005. Cucumber planting date significantly affected all measured parameters. Crop density and biomass was lowest in early plantings, while density and biomass was maximized in the middle and late plantings. In 2005, weight of cucumber vines and fruit was improved by additional treatment with clomazone in the early and late plantings, but they were not statistically significant in any of the 2006 plantings. Weed biomass was highest in the early plantings for both years. Additional treatment with clomazone resulted in improved weed control and reduced weed biomass in the early plantings, but only slightly in the middle and late plantings in 2005 and 2006, indicating that either clomazone was more effective earlier or that weeds were far less a problem in later plantings.

IMPROVING WEED MANAGEMENT IN BLOOD TURNIPS: WE HAVEN'T MISSED A BEET. Ed Peachey*, Oregon State University, Corvallis, OR.

Table beets are grown on approximately 1,500 acres in the Willamette Valley of western Oregon. Beets may produce as much as 25-30 ton/A, but because of poor weed control with currently registered herbicides, beet yield is more typically 18-23 t/A. Cycloate and pyrazon are the two primary herbicides labeled for use in beets, cost $90/A when broadcast, and do not provide adequate weed control in all situations. The objectives of this study were to evaluate s-metolachlor for use in table beets and develop use patterns with other herbicides. Two weed control experiments were located on-farm and two crop tolerance trials were located at the experiment station in 2004 and 2005. S-metolachlor applied to the soil at 0.64 lbs ai/A after table beets were planted (PES) reduced early-season beet growth slightly when used in combination with cycloate or pyrazon, but substantially reduced weed density and improved yield. In experiments where excessive irrigation was applied to simulate wet conditions

sometimes encountered in the spring, beet growth was reduced shortly after emergence at rates of 0.64 lbs ai/A and above, did not reduce yield, but caused larger beets. Alternative treatments with phenmedipham, clopyralid, and triflusulfuron applied POST sequential after s-metolachlor increased both visual injury symptoms and reduced growth. In most cases, the beets recovered and yielded as well as the check. Exceptions were s-metolachlor PPS followed by dimethenamid-P (EPOST), which had good weed control (95%) but only yielded 16.9 tons/A.

PESTICIDE CLEARANCES FOR SMALL-ACREAGE CROPS IN THE U.S. Dudley T. Smith*, Texas A&M University, College Station, and Juan Anciso, Texas Cooperative Extension, Weslaco.

Major U.S. crops, such as wheat, corn, cotton, peanut, and soybeans, provide ample economic incentives for pesticide development in the U.S. However, far fewer pesticides are registered for small-acreage crops, such as millets, peas, pop corn, or sugar beets, due to high regulatory costs and market risks. Although numerous weed, insect, and disease pests attack speciality agronomic and horticultural crops, these crops provide 40% or more of all crop revenues in 58% of the states in the U.S. The IR-4 program provides mechanisms for pesticide clearances for minor crops through partnerships with US EPA, land grant universities, USDA/ARS, pesticide registrants, and grower organizations. Pesticide Clearance Requests are first prepared by grower groups, land grant personnel, or others, and are submitted to the IR-4 headquarters office. Annual priorities are established, GLP protocols are developed and field residue samples are obtained. Once residue data are generated, IR-4 prepares petitions to expand labels of new and existing pesticides. For greater efficiency, US EPA and IR-4 have organized 800 crops into 20 Crop Groups, based on botanical similarities and edible plant parts, to enhance the minor crop registration process. Representative crops are designated within each Group and act as surrogates for extending a label to other crops in the Group. For example, carrot and potato serve as representatives for Group 1 (Root and Tuber Crops) so tolerance data can be extended to other crops, such as table beets and 32 other crops. Crop Groupings provide for more efficient registrations, benefitting growers and consumers. Since 1963, more than 7,300 tolerances have resulted from IR-4 work, representing 42% of all tolerances granted by EPA. In contrast, since Crop Groupings are not practiced in the European Union, far fewer pesticides are available for growers.

KSU12800 A NEW HERBICIDE FOR VINEYARDS AND ORCHARDS. Sorkel Kadir, Kassim Al-Khatib, Kansas State University, Manhattan; Rick A. Boydston, USDA/ARS, Prosser; Tom Lanini, University of California, Davis; and Timothy W. Miller, Washington State University, Mount Vernon.

KSU12800 is a new heteroaryl azole herbicide that controls selected broadleaf and grass weeds. It controls several important weeds including pigweeds, lambsquarters, hairy nightshade, mustards, clovers, and thistles. In addition, KSU12800 is active against

several grasses. KSU12800 has soil and foliage activities. KSU12800 is a hydrophobic molecule that has limited movement in the soil, therefore it may be used to control weeds in perennial crops, including grapevine and fruit trees. Six field studies were conducted to evaluate the efficacy of KSU12800 in vineyards and apple orchards in 2006. Grapevine experiments were conducted at: Eudora and Wamego, Kansas; Prosser, Washington; and Davis, California. Apple orchard experiments were conducted at Prosser and Mount Vernon, Washington. At all sites, KSU12800 was applied early in the spring before bud break in grapes and apple trees. KSU12800 was applied at 255 and 340 g ai/A. In addition, standard herbicide treatment was included at each site. No injury symptoms were observed on apple trees or grapevines treated with KSU12800. However, slight injury to grape suckers from the base of a vine was observed. Injury symptoms were in the form of bleaching of the leaves. No injury symptom was observed in grape shoots that emerged after the treatment, indicating that KSU12800 did not move into the vines. Weed control with KSU12800 at all sites was greater than the standard herbicide treatment. At Davis site, general weed control at the end of the growing season was 99 and 61% with KSU12800 and oryzalin, respectively. At Wamego and Eudora sites, general weed control was greater than 90% with KSU12800 compared to 40 and 50% with oryzalin at Wamego and Eudora, respectively. At Prosser site, broadleaf weed control was near perfect with KSU12800 and was not different from the standard herbicide treatment of Flumioxazin. This research showed that KSU12800 is safe on grapevines and apple trees and provides excellent season-long weed control.

THE ROLE OF PREEMERGENCE AND POSTEMERGENCE HERBICIDES FOR WEED CONTROL IN ONION. Corey V. Ransom*, Utah State University, Logan; and Joey K. Ishida, Oregon State University Malheur Experiment Station, Ontario.

Because most POST herbicides cannot be applied until onions have two true-leaves, PRE herbicide applications can be critical for limiting weed growth prior to when postemergence herbicides can be applied. A trial was conducted at the Oregon State University, Malheur Experiment Station under furrow irrigation to evaluate the relative contribution of PRE and POST herbicide treatments to weed control and onion yield. Onions were grown at 9.4-cm spacing in double rows on 56-cm beds. Plots were 4 rows wide and 8.2 m long and arranged in a split-plot design with 4 replicates. PRE treatments included no herbicide, glyphosate, and glyphosate plus pendimethalin. Another treatment applied prior to the sequential POST treatments was glyphosate applied PRE followed by pendimethalin and dimethenamid-p applied POST to one-leaf onions. Sequential POST treatments included bromoxynil plus oxyfluorfen or bromoxynil plus flumioxazin applied to two- and four-leaf onions. All plots were treated with oxyfluorfen when onions had six leaves. None of the PRE treatments caused onion injury. The treatments with bromoxynil plus flumioxazin applied to four-leaf onions caused more injury than treatments where bromoxynil plus flumioxazin was applied to two-leaf onions or where bromoxynil plus oxyfluorfen were applied sequentially. Significant PRE by POST herbicide interactions were present for pigweed, hairy nightshade, and kochia control. Depending on what PRE treatments were applied, POST treatments differed in control of these species. Only PRE herbicide treatments were significant for common lambsquarters and barnyardgrass control. All PRE treatments increased control of both species compared to no PRE herbicide. Treatments containing pendimethalin had the highest common lambsquarters and barnyardgrass control.

Onion yields were significantly different among PRE treatments and those containing pendimethalin produced among the highest yields. Glyphosate plus pendimethalin PRE had more large sized bulbs compared to glyphosate PRE followed by pendimethalin plus dimethenamid-P applied to one-leaf onions. It is possible that this yield increase resulted from the prevention of early weed competition by applying the pendimethalin PRE. This research demonstrates that the effectiveness of POST herbicide programs is strongly related to early season weed control. Although in several instances weed control was similar between different treatments at the conclusion of the season, yields were reduced in treatments where weeds were allowed to compete early. The use of an effective PRE herbicide may provide the best opportunity for effectively controlling weeds with POST herbicides and for maximizing onion yield.

EVALUATION OF HERBICIDES APPLIED TO DORMANT RHUBARB FOR THREE GROWING SEASONS, 2004, 2005 AND 2006. Gina Koskela* and Robert B. McReynolds, North Willamette Research & Extension Center, Oregon State University, Aurora.

Due to the diminishing effectiveness of the herbicides currently labeled for use in rhubarb, this trial was initiated to evaluate the efficacy and phytotoxicity of alternative herbicides. The experiments were conducted over a three year period on rhubarb established in 2003 at the North Willamette Research & Extension Center near Aurora, OR. Treatments included clomazone, dichlobenil, dimethenamid-p, halosulfuron, linuron, oxyfluorfen, pronamide+napropamide, and the newly registered metolachlor were included for comparison. Weeds present in the plots included annual bluegrass, common groundsel, common chickweed, dandelion, white clover, common vetch and red deadnettle. Though not significant, yield for the halosulfuorn+sulfentrazone treatment was higher than the hand-weeded treatment and all other treatments for the years 2004 and 2005. A companion trial was established in a grower field on January 10, 2005 where halosulfuron and sulfentrazone were applied separately and compared to pronamide+napropamide (the grower standard) and a hand-weeded control. The results from that trial found no significant yield differences among treatments. In 2006 there was an overall yield reduction across all treatments including the untreated control. The oxyfluorfen, sulfentrazone and halosulfuron treatments resulted in the least yield reduction (5.9, 6.6 and 9.0% respectively). While the untreated control, metolachlor and clomazone treatments resulted in the greatest yield reduction (39.0, 31.5 and 24.0% respectively).

INVESTIGATION INTO PRICKLY LETTUCE TOLERANCE OF 2,4-D AND GLYPHOSATE. Maria Lockard*, Ian Burke, and Joseph P. Yenish, Washington State University, Pullman.

Prickly lettuce is an increasingly common weed in the Pacific Northwest wheat production regions. Growers typically rely on a mixture of glyphosate and 2,4-D for nonselective post-

emergence control. A population of prickly lettuce plants were observed to survive two treatments of a 2,4-D glyphosate mixture in a field near Pullman, WA. Two purportedly tolerant biotypes (OTS8 and OTS17) were treated with 103 g ae/ha of 2,4-D amine, applied as Formula 40® (mixture of triisopropanolamine salt and a dimethylamine salt of 2,4-D). Of the two biotypes evaluated, OTS8 produced significant regrowth by the time biomass was harvested, three weeks after treatment (WAT). Thus a dose response experiment was conducted using OTS8 and a known susceptible biotype. Nine rates of 2,4-D amine were applied to greenhouse-grown prickly lettuce at the four to six leaf stage. Rates were as follow: 7, 13, 26, 52, 108, 215, 430, 860, 1,720 g ae/ha, and a nontreated check for comparison. The I_{50} for each biotype was determined using a three parameter logistic dose response equation regressed against percent dry weight and the regrowth frequency. Regrowth frequency is calculated as the number of plants with non-symptomatic regrowth tissue divided by the total number of treated plants. I_{50} values for the susceptible and tolerant prickly lettuce were 44 and 290 g ae/ha, respectively, using dry weight. When calculated with the regrowth frequency, I_{50} values were respectively, 25 and 695 g ae/ha.

THREE YEAR SUMMARY OF SORGHUM TOLERANCE TO SOIL APPLIED MESOTRIONE IN KANSAS. John C. Frihauf*, Phillip W. Stahlman, David L. Regehr, Mark M. Claassen, Larry D. Maddux, Curtis R. Thompson, Alan J. Schlegel, and James M. Lee, Kansas State University, Manhattan.

Field experiments were conducted at six sites in Kansas in 2003, 2004, and 2005 (12 site-year environments) to evaluate the response of grain sorghum to premixtures of mesotrione & S-metolachlor & atrazine, mesotrione & S-metolachlor, and S-metolachlor & atrazine applied early pre-plant (EPP), late preplant (LPP), and preemergence (PRE) at one (1X) and two (2X) times recommended field use rates. Analysis of data with sites and years as random effects indicated a significant rate by timing interaction for crop injury averaged across 12 environments. Injury was greatest (8%) with 2X rates applied at the PRE timing, averaged across herbicides. Grain sorghum yield was not impacted by herbicides, rates, or timings. The data were reanalyzed with sites and years as fixed effects to make comparisons among experiments. Little or no injury was observed for any treatment in 4 of 12 experiments, or when herbicides were applied EPP or LPP in most other experiments. Mesotrione & S-metolachlor & atrazine and mesotrione & S-metolachlor applied PRE at 2X rates caused the greatest injury in three experiments, and PRE application of 2X rates averaged over herbicides resulted in the greatest injury in three other experiments. Grain sorghum yield was not reduced by any treatment variable in four experiments. In the remaining experiments, yield was affected most often by timings or rates. Injury and yield data generally indicate mesotrione & S-metolachor & atrazine and mesotrione & S-metolachlor are just as safe as S-metolachlor & atrazine when applied LPP or EPP at 1X or 2X rates.

PINOXADEN RESISTANCE IN ITALIAN RYEGRASS IN OREGON. Alejandro Perez-Jones, Chuck Cole, Bill Brewster, and Carol Mallory-Smith, Department of Crop and Soil Science, Oregon State University, Corvallis, OR.

Italian ryegrass (*Lolium multiflorum*) is a troublesome weed in wheat and barley crops in the U.S. Pacific Northwest. For several years the ACCase-inhibiting herbicides, aryloxyphenoxypropionates (APP) and cyclohexanediones (CHD), were successfully used to control Italian ryegrass; however, after repeated use of these herbicides, several populations have evolved resistance to these herbicides. Pinoxaden, a novel herbicide from the chemical class phenylpyrazolin, also inhibits ACCase and is used to control Italian ryegrass in wheat and barley. Two field trials were conducted in the Willamette Valley, OR, to assess the efficacy of pinoxaden on Italian ryegrass populations known to be resistant to ACCase-inhibiting herbicides. At Site 1, Italian ryegrass control with pinoxaden at 113 days after treatment (DAT) was 43%. At Site 2, Italian ryegrass control at 128 DAT was 42%. Seed from plants that survived the herbicide treatments were collected in order to conduct a dose-response bioassay in the greenhouse. The dose-response bioassay further confirmed pinoxaden resistance in both Italian ryegrass populations, and showed a higher level of resistance for the population from Site 2. DNA sequence analysis of the ACCase gene showed that the Italian ryegrass population from Site 2 carries an isoleucine 2041 to asparagine amino acid substitution, which has been shown to confer resistance to some ACCase-inhibiting herbicides. These results, from two Italian ryegrass populations that were not previously exposed to pinoxaden, confirm the first observed resistance to this herbicide in Oregon.

GENE ESCAPE FROM GLYPHOSATE-RESISTANT CREEPING BENTGRASS FIELDS: PAST, PRESENT, AND FUTURE. Maria L. Zapiola*, Carol A. Mallory-Smith, Jay H. Thompson, Lucas J. Rue, Oregon State University, Corvallis; Claudia K. Campbell, and Marvin D. Butler, Oregon State University, Madras.

Creeping bentgrass (*Agrostis stolonifera* L.) is a perennial outcrossing grass that also propagates vegetatively. Although transgenic glyphosate-resistant (RR) creeping bentgrass is under USDA-APHIS regulated status, 160 ha were planted with RR creeping bentgrass in 2002 within a seed production control area near Madras, OR. Surveys were conducted for four years starting in 2003 to assess the presence and distribution of RR creeping bentgrass plants and its relatives in the area, and to evaluate the effectiveness of mitigation methods used to remove escaped plants. Seeds collected from susceptible plants were screened for glyphosate resistance in the greenhouse. While production practices were strictly regulated in 2002-03, evidence of gene flow by pollen was found in all four years. In 2003, no RR plants were found outside the RR creeping bentgrass fields. However, of the approximately 16,000 seedlings screened, 0.36% were RR. In 2004, 48% of the 285 *A. stolonifera* plants and 0.033% of the approximately 207,000 seedlings tested were resistant. In 2005, 54% of the 973 *A. stolonifera* plants and 0.048% of the 33,135 seedlings screened were RR. In 2006, 62% of the 584 *A. stolonifera* plants tested were RR. Of the 49,351 seedlings screened, 0.012% were resistant. None of the redtop (*A. gigantea*) plants tested in situ was RR in any year. These results provide evidence that: 1) the RR gene escaped and is established in the area; 2) in addition to gene flow by seeds, the gene moved by pollen; 3) mitigation practices need to be improved.

DIFFERENTIAL RESPONSE OF SORGHUM GENOTYPES TO FOLIAR APPLIED MESOTRIONE. Mary Joy M. Abit*, Kassim Al-Khatib, David L. Regehr, Mitchell R. Tuinstra, Mark M. Claassen, Kansas State University, Manhattan; Phillip W. Stahlman, Kansas State University Agricultural Research Center-Hays; Barney Gordon, Kansas State University North Central and Irrigation Experiment Fields-Belleville; and Randall S. Currie, Kansas State University Southwest Research Extension Center-Garden City.

Greenhouse and field experiments were conducted to evaluate the differential response of sorghum genotypes to mesotrione applied postemergence. 'Dekalb DKS35-70', 'Sorg Part KS 310', 'Asgrow Seneca', 'Dyna-Gro 764B' and 'Frontier F222E' were the most tolerant whereas 'Triumph TR 438', 'Pioneer 85G01', 'Pioneer 84G62', 'Dekalb DKS42-20' and 'Sorg Part K73-J6' were the most susceptible genotypes under greenhouse conditions. Mesotrione injury ratings were 7 and 27% in the most tolerant and susceptible genotypes, respectively, when plants were treated with 105 g ai/ha mesotrione. Mesotrione dose response studies were conducted in weed-free plots with 4 sorghum genotypes. Mesotrione was applied at the rates of 53, 105, 157 and 211 g ai/ha in combination with 280 g ai/ha of atrazine. All rates of mesotrione caused visual injury to sorghum at 1 and 2 weeks after treatment (WAT). At 1 WAT, injury ratings were 8, 13, 16, and 19% in 'Asgrow Seneca', 'NC+ 7R83', 'Pioneer 84G62' and 'Pioneer 85G01', respectively. However, sorghum plants partially recovered from mesotrione injury at 4 WAT and plants appeared normal at the end of the growing season. In addition, sorghum yields were not reduced by mesotrione treatments. Correlation coefficient analysis indicated that mesotrione observed injury symptoms at 1 and 4 WAT have no significant effects on the yield of sorghum ($r = -0.002$ and 0.195, respectively).

EVALUATION OF ORGANIC WEED CONTROL METHODS IN NORTHWESTERN WASHINGTON. Tyler J. Breum, Christiane Steen, and Timothy W. Miller, Washington State University.

Weed management is a major concern for organic farmers, especially during transition; however, research in the development and evaluation of weed control techniques in organic cropping systems is limited. In fall of 2003, a field trial was initiated at the Washington State University Mount Vernon Northwest Washington Research and Extension Center to evaluate the effects of cover crops, organic herbicides, and flaming on two different three-year rotations of potato, spinach seed, cucumber and broccoli. Common chickweed was the major winter weed species, accounting for 90% of the total weed biomass during the first winter and 75% during the second. Mid-summer weed growth was greater during 2005 and 2006 than 2004, with common chickweed, shepherd's-purse, and henbit constituting the majority of the weeds. An infrared flamer provided the most effective postemergence weed control in this trial in all tested crops, although spinach and broccoli foliage were damaged. In certain instances, preemergence flaming resulted in a similar level of weed biomass as in hand-weeded check plots. Vinegar (20% acetic acid) and clove oil (15% rate of Matran 2) in shielded applications beside the crop row were less effective than flaming. Broccoli provided the poorest weed suppression in two of three years, followed by spinach/cucumber and potato in 2004 and by potato, spinach, and

cucumber in 2005. In 2006, spinach seed was the poorest competitor with weeds, followed by potato and cucumber/broccoli.

MANAGING IMAZAMOX-RESISTANT WHEAT IN A WINTER WHEAT-FALLOW ROTATION FOR CONTROL OF JOINTED GOATGRASS. Drew J. Lyon*, University of Nebraska, Scottsbluff; Stephen D. Miller and Andrew R. Kniss, University of Wyoming, Laramie.

A 7-yr study was initiated in a field with a heavy existing infestation of jointed goatgrass near Lingle, WY in September 2000. The objective of the study was to determine the best use of the Clearfield wheat system for control of jointed goatgrass in a winter wheat-fallow rotation. During the 2000-2001 winter wheat growing season, there were just two treatments: a Clearfield wheat cultivar 'Above' and a standard cultivar 'Buckskin', each replicated four times. These same treatments were replicated the following year in an adjacent field. During the next 2 yr of the study, the original two treatments were split into four treatments, and during the last 2 yr of the experiment, there were eight treatments consisting of various temporal combinations of the Clearfield and standard wheat varieties grown in a winter wheat-fallow rotation. The Clearfield wheat variety was treated each spring with imazamox at a rate of 0.5 oz ai/A. Clearfield wheat technology was effective at reducing jointed goatgrass densities in winter wheat compared to the use of standard wheat; however, Above was not well adapted to the field site. Buckskin yielded more than Above in 3 of 6 yr even though Buckskin plots usually had much greater jointed goatgrass densities. Jointed goatgrass densities were frequently reduced in standard and Clearfield wheat that followed Clearfield wheat in a winter wheat-fallow rotation. The possible development of an imazamox-resistant jointed goatgrass population in the continuous Clearfield wheat treatment, suggests that the frequent use of Clearfield technology in a winter wheat-fallow rotation may increase the risk for the development of imazamox resistance in jointed goatgrass. Clearfield wheat technology should not be used more than twice every six years in a winter wheat-fallow system.

CONTROL OF ACCASE RESISTANT ITALIAN RYEGRASS IN WINTER WHEAT WITH ALTERNATE MODE OF ACTION HERBICIDES. Traci Rauch* and Donn Thill, University of Idaho, Moscow.

Italian ryegrass, a highly competitive weed that can reduce wheat yields significantly, previously was controlled with some ACCase herbicides, such as clodinafop (Group 1). However, ACCase resistant Italian ryegrass has become widespread in northern Idaho. Six site by year studies were conducted from 2003 to 2005 in winter wheat fields infested with ACCase resistant Italian ryegrass populations to determine herbicide efficacy and winter wheat response with alternate mode of action herbicides. Herbicides included flufenacet, flufenacet/metribuzin, triasulfuron, chlorsulfuron/metsulfuron, flucarbazone, and mesosulfuron. When data were combined over experiments, flufenacet combined with flucarbazone or mesosulfuron and mesosulfuron alone injured winter wheat 5 to 6%. Preemergence herbicides (flufenacet, flufenacet/metribuzin, triasulfuron, and chlorsulfuron /metribuzin) applied alone controlled Italian ryegrass 56 to 66%. Italian ryegrass control with preemergence plus preemergence

herbicide combinations ranged from 72 to 82%. Flucarbazone alone or combined with flufenacet controlled Italian ryegrass 62 and 77%, respectively. Italian ryegrass control was best with mesosulfuron alone or combined with flufenacet (93 and 95%). Grain yield did not differ among treatments but tended to be lower in the untreated check.

CONTROL OF GLYPHOSATE RESISTANT CREEPING BENTGRASS IN KENTUCKY BLUEGRASS SEED PRODUCTION. Marvin D. Butler* and Claudia K. Campbell, Oregon State University, Central Oregon Agricultural Research Center, Madras, OR.

The Oregon Department of Agriculture established a control area for seed production of glyphosate resistant creeping bentgrass (*Agrostis stolonifera*) north of Madras, Oregon. Four hundred acres were planted in 2002, harvested in 2003 and removed prior to seed set in the spring of 2004. Fall-applied herbicides were evaluated for control of potential creeping bentgrass escapes in Kentucky bluegrass (*Poa pratensis*) seed fields during the 2003-2004 and 2004-2005 seasons. This project was conducted in commercial plantings of glyphosate resistant creeping bentgrass and Kentucky bluegrass. Glyphosate resistant creeping bentgrass plots were evaluated for control of seedling and established plants and the Kentucky bluegrass plots was evaluated for crop injury and reduction in seed set. During the 2003-2004 season split applications of primisulfuron plus terbacil and diuron followed by diuron plus primisulfuron provided the greatest control of glyphosate resistant creeping bentgrass. Diuron followed by diuron plus primisulfuron provided greater crop safety for Kentucky bluegrass. In 2004-2005 mesotrione alone and in combination with diuron plus terbacil provided the greatest control of glyphosate resistant creeping bentgrass.

NEW RECORDS FOR POWDERY MILDEWS ON WEEDY PLANTS OF THE PACIFIC NORTHWEST. Frank M. Dugan*, USDA-ARS, Washington State University, Pullman, and Dean A. Glawe, University of Washington, Seattle.

Erysiphye polygoni on curly dock, a record previously documented in California, is reported for the first time in the Pacific Northwest. *Podosphaera* (*Sphaerotheca*) *fusca* is reported in the Pacific Northwest for the first time on smooth dandelion, a host record documented previously in Europe. New host records for Idaho are *Golovinomyces sordidus* on broadleaf plantain, *Erysiphe convolvuli* on field bindweed, and *Podosphaera* (*Sphaerotheca*) *aphanis* on big-leaf avens (*Geum macrophyllum* Willd., weedy in the greater Seattle area). *Golovinomyces* (*Erysiphe*) *cichoracearum*, reported for the first time in Washington State on Canada thistle, was colonized heavily by the mycoparasite *Ampelomyces quisqualis*. Very broad host ranges, encompassing plants of agronomic significance, have been recorded for *E. polygoni*, *P. fusca*, and *G. cichoracearum*. Each species exhibits a reduced host range under modern taxonomic concepts, but the range of *G. cichoracearum* still includes multiple genera of important crops and weedy plants, and *P. aphanis* occurs on strawberry.

A NEW PROJECT TO ASSESS THE LONG-TERM VIABILITY OF GLYPHOSATE IN GLYPHOSATE-RESISTANT CROPPING SYSTEMS – PLOT LAYOUT, FIELD MAPPING, AND MEASURING WEED DENSITY. Lori A. Howlett*, Patricia M. Nielsen, Robert G. Wilson, University of Nebraska, Scottsbluff, NE 69361; Micheal D. K. Owen, Iowa State University, Ames, IA 50011; David R. Shaw, Mississippi State University, Mississippi State, MS 39762-9555; Stephen C. Weller, Purdue University, West Lafayette, IN 47907; John W. Wilcut, North Carolina State University, Raleigh, NC 27695-7620; and Bryan G. Young, Southern Illinois University, Carbondale, IL 62901.

Weed scientists from six states, Illinois, Indiana, Iowa, Mississippi, Nebraska, and North Carolina are conducting similar studies over a four-year period at on-farm sites to determine the viability of various cropping management strategies for the preservation of Roundup Ready programs as an effective tool for weed control. This research initially employed a grower survey of approximately 200 growers in each state to determine trends, and based on the survey results a subset of 28 to 30 of the growers surveyed in each state were contacted to establish alternative management strategies on their farms over the next four years. Shifts in weed populations, changes in weed species present, and levels of weed control will be monitored over this period with various combinations of cropping, tillage, and herbicide rotation systems. In Nebraska 28 growers located across the state who had been planting a Roundup Ready crop the past three years were included in the four year study. Three Roundup Ready cropping systems were identified; continuous Roundup Ready corn, Roundup Ready soybeans followed the next year by Roundup Ready corn, or Roundup Ready soybeans followed the next year by conventional corn. Each grower's field was divided into two 20 acre subsets. In one subset the grower continued his glyphosate based weed management program while in the second subset the university researcher incorporated an alternative glyphosate weed management program to address potential weed shifts or problem weeds observed in the field. Weed density was measured in ½ m^2 quadrants in 20 GPS marked locations in each of the two subfields. A Hewlett-Packard iPAQ handheld pocket PC equipped with a GPS receiver and SST programming which has field mapping capabilities was utilized for field setup, weed mapping and data collection. Weed density was measured before tillage in early spring, after crop emergence, two weeks following the last postemergence herbicide treatment, and at crop harvest in the fall. Crop yields and crop production inputs were recorded for each segment of the field.

A RAPID ASSAY TO DETECT ENHANCED ATRAZINE DEGRADATION IN SOIL. Dale Shaner*, USDA-ARS, Fort Collins, CO Brien Henry, USDA-ARS, Akron, CO Brad Hanson, USDA-ARS, Parlier, CO Jason Krutz, USDA-ARS, Stoneville, MS.

Enhanced atrazine degradation has been documented in soil from fields that had been treated with atrazine for 5 or more years resulting in loss of residual weed control. A rapid assay was developed to screen soils for enhanced atrazine degradation. Field moist soil was collected and stored at 4 C until analyzed. In the assay 50 g of soil is placed in a 125-250 mL capped jar, spiked with 7.5 mL of 5 ppm atrazine in water and incubated at room temperature (24 C). The atrazine is extracted from the soil with a simple water extraction and analyzed via HPLC. Soils

were collected from fields with different histories of atrazine use from Illinois, Colorado, California, and Mississippi. The soils ranged from fine silt loams to sands. The half lives of atrazine from fields with long histories of atrazine use were less than 1 d whereas the half life was between 8 and 11.5 d in soils with no history of atrazine use. Field tests confirmed the rapid dissipation of atrazine in soils which the assay indicated would quickly degrade the herbicide. The assay was simple, required minimal equipment and used no organic solvents. It should be useful for screening fields for enhanced atrazine degradation.

WEED MANAGEMENT IN HERBICIDE-RESISTANT SUNFLOWER. Gregory Endres* and Paul Hendrickson, North Dakota State University, Carrington.

Two field trials were conducted in 2006 at Carrington, North Dakota to examine weed control in imazamox-resistant and tribenuron-tolerant sunflower. Experimental design was a randomized complete block with three replicates. The trials were conducted in a conventional-till system on a loam soil with 6.8 pH and 3.1% organic matter. Preplant (PP) treatments were applied on May 24. Rainfall totaled 0.6 inches during May 24 to 31. Mycogen NuSun '8N429CL' (imazamox resistant) and Pioneer 'XF3312' (tribenuron tolerant) sunflower were planted in 30-inch rows on May 31. POST treatments were applied on June 29 to V6- to V8-stage sunflower, 0.5- to 6-inch tall annual broadleaf weeds, and seedling- to bud-stage Canada thistle. In the imazamox-resistant sunflower trial, PP pendimethalin at 1 lb/A, sulfentrazone at 0.094 lb/A, and pendimethalin at 0.5 lb/A plus sulfentrazone at 0.047 lb/A followed by POST imazamox at 0.031 lb/A plus NIS at 0.25% and UAN at 2.5% v/v provided 74 to 82% control of common lambsquarters and 95 to 98% control of pigweed species when visually evaluated 8 and 11 weeks after treatment (WAT). POST imazamox provided 64 to 69% control of common lambsquarters while pigweed control was 91 to 92%. Sunflower seed yield was highest with soil-applied herbicides followed by imazamox, ranging from 1100 to 1270 lb/A. Yield was reduced to 400 to 495 lb/A with POST imazamox, due to delay in controlling weeds in combination with crop stress from drought. In the tribenuron-tolerant sunflower trial, control of hairy nightshade and pigweed were excellent 12 WAT with PP sulfentrazone at 0.141 lb/A followed by POST tribenuron at 0.012 lb/A plus MSO at 24 fl oz/A. Tribenuron at 0.024 lb/A generally did not improve weed control compared to the lower rate. Canada thistle growth was suppressed (57 to 68% control) 8 WAT with tribenuron. Seed yield was similar among treatments, likely due to minimal crop injury and low weed density.

TRIBENURON TOLERANT SUNFLOWER PRODUCTION: SEED AND HERBICIDE SYSTEM UPDATE. Lawrence S. Tapia*, James D. Harbour and Craig Alford, Product Development Manager, Field Development Representative and Product Manager, DuPont Ag & Nutrition, Denver, CO, 80228.

Tribenuron-tolerant sunflowers were developed by Pioneer in the early 1990's by traditional plant breeding methods. A single, dominant gene confers resistance to tribenuron, and this gene has been incorporated into key elite germplasm. Field research was conducted in KS, TX, SD, ND, NE, CO, and IL from 2002 to 2006 to determine efficacy, crop response and yield comparisons when tribenuron was applied to 2-leaf (V2), 8-leaf (V8), and post-bud (R1)

tribenuron-tolerant sunflower. Standard small-plot research techniques were used at all the research locations each year. Tribenuron was applied, at 0.125, 0.1875, 0.25, 0.5 or 1.0 oz ai/A to either V2, V8 or R1 tribenuron-toltrant sunflowers; and in some tests, each herbicide rate was applied sequentially to V2 then V8, growth-stage sunflower. Phytotoxicity at 7 DAT ranged from 0 to 22% and decreased to less than 5% at 40+ DAT. Phytotoxicity was generally greater when tribenuron was applied to V2 or V2 then V8 sunflower (2 – 22%) than V8 or R1 sunflower (<1%). However, tribenuron-tolerant sunflower injury decreased to 4% or less by 40+ DAT. Tribenuron controlled common lambsquarters and marshelder regardless of herbicide rate, herbicide program or application timing; however, common purslane was not controlled by tribenuron. Kochia, palmer amaranth, redroot pigweed, Russian thistle, and puncturevine were controlled best with tribenuron applied sequentially to V2 then V8 sunflowers. Field research was conducted to determine efficacy and tribenuron-tolerant sunflower response to various weed control programs currently used in the US. Pendimethalin, sonalan, and sulfentrazone were applied pre-emergence to tribenuron-tolerant sunflower, after which tribenuron (0.125 oz ai/A) was applied post-emergence to approximately V8 sunflower. Further, tribenuron (post-emergence) was applied without a pre-emergent herbicide for a POST-only herbicide treatment program. Phytotoxicity was less than 4% (14 DAA) regardless of herbicide treatment program. Weed control programs provided good-to-excellent control of Kochia, Russian thistle, and puncturevine. Yield comparisons of improved tribenuron-tolerant sunflower lines were conducted in 2006 with tribenuron at 1X, 2X and 4X use rates. There were no sunflower yield differences with tribenuron applied at 1X and 2X rates compared to a comparable sunflower herbicide and seed program. Tribenuron applied at 4X tribenuron use rates resulted in unacceptable yield loss for several lines tested.

THE RELATIONSHIP BETWEEN TEMPERATURE AND PLANT AGE ON SMALL BROOMRAPE GERMINATION STIMULANT PRODUCTION BY RED CLOVER (*TRIFOLIUM PRATENSE*) AND WHEAT (*TRITICUM AESTIVUM*). Salam A. Al-thahabi*, Carol A. Mallory-Smith, Oregon State University, Corvallis and Jed B. Colquhoun, University of Wisconsin, Madison.

The relationship between temperature and plant age on small broomrape germination stimulant production by red clover (*Trifolium pratense*) and wheat (*Triticum aestivum*) Salam A. Al-thahabi, Carol A. Mallory-Smith, and Jed B. Colquhoun ABSTRACT Small broomrape is a holoparasitic plant that lives on roots of red clover and several other host crop and weed species. Hosts and false hosts produce stimulants that induce small broomrape germination. Wheat (*Triticum aestivum*) has been shown to be a false host for small broomrape. The relationship between temperature and the germination stimulant production by red clover and wheat was studied in controlled-environment growth chambers at 10, 15, 20, and 25 C for either 4 or 8 wk. There were differences in germination when exudates from red clover grown for 8 wk were used. The greatest germination percentage was 35% with the 25 C treatment, while the lowest germination percentage was 2% with the 10 C treatment. Small broomrape germination stimulated by exudates from wheat grown for 4 wk differed by temperature. The greatest germination percentage was 24% with the 10 C treatment, and the least germination of 7% occurred with the 15 C treatment.

EFFECT OF SEEDING DATE, SEEDING RATE, AND FALL- OR SPRING-APPLIED HERBICIDES FOR WEED MANAGEMENT IN LENTIL. Brian M. Jenks*, Gary P. Willoughby, Shanna A. Mazurek, North Dakota State University, Minot; and Eric Eriksmoen, North Dakota State University, Hettinger.

A study was initiated in Fall 2005 at Minot and Hettinger, ND to determine whether higher seeding rates (spring seeding) will help offset lentil injury caused by fall- or spring-applied herbicides. In addition, seeding date was evaluated to determine the effect on crop competition, lentil yield, and seed quality. At Minot, lentil seeded at 18 plants/ft^2 provided greater crop density, height, and yield, but lower visual crop injury compared to 12 plants/ft^2 averaged across herbicide treatments and seeding dates. Diuron and sulfentrazone (4.5 fl oz) generally caused more injury compared to other treatments. Linuron and fall-applied sulfentrazone at 1.5 or 3 fl oz caused 15% injury or less. At Hettinger, increasing seeding rate resulted in greater crop density, but did not increase crop height or yield. None of the herbicide treatments caused more than 5% visual crop injury. Very dry conditions likely hindered crop growth and herbicide activity at Hettinger. At both locations, delaying seeding by two weeks resulted in lower yield and did not reduce crop injury. These results indicate that higher lentil seeding rates may help offset crop injury caused by herbicides and provide higher yields. However, more work is needed under different environmental conditions to verify that higher seeding rates can increase lentil yield and reduce the negative impact from herbicides.

FITNESS RESPONSE OF JOINTED GOATGRASS (*AEGILOPS CYLINDRICA*) CARYOPSES TO VERNALIZATION DURATION. Michael P. Quinn*, Carol Mallory-Smith, Oregon State University, Corvallis; and Lynn Fandrich, Colorado State University, Ft. Collins.

Recent studies have shown that length of vernalization and floret position within the spikelet can affect germination response and competitive ability of jointed goatgrass. Our objective was to determine how these factors influence seedling fitness variables. Greenhouse studies were conducted to assess germination rate and aboveground biomass production of secondary floret caryopses. Growth chamber experiments examined caryopses germination rate, and shoot and root growth form seedlings produced by caryopses from primary, secondary, and tertiary florets. Both experiments were conducted with after-ripened caryopses produced by mother plants with either a long or a short vernalization period, and were repeated. In the greenhouse, plants grown from caryopses produced by a longer vernalization period had both greater emergence and greater biomass than those with a shorter vernalization period. Growth chamber experiments revealed more rapid germination, greater dry weight, and more shoot and root development of seedlings from caryopses with a longer vernalization period. Floret position had the greatest impact on shoot length with the primary floret caryopses producing shorter roots. These results indicate that length of vernalization can have a significant impact on the fitness of seedlings emerging.

ANNUAL BROADLEAF WEED CONTROL WITH KIH-485 IN GLYPHOSATE-RESISTANT CORN. Steven R. King*, Montana State University - Southern Agricultural Research Center, Huntley.

Experiments were conducted in 2005 and 2006 in Montana to evaluate KIH-485 for the control of velvetleaf (*Abutilon theophrasti*), kochia (*Kochia scoparia*), and wild buckwheat (*Polygonum convolvulus*) in furrow-irrigated corn. KIH-485 was applied to glyphosate-resistant corn at three rates (166, 209, and 250 g ai/ha) and two timings (PRE and POST) and compared to standard rates of metolachlor, acetochlor, and pendimethalin. PRE treatments were applied alone, while POST treatments were combined with 1.12 kg ai/ha of glyphosate. A single POST application of glyphosate and a nontreated and weed-free control were also evaluated. No corn injury was observed in either year of the trial. In both years, all rates of KIH-485 applied PRE controlled velvetleaf and kochia 91% or greater at one month after planting (MAP). At 3 MAP in 2005, velvetleaf was controlled 85, 99, and 100% with the three PRE treatments of KIH-485 and 80, 68, and 60% with metolachlor, acetochlor and pendimethalin, respectively. Similar velvetleaf control was observed with PRE treatments in 2006. At 3 MAP in 2006, kochia was controlled 88, 91, and 95% with the three PRE treatments of KIH-485 and 56, 73, and 84% with metolachlor, acetochlor and pendimethalin, respectively. At 3 MAP, wild buckwheat was controlled 98 and 89% in 2005 and 2006, respectively, with the high rate of KIH-485 applied PRE, which was superior to control achieved with any other PRE herbicide treatment. In both years, velvetleaf, kochia, and wild buckwheat were controlled 93% or greater at 3 MAP when any herbicide treatment was combined with glyphosate. In 2005, KIH-485 applied PRE at 166 and 209 g ai/ha produced corn yields equivalent to 103 and 99% of that produced by the weed-free control, respectively. In 2006, KIH-485 applied at 209 and 250 g ai/ha produced corn yields equivalent to 95 and 125% of that produced by the weed-free control, respectively. In either year, no difference in corn yield occurred among treatments receiving a POST herbicide treatment applied in combination with glyphosate.

A NEW PROJECT TO ASSESS THE LONG-TERM VIABILITY OF GLYPHOSATE IN GLYPHOSATE-RESISTANT CROPPING SYSTEMS – MEASURING THE SEEDBANK. Patricia M. Nielsen*, Lori A. Howlett, Robert G. Wilson, University of Nebraska, Scottsbluff; Michael D. K. Owen, Iowa State University, Ames; David R. Shaw, Mississippi State University, Mississippi State; Stephen C. Weller, Purdue University, West Lafayette; John W. Wilcut, North Carolina State University, Raleigh; and Bryan G. Young, Southern Illinois University, Carbondale.

Weed scientists from six states, Illinois, Indiana, Iowa, Mississippi, Nebraska, and North Carolina are conducting similar studies over a four-year period at on farm sites to determine the viability of various cropping management strategies for the preservation of Roundup Ready programs as an affective tool for weed control. This research initially employed a grower survey of approximately 200 growers in each state to determine trends, and based on the survey results a subset of 28 to 30 of the growers surveyed in each state were contacted to establish alternative

management strategies on their farms over the next four years, shifts in weed populations, changes in weed species present, and levels of weed control will be monitored over this period with various combinations of cropping, tillage, and herbicide rotation systems. In Nebraska 28 growers located across the state and who had been planting a Roundup Ready crop the past three years were included in the four year study. Three Roundup Ready cropping systems were identified; continuous Roundup Ready corn, Roundup Ready soybeans followed the next year by Roundup Ready corn or Roundup Ready soybeans followed the next year by conventional corn. Each grower's field was divided into two 20 acre subsets. In one subset the grower continued his present glyphosate based weed management program while in the second subset the university researchers incorporated an alternative glyphosate weed management program to address potential weed shifts or problem weeds observed in the field. The seed bank was measured in 20 GPS marked locations in each of the two subsets. A 6.4 cm diameter by 15 cm deep core was taken at each of the 20 locations in early spring before tillage or preemergence herbicide application. Soil samples were frozen and kept frozen until analysis in November. Each soil sample was placed in a 4 x 6 cell pack, placed onto greenhouse tables where they were sub-irrigated by a capillary mat watered by irrigation t-tape, to provide uniform and non-disruptive watering. Data on weed germination were collected at three cycles; first germination flush at 30 days, then allowed to dry out, second germination flush at 30 days then frozen for one week, and third germination flush at 30 days.

VARIATION IN GLYPHOSATE TOLERANCE IN COMMON LAMBSQUARTERS.
Joseph Vassios*, Philip Westra, Lynn Fandrich, Colorado State University, Ft. Collins; and Christopher Preston, University of Adelaide, Adelaide, Australia.

Common lambsquarters (*Chenopodium album*) is a common weed across the United States. It is increasingly cited as a plant with a high potential for developing glyphosate resistance. With the widespread adoption of glyphosate resistant crops across the USA, this could become a major problem. More recently it has been observed that lambsquarters control with glyphosate is not as effective as was originally thought. There are several possible reasons that common lambsquarters control with glyphosate is declining. Common lambsquarters populations may be increasing in the general weed population. Growers may have used sub-optimal rates of glyphosate, or perhaps glyphosate use has slowly selected for more tolerant types of lambsquarters. In this research, common lambsquarters morphotypes were harvested in a field which had been repeatedly treated with glyphosate and where resistance was suspected. Ten of these morphotypes were planted in the greenhouse, and morphological data collected. A dose response study with glyphosate was carried out on the 10 morphotypes. The treatments consisted of 0, 0.25, 0.50, 1.0, and 2.0X rates, where X equals the glyphosate field rate of 771g/ha ai. Preliminary results suggest that several samples may have developed resistance to glyphosate.

EVALUATING THE RISK OF CROP INJURY DUE TO SOIL APPLIED HERBICIDES IN MONTANA DRYLAND CROPPING SYSTEMS. Fabian Menalled, Perry Miller, Edward Davis*, and Jeff Holmes, Montana State University, Bozeman, MT.

Soil-applied herbicides are valuable weed management tools. However, miscalculations in their use could cause crop injury due to carryover. In two complementary studies we evaluated carryover effects on different crops and soils across Montana. In the first study, a matrix of herbicides and crops was established in October 2004 at one site. Herbicides included untreated control, dicamba 0.5 lb ai/a, picloram, 0.0234 lb ai/a, imazamethabenz, 0.47 and 0.94 lb ai/a), imazamox, 0.75 oz ai/a, sulfosulfuron, 0.5 and 1 oz ai/a, chlorosulfuron + metsulfuron, 0.3 and 0.6 oz ai/a, and sulfentrazone, 2.25 oz ai/a. Crops included canola, camelina, pea, lentil, spring wheat, and barley. In spring 2005 and 2006, crops were seeded using a no-tillage disc seeder. Visual crop injury and grain yield data were recorded and compared across treatments. While yield reduction was observed in 2005 in several crops and herbicide treatments, in 2006 yield reductions were mostly associated to SU herbicides in pulse and oilseed crops. In a second study, seven no-tillage fields were selected across Montana to represent a wide range of precipitation zones and soil characteristics. Within each field, sulfentrazone was applied in October 2005 at six rates (0, 1.5, 1.87, 2.25, 3.0, 3.75, and 4.5 oz ai/a). In 2006 spring wheat, barley, and oat were seeded in each herbicide treatment. Crop injury and yield data were compared across treatments and sites. Yield reductions were observed in the 3 studied crops at the site with highest soil pH.

GROUP 2 HERBICIDE RESISTANCE IN A WHEAT CROPPING SYSTEM. Joan Campbell* and Donn Thill, University of Idaho, Moscow.

Group 2 herbicide resistant weeds are becoming more prevalent in wheat cropping systems. Managing weed control systems to attempt prevention of herbicide resistant weeds is essential. A study was initiated in 1995 to determine the rate of group 2 herbicide-resistant weed enrichment in dry land wheat production systems in the Pacific Northwest. Various combinations of "on-year" and "off-year" applications of group 2 herbicides were applied. Plots were 60 ft by 60 ft and had a 60 ft border around each plot. Treatments were (1) group 2 herbicide applied every year, (2) non-group 2 herbicide applied every year, (3) group 2 herbicide applied every other year (4) non-group 2 herbicide applied every third year, (5) group 2 herbicide applied every year with plants cut off before seed was produced, and (6) group 2 herbicide applied 3 years, non-group 2 applied 3 years. Four cycles of this application regime has been completed. Crops were grown under conventional tillage systems the first 6 years and direct seeded the last 6 years of the study. The experimental design is a randomized complete block with four replications. Weed seeds collected in July 2005 from group 2 herbicide treatments were tested for group 2 resistance with imazethapyr and thifensulfuron/tribenuron in the greenhouse. Prickly lettuce and annual sowthistle were confirmed resistant to group 2 herbicides. Mayweed chamomile is suspected but has not been confirmed at this time. Weed seed was collected from all plots with mature seed in 2006. Prickly lettuce was the main weed present and seed was collected from 18 plots. Annual sowthistle seed was collected from three plots and catchweed bedstraw seed was collected from one plot. All seed was screened for

group 2 herbicide resistance in the greenhouse. Prickly lettuce has a high incidence of resistance and catchweed bedstraw is not resistant. Now that weed resistance populations have established, research on these plots will continue for another 6 years to develop a weed resistance management scheme.

CROP ROW SPACING AND PLANT POPULATION: EFFECTS ON CANOPY CLOSURE AND WEEDS IN NO-TILLAGE SILAGE CORN IN CENTRAL CALIFORNIA. Anil Shrestha*, University of California, Kearney Agricultural Center, Parlier; and Carol Frate University of California Cooperative Extension, Tulare.

Silage corn (*Zea mays* L.) has conventionally been planted on 76- or 96-cm beds in central California. The beds are useful for managing furrow irrigation and the row spacings facilitate cultivation and ground applications of pesticides. However, with border flood irrigation in the no-till systems and the use of aerial applications for weed and insect control, the distance between rows can be narrowed. Narrow row spacing may help in weed suppression because of the early canopy closure by the crop thus shading weeds earlier in the growing season compared to crops grown in wider rows. Similarly, planting density can affect light attenuation patterns and influence weed germination and growth. Such effects of cultural manipulations on weeds may be more pronounced in central California where there are more cloud-free days compared to many other locations in the US. An on-farm study was conducted in Tipton, CA in 2004 and 2005 to evaluate the effect of two row spacings (38- vs 76-cm) and three populations (69000, 86000, and 104000 plants ha^{-1}) on the time of canopy closure and weed emergence and growth. The experimental design was a split-plot in 2004 and a randomized complete block in 2005 with four replications. Each plot was 7.6 m wide and 402.3 m long. Corn 'cv. DK C66-80' (glyphosate-tolerant) was planted with a no-till planter in mid- and late-May, 2004 and 2005, respectively. Glyphosate was aerially applied on June 5 and June 20 @ 2 l ha^{-1} in 2004 and 2005, respectively. Weed counts were taken twice during the growing season and final weed biomass was sampled just prior to corn harvest. Photosynthetically active radiation (PAR) above and below the corn canopy was measured weekly during the growing season till canopy closure. In both years, the 38-cm rows intercepted more light earlier in the growing season and closed canopy about 6-13 days earlier than the 76-cm rows. Plant population had differential effects on light interception in the two years. In 2004, early in the season, the major weed was volunteer wheat (*Triticum aestivum*) and its density was greater in the 38- than the 76-cm rows. However, in 2005, the weed density early in the season was similar between the two row spacing systems. Mid-season (July) weed densities were similar between 38- and 76-cm rows in 2004. In 2005, mid-season weed densities were greater in 76- than 38-cm rows. Plant population had no effect on weed densities in 2004 but in 2005, the 76-cm rows with 69000 and 10400 plants ha^{-1} had greater weed densities than the plots with 86000 plants ha^{-1}. In both years, weed biomass at corn harvest was greater in the 76- than in the 38-cm rows. Plant population had no effect on weed biomass in the 38-cm rows but in the 76-cm rows, weed biomass was lowest in the 86000 plant ha^{-1} plots. In both years corn stalk diameter was larger, for the same population, in the 38- than in the 76-cm rows. In 2004, moisture at harvest was lower in the 38- than in the 76-cm rows. When adjusted to 70% moisture, yields were similar for the two row spacings. In 2005, moisture at harvest and yields were similar between the 38- and 76-cm rows. This study showed that emergence and dry matter accumulation of weeds can be suppressed by

reducing the row spacing in no-till silage corn. However, row spacing may not have an effect on dry matter yield of corn.

SURVEY OF SCOURINGRUSH AND SOILS ON IRRIGATION CANALS IN SOUTHERN NEW MEXICO. Cheryl Fiore*, Xiaoli Liu, Jill Schroeder, Leigh Murray, and April Ulery, New Mexico State University, Las Cruces.

A survey was conducted to characterize soils and identify plants at 207 sites along 100 miles of the Elephant Butte Irrigation District (EBID) canals and laterals during the 2002 through 2005 growing seasons. One of the dominant species identified on the canals was scouringrush (>30% of the locations). Scouringrush is a perennial that reproduces by rhizomes and spores and is adapted to a moist environment. The plant is undesirable in both crop and livestock situations due to the lack of effective control strategies and toxicity to livestock when ingested. EBID currently uses glyphosate and mowing to control weeds along the irrigation system; both methods are ineffective for controlling scouringrush. Data obtained from a 0.75 m^2 quadrat placed just above the water line at each site included: Global Positioning System (GPS) location, canal depth, bank angle, percent vegetation cover, percent cover of up to five plant species, and characteristics of a surface soil sample. Soil samples were evaluated for texture, pH, organic matter, electrical conductivity (EC), sodium adsorption ratio (SAR), nitrate, P, and K. Results of logistic analysis-of-covariance models are presented for the scouringrush. These models used canal capacity category (Category 1: 700 cfs; Category 2: 150 – 225 cfs; Category 3: 60 – 90 cfs; Category 4: 30 – 50 cfs; Category 5: 15 – 29 cfs) or soil texture category (C = coarse, M = medium, F = fine) as the treatment factor and a numeric soil characteristic (pH, organic matter, etc) as the covariate to model the probability of the presence of scouringrush at a site. The predicted presence of scouringrush was positively related to EC on the largest canal category and negatively related to both EC and SAR on canal category 4. The predicted presence of scouringrush was negatively related to K on canal category 4 only. The predicted presence of scouringrush was negatively related to EC, SAR, and K found in medium and fine textured soils.

CONVENTIONAL AND NO-TILL SAFFLOWER TOLERANCE TO SULFENTRAZONE. Brian M. Jenks* and Gary P. Willoughby, North Dakota State University, Minot; Neil R. Riveland, North Dakota State University, Williston; and Eric D. Eriksmoen, North Dakota State University, Hettinger.

Safflower (Carthamus tinctorius) is a deep-rooted, drought-tolerant crop grown in western North Dakota. It is an oilseed commonly used for oil, meal, or birdseed. Acreage in ND has increased from 22,800 acres in 2002 to over 31,000 acres in 2005. Safflower is not a very competitive crop and early season weed control is necessary to maintain yield at an economic level. A study to evaluate the effect of sulfentrazone on safflower was established in 2005 and 2006 at three locations in North Dakota, Minot, Hettinger, and Williston. Sulfentrazone was

applied pre-plant and PRE in conventional and no-till systems. At Minot in 2005, visible safflower injury in the conventional tillage system on June 15 was as high as 36% from sulfentrazone at 2.25 oz ai, however, safflower height and density were not significantly different than the untreated check. Injury tended to be lower in the no-till system, with only 16% injury with the same herbicide treatment. Safflower yields tended to be highest where sulfentrazone was applied at 1.5 oz ai pre-plant, followed by the lower rates of sulfentrazone applied PRE. Safflower tended to yield higher where sulfentrazone was applied at any rate compared to the untreated or handweeded check in either tillage system. Approximately 11 inches of rain fell at Minot in June 2005 alone. In 2006, rainfall was well below normal. There was very little visible safflower injury in 2006 with any treatment or tillage system. Safflower density, height, and yield were not affected by any herbicide treatment. At Hettinger in 2005, initial visible injury tended to increase with increasing herbicide rates but diminished over time. Plant stands and heights were not significantly different where sulfentrazone was applied compared with handweeded or untreated checks. Safflower yields were similar where sulfentrazone was applied compared with the untreated check, regardless of tillage system. In 2006, conditions were extremely dry at Hettinger. There was no visible safflower injury in 2006 with any treatment or tillage system. Safflower density and yield were not impacted by herbicide treatments. At Williston in 2005, there were no significant differences in stand density or crop injury between sulfentrazone treatments and the untreated check in both the conventional and no-till systems. Safflower tended to yield higher where sulfentrazone was applied compared to the untreated or handweeded check in either tillage system. In summary, sulfentrazone tended to cause more safflower injury in the conventional system compared with the no-till system. In addition, the safflower in the no-till system tended to yield higher compared to the safflower in the conventional system. However, sulfentrazone treated safflower yielded similar or greater than untreated safflower, regardless of tillage system. In 2006, early safflower injury was higher in the highest sulfentrazone rates in the conventional till system. However, by July injury was generally less than 15%. Safflower yields were not significantly different between treatments. As in 2005, safflower yield was higher in the no-till system compared to the conventional till system.

A SUMMARY OF MESOTRIONE EFFICACY IN KANSAS GRAIN SORGHUM.

Phillip W. Stahlman*, David L. Regehr, Curtis R. Thompson, Gary L. Kramer, Patrick W. Geier, John C. Frihauf, Kansas State University, Manhattan, and Kurtis D. Jones, Syngenta Crop Protection, Elizabeth, CO.

Field experiments were conducted at four sites in Kansas in 2006 to evaluate the package mixture of mesotrione & atrazine & S-metolachlor (*Lumax*™), hereafter called mesotrione mixture, for preemergence control of ALS-resistant and susceptible broadleaf weeds compared to preemergence solely and preemergence followed by postemergence herbicide treatments labeled for use in grain sorghum. Experiments were conducted under rain-fed conditions near Clearwater (south-central KS), Colwich (south-central KS), and Hays (north-central KS), and under limited irrigation near Hugoton (south-west KS) on silt loam, silt loam, silty clay loam, and silt loam soils, respectively. The mesotrione mixture was applied at the product rate of 2.5 qt/A (5.8 l/ha) either 12 or 13 days preplant at Hays and Hugoton, or 2 or 3 days after planting at Clearwater and Colwich, respectively. Comparative soil-applied treatments were applied at

the same time as the mesotrione mixture. Additional preemergence treatments at Hays were applied immediately after sorghum planting. Postemergence herbicides were applied 3 to 5 weeks after planting. Efficacy of the mesotrione mixture varied among experiments depending on application timing, precipitation or irrigation, weed density, and burndown of existing weeds. The mesotrione mixture controlled ALS- and triazine-resistant Palmer amaranth and other ALS- and triazine-susceptible broadleaf and grass weeds as well or often better than labeled comparison herbicide treatments lacking mesotrione. The mesotrione mixture provided excellent early-season control of ALS- and triazine-resistant Palmer amaranth. However, on a site with high population density, late-season control of Palmer amaranth declined as weed biomass increased. Thus, on fields with extremely high Palmer amaranth populations, using integrated weed management practices along with the mesotrione mixture will be essential for effective Palmer amaranth control.

INVASIVE PLANT SPECIES TECHNOLOGY TRANSFER AND THE 2006 TAMARISK RESEARCH CONFERENCE. Mara P. Johnson*, Center for Invasive Plant Management, Montana State University, Bozeman.

The integration of science, management, and policy related to invasive species has become a common topic at meetings and conferences. It is often referred to as “bridging the gap” or technology transfer and considered to be essential to furthering success in dealing with invasive plant species. However, the methods for successfully accomplishing technology transfer are not well established. One of the main goals of the Center for Invasive Plant Management is to facilitate technology transfer among natural resource managers, scientists, educators, and policymakers. We present a synthesis of the literature and studies of methods for technology transfer in invasive plant management. We also present a case study, the 2006 Tamarisk Research Conference, and the methods employed to integrate science, management, and policy in this meeting as well as an evaluation of its effectiveness.

STUDENT-CREATED TEACHING TECHNIQUES FOR WEED SCIENCE. Ralph E. Whitesides*, Steven A. Dewey, and Corey V. Ransom, Utah State University, Logan.

Undergraduate students at Utah State University enrolled in Weed Biology and Control were assigned to develop an Extension Fact Sheet fall semester 2006. Students were instructed to work in teams of two or three. Fact sheet content was selected by each team. A sample Extension Fact Sheet was provided for reference. Instructions and format, provided by the instructors, follow. The fact sheet will be 4-6 pages in length and will include: 1. A graphic (picture, graph, chart or table) on every page; give credit for pictures etc. 2. Will contain at least three references (web use is acceptable if sites are credible). 3. Will address a weed management problem in a particular setting (specific weed in turf, or garden, or wheat etc.). Topics must be approved in advance so there is no topic-overlap. 4. Fact sheets will follow the format: a. Introduction b. Plant Description (anatomy and identification characteristics) c. Biology d. Control (includes cultural, biological, mechanical, and chemical) e. Summary f. References 5. Format and visual presentation are considered important (print in color etc). 6. Content will be written at the grade 12 reading level. Note - Creative, alternative educational

materials (approved in advance by the instructor) may be acceptable. There were 23 students (all horticulture majors) registered for Weed Biology and Control fall semester 2006. Thirty-nine percent (9) of the students developed traditional Extension Fact Sheets. One student (4%) did not complete a term project. Fifty-seven percent (13) of the students choose to create a game or an activity. Course instructors provided suggestions for creative ideas by showing a deck of playing cards, with weed pictures, produced by the Wyoming Weed and Pest Council and by demonstrating a game called Weeds patterned after the popular parlor game Authors. Student teams developed five different games for weed education: 1) Go Fish…For Weeds; 2) Utah's Noxious Weed Memory Game; 3) Clue – Weeds Edition; 4) Weed Matching Game; and 5) Weeds Bingo. All games were targeted to educate youth under the age of 18. Each game came with instructions for playing and scoring and contained creative and original artwork. These games will be utilized in future Weed Biology and Control classes and in the Junior Master Gardener Program throughout Utah.

COMPETETION BETWEEN WHITE SWEETCLOVER AND RIPARIAN VEGETATION IN INTERIOR ALASKA. Blaine T. Spellman*, University of Alaska Fairbanks; and Trish L. Wurtz, USFS PNW Research Station.

Non-native white sweetclover has recently been found growing in dense mono-specific patches along several Alaskan river floodplains. We hypothesized that the novel shade environment under dense sweetclover patches reduces the establishment success of shade-intolerant native floodplain species. A reduction of establishment could lead to long-term alterations to pristine riparian plant communities. To test this hypothesis, we determined the amount of photosynthetically active radiation (PAR) that was available under sweetclover patches along a glacial river floodplain in Alaska. Five common native floodplain species (thinleaf alder, *Alnus tenuifolia* (Nutt.), feltleaf willow, *Salix alaxensis* (Anderss.), river beauty, *Epilobium latifolium* (L.), alpine sweetvetch, *Hedysarum alpinum* (Michx.), and northern sweetvetch, *Hedysarum boreale* (Nutt.) ssp. *mackenzii* (Richards)) were grown for 12 weeks in a greenhouse under a range of shading treatments (9 to 85% shading). The greenhouse shade treatments were representative of the amount of PAR obstructed by floodplain sweetclover patches. As shading increased, the relative growth rate and total biomass production ($p < 0.05$) of all tested species decreased. However, the response to shading between species differed. For example, thinleaf alder was tolerant of shade ranging from 9 to 75% reduced PAR, while river beauty was tolerant from 9 to 40% reduced PAR. The majority of seedlings displayed signs of physiological stress under high levels of shading (>40%). This study provides the first evidence in Alaska that white sweetclover can affect riparian plant communities, but the results are insufficient to conclude that establishment success of native species can be reduced in the presence of sweetclover.

ASSESSING WILDFIRE BURN SUSCEPTIBILITY TO INVASIVE PLANT COLONIZATION IN BLACK SPRUCE FORESTS OF INTERIOR ALASKA. Katie L. Villano*, Christa P. H. Mulder, University of Alaska, Fairbanks; and Teresa N. Hollingsworth, USFS PNW Research Station, Boreal Ecology Cooperative Research Unit, Fairbanks, AK.

A warming climate has increased fire disturbance in interior Alaska and the likelihood of invasive plant success. This study assessed black spruce forest susceptibility to invasive plant colonization in wildfire burn areas along the Alaskan highway system and presents the first experimental data collected in the state of Alaska examining burn site invasiblity. Exotic plant surveys were conducted in two sets of burn sites: 2 year old burns of varying severity and soil moisture levels and maturing burns from 7 to19 years old. Three highly invasive species to Alaska (smooth brome, orange hawkweed and white sweetclover) were grown in a greenhouse in soil cores collected from the burn sites. Germination, establishment and growth of each species were evaluated for each burn type. Exotic species were present in 50% of older burn sites, while they were present in only 14% of 2 year old burns. Prior to the field survey component of this study, no records of invasive plant colonization had been documented in pristine burned areas of Alaska. Burn severity and soil moisture appear to have little effect on invasive germination, survival, and growth. All three species had significantly greater biomass and reproductive effort when grown in cores from 12 and 19 year old burns than in cores from more recent burns. These data suggest land managers and conservation agencies in interior Alaska should pay particular attention to older burns in invasive plant monitoring and control efforts.

EFFICACY OF AMINOPYRALID ON GLYPHOSATE RESISTANT CONYZA SPECIES. Jeff A. Nelson*, Randy L. Smith, Vanelle F. Peterson, Dow AgroSciences LLC, Indianapolis, IN; and Steve D. Wright, University of California, Tulare, CA.

Aminopyralid (Milestone™) is a new herbicide developed by Dow AgroSciences for vegetation management use in rights-of-way to control susceptible herbaceous broadleaf plants including yellow starthistle (*Centaurea solstitialis*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), horseweed (*Conyza canadensis*) and flaxleaf fleabane (*Conyza bonariensis).* Multiple research trials were initiated in 2006 on IVM sites in Tulare and Fresno Counties of California to assess the biological response of glyphosate resistant horseweed, also known as marestail (*Conyza canadensis*) and suspected glyphosate resistant flaxleaf fleabane (*Conyza bonariensis*) to aminopyralid. Biology results from these studies indicated that springtime applications of aminopyralid at 7 fl oz/A provided good postemergence control of horseweed and fleabane. Aminopyralid applied at 5 fl oz/A plus glyphosate at 2 lbai/A provided excellent control of horseweed and fleabane. Aminopyralid will have an excellent fit in right-of-way vegetation management systems where glyphosate resistant *Conyza sp*. are present.

LINKING RISK ASSESSMENT WITH EARLY DETECTION/RAPID RESPONSE EFFORTS IN WYOMING. Stephen F. Enloe* and Jeff Brasher, University of Wyoming, Laramie.

Early detection rapid response (EDRR) programs for dealing with new invasive plants are becoming increasingly important across the United States. While EDRR policies and procedures may vary among states, the common goal is the detection and control of incipient populations of invasive plants. The early detection component is often very difficult as many land managers may not be able to immediately recognize new species. Additionally, determining the species on which to educate them may be difficult. While risk assessment methods for determining potential new species are improving, current methods have resulted more in the development of a general set of principles than specific prediction of new invaders. A lack of data for many potential invaders is a common problem for risk assessment and both time and data are often needed. This may result in a conflict with EDRR as successful eradication is often predicated upon immediate responses to detection of new invaders and there is not time to wait for proper risk assessment. To circumvent this problem, a heuristic method was developed for Wyoming using several Western State Noxious Weed lists and the Wyoming inventory checklist of exotic plants. These lists were incorporated into a database and cross referenced to determine species already present in Wyoming that are noxious in other states and species noxious in other states that are not yet present. These reduced lists were then ranked by the number of other states designating each species as noxious. This ranking system was used as a threat indicator (i.e., the more states that list a species, the greater the potential threat). The rationale for this approach is twofold. First, it allows a determination of potentially damaging species that may already be present but are uncommon, unrecognized, or in the lag phase of invasion. Second it allows a prioritization of species not yet present in the state but considered a serious threat by many other Western States. The results from this method have been promising. Over 60 species were detected in Wyoming that other states (but not Wyoming) consider noxious. The top ten species were noxious in at least five other states and twenty species were noxious in at least three other states. Additionally, there were over 200 species noxious in other Western States that were not present or noxious in Wyoming and 13 of these were noxious in at least five states. These results have greatly helped to prioritize educational efforts for EDDR in Wyoming and this method will continue to be refined as a decision aid tool.

SALT CREEK PECOS PUPFISH HABITAT RESTORATION PROJECT. Michael G. McMurry*, Texas Department of Agriculture, Austin; and Barney G. Lee North Star Helicopter, Jasper, TX.

In 1997, a large scale ecological restoration project was initiated in the Pecos River watershed in far West Texas. Salt cedar (*Tamarisk* spp.) an exotic invasive tree, had created a monoculture in the riparian zones of the Pecos River and its tributaries, which was degrading habitat and sapping water supplies from the river and associated desert springs. A Section 24(c) special local needs exemption was requested and obtained from EPA by the Texas Department of Agriculture (TDA) for the use of Arsenal (imazapyr) herbicide for the treatment of salt cedar on the Pecos River and other areas of western Texas. Several specific areas were excluded from use due to the presence of federally listed threatened and endangered plant and animal species. In 2001, after successful treatments of the Pecos River mainstem had proven beneficial as well

as benign to aquatic life, TDA was contacted by the Fort Worth Zoo Aquarium to amend the 24(c) to include Salt Creek, a tributary of the Pecos where the last surviving population of Pecos pupfish was threatened by a combination of invasive salt cedar and drought. This call for assistance rapidly gathered partners to conserve these rare fish and preclude a federal listing. Under this partnership, agencies, landowners, applicators, registrants and conservation groups cooperated to use a herbicide, which had been previously not allowed, to restore and enhance the Salt Creek flow and restore the habitat, thus preserving the species.

TIME AND ACCURACY COMPARISONS BETWEEN POINT AND POLYGON METHODS OF WILDLAND WEED MAPPING. Kimberly A. Andersen* and Steven A. Dewey, Utah State University, Logan, UT.

Four methods of mapping vegetation were compared for relative accuracy and time requirements by four experienced members of the Utah State University weed mapping crew. Trimble Geo-XT, Geo-XM, and Geo-3 models were used in all GPS portions of this study. Four distinct patches of sagebrush, ranging in size from 0.14 to 0.49 acre, were mapped by 1) hand-drawing polygons directly on 7.5-minute topographic maps, 2) drawing polygons on touch-screen GPS units, 3) walking the perimeter of each patch while GPS traced the route, and 4) creating a buffered GPS point (a circular polygon of a measured radius). The average radius of each buffered point was determined by use of laser rangefinders. The location and size of each patch as determined by the four methods were then compared to values considered true patch locations and sizes (determined by a monitoring-grade GPS perimeter-tracing technique). The total time required to map four patches by each method also was recorded. Paper-drawn polygons were the least accurate represention of true patch location and size. The average distance between the centers of paper-drawn polygons and the true center of corresponding patches was 557 feet. The average distance between the center of screen-drawn polygons and actual patches was 41 feet, and the corresponding value for buffered points was 26 feet. There was essentially no difference in the location of perimeter-walked polygon centers compared to true patch centers. The average paper-drawn polygon was 142 percent larger than actual patch size. Patches mapped by the buffered-point, perimeter-walked, and screen-drawn methods averaged 58, 34, and 22 percent larger than actual patch size, respectively. The perimeter-walked method required the greatest amount of time, averaging 73 seconds per patch. Time required to map by the paper-drawn, buffered-point, and screen-drawn methods averaged 61, 60, and 56 seconds per patch.

USING NUTSEDGE COUNTS TO PREDICT ROOT-KNOT NEMATODE JUVENILE COUNTS IN AN INTEGRATED MANAGEMENT SYSTEM. Zhining Ou*, Leigh Murray, Jill Schroeder, Stephen H. Thomas and James Libbin, New Mexico State University, Las Cruces, NM.

Pest management that targets individual pests has not been successful due to beneficial interactions among yellow nutsedge (YNS), purple nutsedge (PNS) and southern root-knot nematodes (RKN), which occur simultaneously in many crops grown throughout the southern region. This research examined whether a predictive relationship exists between nutsedge and RKN juvenile counts in field locations. Nutsedge and RKN juvenile counts came from a two-year alfalfa rotation field-study (RKN-resistant alfalfa cultivar 'Mecca II'), which was sampled three times yearly in both 2005 and 2006. Eighty randomly selected plots were sampled on each sampling date. No plot was sampled twice in a year. Nutsedge density was measured by plant counts. RKN counts were expressed per 10 cm^3 sub-sample of soil from the composition of collected soil cores. Generalized Linear Models using the Poisson distribution were used to fit regressions. On the first sample date of 2005, PNS counts were a significant predictor of RKN counts. On sample dates two and three of the same year, counts of YNS, PNS, and their cross-product were statistically significant predictors. In 2006, the second year of the alfalfa rotation, counts of all three pests were reduced as expected, because of alfalfa competition effects. Therefore, the statistical predictive relationship between nutsedge and RKN was not significant for the second year. We conclude that nutsedge counts within the nutsedge-nematode complex can be used in a field situation as a predictor of damaging RKN populations, unless the number of nutsedge plants is very low.

DOSE RESPONSE OF ITALIAN RYEGRASS (*LOLIUM MULTIFLORUM*) BIOTYPES TO FLUFENACET. Seth A. Gersdorf* and Donn C. Thill, University of Idaho, Moscow.

Many small grain fields in northern Idaho and eastern Washington are infested with biotypes of Italian ryegrass that are resistant to ACCase inhibiting (Group 1) herbicides. After an initial greenhouse screening, a known ACCase resistant biotype was found to be resistant to flufenacet (Group 15). According to weedscience.org, three biotypes of barnyardgrass in China, Thailand, and the Philippines and two biotypes of rigid ryegrass in Australia have shown resistance to Group 15 herbicides, but this is the first reported case of Group 15 resistance in the United States. An experiment was performed in the greenhouse using eight doses (50, 100, 250, 500, 1000, 2000, 4000, 8000 g ai/ha) of flufenacet and an untreated check. Trays were planted with two alternating rows each of known susceptible and flufenacet-resistant Italian ryegrass biotypes. Each row contained 15 seeds. Plant counts and biomass were taken 15 and 30 days after emergence, respectively. Plant number and biomass of the susceptible and resistant biotypes were modeled and compared using nonlinear regression. Initial results of plant counts indicate that the susceptible (S) and resistant (R) biotype GR_{50} is approximately 125 and 3000 g ai/ha respectively, with a R/S ratio of 24. Future work will be to investigate the mechanism of resistance in this biotype using the same eight doses of flufenacet plus a cytochrome P_{450} inhibitor to initially differentiate between metabolic and target site resistance.

TUMBLING DISPERSAL OF DIFFUSE KNAPWEED SEED. Dirk V. Baker[1]*, J Jeff A. Tracey[2], John R. Withrow[3] and K. George Beck[1]. 1. Department of Bioagricultural Sciences and Pest Management, Colorado State University. 2. Dept. of Fishery, Wildlife and Conservation Biology, Colorado State University. 3. USDA Forest Service, Rocky Mountain Research Station

Diffuse knapweed (*Centaurea diffusa* Lam.) has been a noxious, invasive weed in much of Western North America for decades, yet little is known about its dispersal. It is widely reported to disperse in a tumbleweed manner. However, there are no published studies demonstrating the distance diffuse knapweed seed may be dispersed via this mechanism. We conducted both field and wind tunnel experiments to estimate seed dispersal distances for diffuse knapweed via tumbling. In this work, we report on the wind tunnel experiment. A wind tunnel was constructed for this and related experiments and plants (n=19) were each tumbled a total of 30.5m across an adhesive surface to catch dropped seed. The number of seed and distance were recorded along with plant size characteristics. The number of seed remaining in each plant after the trials was also estimated. While we would generally expect the majority of seed to be dispersed over short distances, on average only 8% (stdev = 7%) of the total seed were dropped from plants in the first 30.5m. Unsurprisingly, there was a high degree of variability with proportion dropped in 30.5m ranging from 0.8% to 30.1%. Even so, there is clearly strong potential for very long distance tumbling dispersal of diffuse knapweed.

GOATSRUE GERMINATION AND GROWTH. Michelle Oldham* and Corey V. Ransom, Utah State University, Logan.

Galega officinalis, or goatsrue is a little known weed in many parts of the United States, but is currently on the federal noxious weed list as well as 12 state weed lists. Though it is an increasing problem in many places little research has been done on goatsrue leaving many gaps in knowledge about its basic biology. Goatsrue seeds have a hard seed coat and must be subjected to a scarification to allow water uptake and subsequent germination. To determine the optimum amount of scarification needed for germination we subjected seeds to a concentrated sulfuric acid (H_2SO_4) wash for varying amounts of time from 0 to 60 minutes. Seeds were placed in a germination chamber and were monitored daily for germination for one week. After three separate trials an acid wash of 60 minutes was found to provide 100% germination, but germination at scarification times of 40 and 50 minutes were not significantly lower. Investigations into the perennial nature of goatsrue were undertaken by conducting clipping and growth monitoring trials. In these trials the above ground portion of ten plants were removed at the soil surface or just below the cotyledons (if below soil surface level) once each week after emergence and height and biomass were recorded. In addition, heights and weights of above ground plant biomass and root length and weight were recorded from four destructive plant samples at each clipping date. One trial was initiated devoid of nutrients for six weeks, enabling a comparison of seedling growth with and without nutrients. Re-growth from harvested plants was monitored and recorded each week. No significant re-growth occurred in the first trial, and seven weeks into the second trial only one plant has re-grown. These preliminary results

indicate a longer time to perennial nature than allowed for in these trials or an insufficiency in conditions present in the greenhouse.

EARLY SEASON IRRIGATION AFFECTS INITIAL DEVELOPMENT OF YELLOW NUTSEDGE, PURPLE NUTSEDGE, AND ROOT-KNOT NEMATODE. Jill Schroeder*, Sonia Nunez, Stephen H. Thomas, and Leigh Murray, New Mexico State University, Las Cruces, NM.

Yellow nutsedge (*Cyperus esculentus*), purple nutsedge (PNS) (*Cyperus rotundus*), and southern root-knot nematode (RKN) (*Meloidogyne incognita*) are problems throughout irrigated regions of New Mexico. These pests have a beneficial relationship and must be managed concurrently. A study was conducted in 2005 and 2006 to determine if a single early season irrigation will affect nutsedge emergence and growth or RKN reproduction as modeled using heat unit accumulation based on hourly soil temperature prior to- and after-emergence (10 C base temperature). This study was a two (nutsedge species) by two (with or without early season irrigation) factorial conducted in RKN-free microplots (sixteen per nutsedge species). Tubers obtained from RKN-infested soil were planted in eight (2005) or 12 (2006) locations per microplot after surface sterilization. Eight microplots per nutsedge species were irrigated after planting. All microplots were then watered as needed after the early season irrigation. The plant sampling-plan was designed to account for both emergence date and potential range of heat unit accumulation. Data included emergence date, shoot, root, and rhizome dry weights, daughter tuber and basal bulb count and dry weights, root-extracted RKN egg counts, hourly soil temperature, and soil moisture. The winter of 2005 was very wet while the winter and early spring of 2006 had zero rainfall; the difference in consistent soil moisture prior to establishment of the experiment affected time of emergence and total emergence of each species. Plants at nearly 100% of the planted locations emerged in 2005 while only 30 to 50% of the tubers sprouted in 2006. PNS responses will be presented to illustrate the effect of early season irrigation on the models. PNS shoot weight models differed between years and between irrigation treatments. Dry weights over the sampling period were as much 10 times higher in 2006 compared to 2005; the difference between the two years could be attributed in part to adjustments in sampling protocols made in 2006. Few below-ground responses had similar models for any treatment-year combination; however, most plant parts produced the highest weights when both pre-emergence and post-emergence heat units were high. Models of RKN reproduction suggest that pre-emergence heat units drive early season reproduction from RKN overwintering in the tubers. The data suggest that winter rainfall affects numbers of tubers that sprout in a field and that heat unit accumulation prior to emergence interacts with heat unit accumulation after emergence to affect plant growth and development, particularly under stressed conditions.

GLYPHOSATE-RESISTANT RYEGRASSES (*LOLIUM SPP.*) IN CALIFORNIA. Riaz Ahmad, W. Tom Lanini, University of California, Davis; Alejandro Perez-Jones, Carol Mallory-Smith, Oregon State University, Corvallis; and Marie Jasieniuk*, University of California, Davis.

Annual ryegrasses *Lolium rigidum* and *L. multiflorum* cause economic losses in orchards, vineyards, and winter cereal crops of California. Although once effectively controlled by glyphosate, we have identified glyphosate-resistant ryegrass in at least eight counties. Dose-response experiments conducted in the greenhouse using four resistant and two susceptible biotypes indicated that resistant biotypes were eight to 14-fold more resistant to glyphosate than susceptible biotypes. Shikimic acid extractions 12, 24, 48, and 96 h following treatment with glyphosate at 866 g ae/ha revealed significant shikimic acid accumulation in susceptible biotypes relative to resistant biotypes. Initial investigations of EPSP synthase gene sequences indicate the presence of mutations identified to confer glyphosate resistance in other weeds. The level of resistance in glyphosate-resistant biotypes of California ryegrass is similar to that reported in Australia but higher than reported in Oregon and Chile.

USING SPATIAL NETWORK TECHNIQUES TO MODEL MOVEMENT OF YELLOW STARTHISTLE IN CANYON GRASSLANDS. Larry Lass*, Timothy Prather, Bahman Shafii, and William Price University of Idaho, Moscow ID.

Accurate assessment of weed inventory data allows prevention and containment management before the spread of an invasive plant causes major environmental losses. The invasion point sources are often sites at risk where weeds with little competition reproduce and disperse seed into new areas. Previous modeling efforts for predicting the spread of yellow starthistle have taken the topographic approach of using slope and aspect to estimate plant survival and seed movement. While these models have preformed well in most sites with existing yellow starthistle populations, they cannot explain why some population extents are limited. The addition of factors such as hill shading, sun angle differencing, competitive vegetation, growing degree units, and soil reflectance have improved the accuracy of plant survival and seed movement models. In this research, the role of biological limitations in the prediction of dispersal with spatial network models is considered. The optimal model shows that inclusion of biological friction will improve simulated movement accuracy when compared to models based on topographical variables.

PROJECT 1: WEEDS OF RANGE & FOREST

WHITE COCKLE RESPONSE TO AUXINIC HERBICIDES. Robert Stougaard* and Qingwu Xue, Montana State University, Northwestern Agricultural Research Center, Kalispell, MT .

White cockle is often cited as a problem weed of pasture and hay crops. Owing to the perennial nature of this species, white cockle has recently become a serious weed of mint and has the potential to invade non-disturbed habitats throughout western Montana. The recent expansion of this weed is a cause for concern. However, management strategies for this weed are nonexistent. The objective of this experiment was to identify candidate compounds for the control of white cockle. Field studies were conducted during 2005 and 2006 to assess the efficacy of four auxinic herbicides for the control of white cockle. Dicamba, triclopyr, fluroxypyr, and picloram were each applied at 0.125, 0.25, and 0.50 lb ai/A during the spring when white cockle plants were in the rosette stage of growth. All herbicides, except fluroxypyr, injured white cockle to some degree. Triclopyr resulted in the greatest amount of injury early in the season, but plants partially recovered as the season progressed. When applied at the highest rate, dry weight reductions of 70, 55, 32, and 7 percent were recorded for dicamba, triclopyr, picloram, and fluroxypyr, respectively.

BIOLOGY AND MANAGEMENT OF BUR CHERVIL. John Wallace* and Tim Prather, University of Idaho, Moscow.

Bur chervil, *Anthriscus caucalis* M.-Bier, is a winter annual plant in the Apiaceae family and tribe Scandiceae. The plant is a common west European weed of northwest Mediterranean origin, which has been introduced to North America. In recent years, bur chervil has increased following disturbance in a range of habitat types and moisture regimes of the Snake and Clearwater River systems in north-central Idaho. The plant exhibits several invasive characteristics including prolific production of seed with hook-tipped bristles, enabling long distance dispersal. Two experiments were established in canyon-grassland along the Clearwater and Snake Rivers in 2006. The first experiment evaluated population demography at two sites across four canyon-grassland habitat-types representing a gradient in moisture regimes: bluebunch wheatgrass, Idaho fescue, snowberry-rose, and hawthorn dominated plant-communities. Thirty plots (0.125 m^2) per habitat were evaluated in the spring and summer to determine spring density, plant mortality, and seed output. Spring densities ranged from 57 ± 5 to 90 ± 5 across habitat-types. Densities were greater ($P < .05$) in both bunchgrass habitats in comparison to the hawthorn habitat-type. Plant mortality ranged from 24 to 38% across habitats. Less mortality ($P < .05$) occurred in snowberry-rose habitats in comparison to other habitats. Bur chervil produced more seed (11,605 ± 938) in hawthorne habitats in comparison to other habitats. Seed production was higher ($P < .05$) in bluebunch wheatgrass habitats in comparison to Idaho fescue and snowberry/rose. The second experiment was initiated in March 2006 near Lapwai, ID, to evaluate the effectiveness of three sulfonylurea herbicides alone, and combination with dicamba or aminopyralid. Treatments included two herbicide rates, low and high, based on label recommendations for bur chervil or a closely related species. Experiments were established in 3 x 9 m plots arranged as a randomized complete block with four replications, and applications were targeted to the rosette stage. All treatments were applied with a CO_2-pressurized backpack sprayer at 141 l ha^{-1}. Bur chervil control was evaluated 1, 2, and 10 months after treatment (MAT). Herbicide treatments ranged from 75 to 100% control 1 MAT and each treatment prevented seed production 2 MAT. No differences were detected among herbicide rates.

SIMULTANEOUS PRECISION MAPPING OF MULTIPLE INVASIVE SPECIES ALONG THE FRONT RANGE OF COLORADO. Nathan Ament*, Philip Westra, Colorado State University, Ft. Collins; Tom Stohlgren and Paul Evangelista, NREL, Ft. Collins, CO.

During the summer and fall of 2006, a Colorado State University invasive weed mapping team worked with Boulder County Parks and Open Space to simultaneously map 9 invasive plant species along riparian corridors and irrigation ditches in Boulder County. Mapping was done with 2 handheld Trimble Geo XH handheld GPS units. Data from the survey include presence points, lines and polygons for the following 11 weed species: Russian Olive, Salt Cedar, Leafy Spurge, Eurasian Watermilfoil, Yellow Toadflax, Purple Loosestrife, Common Teasel, Russian Knapweed, Myrtle Spurge, Garlic Mustard, and Hounds Tongue. A total of 2,092 data points were collected in a period of approximately four months. Digital color photos were taken of the weed infestations to document plant or infestation size. Data was manipulated in Pathfinder. The average horizontal accuracy of the data after postprocessing is approx 1.5 meters. This database is being used to create a set of baseline invasive weed maps for Boulder County. Additionally, the data will be available to Boulder County in the form of a GIS interactive geodatabase, capable of being utilized by GIS technicians and resource managers. Of the data collected, nearly 60 percent consisted of Russian Olive. Additional mapping will take place during the 2007 field season, with special emphasis on Russian Olive for subsequent removal and revegetation. In addition, the precise data from this project will be used to validate ongoing invasive plant modeling efforts in the ecology group at NREL in Fort Collins.

EFFICACY OF BENTHIC BARRIERS AS A CONTROL MEASURE FOR EURASIAN WATERMILFOIL (*MYRIOPHYLLUM SPICATUM*). Karen Laitala* and Tim Prather, University of Idaho, Moscow.

Eurasian watermilfoil *(Myriophyllum spicatum L.)* is a non-native aquatic macrophyte found throughout much of the United States and Canada. In Idaho, where the estimated area of infestation exceeds 7,000 acres, excessive Eurasian watermilfoil growth now dominates some littoral communities, forming dense vegetative canopies near the water's surface that impact ecological interactions among lake biota, impede recreational activities, obstruct water flow, and adversely affect lake aesthetics. A study was established in Coeur d'Alene Lake near Plummer, ID to evaluate optimum coverage time, maintenance requirements, and non-target aquatic community response to removable fabric weed barriers as a control measure for Eurasian watermilfoil. A randomized complete block experimental design with four replications and five treatments including an untreated check was implemented. Above sediment biomass was collected within each sub-plot pre- and post- treatment. Analysis of variance repeated measures was conducted to determine the effect of benthic barrier duration on Eurasian watermilfoil biomass. Benthic barrier placement reduced Eurasian watermilfoil biomass 100% 8 weeks after treatment. A study was also established in a walk-in growth chamber to evaluate the effect of sediment depth on Eurasian watermilfoil establishment and growth. The study was arranged in a randomized complete block design with five sediment depth treatments and four replications. Analysis of variance repeated measures was conducted to determine the effects of

sediment depth on above sediment plant biomass production and root biomass production. Both above sediment plant growth and root production exhibited a general trend of increased production with increased sediment depth.

FOXTAIL BARLEY (*HORDEUM JUBATUM* L.) CONTROL WITH IMAZAPIC. Randall D. Violett*, Abdel O. Mesbah, and Stephen D. Miller, University of Wyoming, Laramie.

Foxtail barley is invasive throughout the Western United States. It thrives in a wide range of environments and is a common weed in floodplains, pastures, wetlands, and roadsides. In disturbed areas, foxtail barley rapidly forms monoculture stands that displace favorable vegetation. This experiment was conducted to evaluate management strategies that control foxtail barley and re-establish desirable vegetation. The experiment was established at two sites in Park County, Wyoming in 2005. Study sites were heavily infested with foxtail barley and lacked competing vegetation. Site selection was based on foxtail barley concentration, soil conditions, and the common management of livestock grazing. The soil characteristics at both sites were similar in pH (8.2), EC (10), and texture (Clayey). Plots were 10 by 20 ft. and each treatment was replicated four times in a randomized complete block design. Foxtail barley control with early application of imazapic at 12 oz/ac ranged from 56 to 73%, while seed head production was suppressed by 95%. Splitting the 12 oz/ac rate, into two applications (early- mid May and late- mid June) of 6 oz/ac each, increased foxtail barley control by 12% and resulted in 98% seed head suppression. Seed head suppression is a valuable reaction to this herbicide from the stand point of allowing the land manager to graze the pasture and take advantage of a relatively high feed value of this grass becoming unpalatable.

CANADA THISTLE CONTROL BY AMINOPYRALID AND RECOVERY OF NATIVE PLANT SPECIES IN THEODORE ROOSEVELT NATIONAL PARK. Luke W. Samuel* and Rodney G. Lym, North Dakota State University, Fargo.

Aminopyralid will control Canada thistle at lower use rates than other auxin-type herbicides, but the effects on non-target species are generally unknown. A study was initiated to evaluate the effect of aminopyralid on Canada thistle and native plant species in Theodore Roosevelt National Park. Thirty native and Canada thistle-infested areas were selected and aminopyralid at 120 g ae/ha was applied in September 2004 to half of each 9- by 6-m plot. Canada thistle density and foliar cover of each plant species in all sub-plots were determined prior to and 10 and 22 mo after treatment. Canada thistle density 10 mo after treatment was reduced by aminopyralid from 32 stems/m^2 in non-treated plots to 2 stems/m^2 in treated plots. Canada thistle density 22 mo after treatment continued to be lower in treated (16 stems/m^2) compared to non-treated sub-plots (42 stems/m^2). Plant community composition differed between native and Canada thistle-infested sites prior to treatment with greater richness and diversity in Canada thistle-infested plots than in native plots. Native plant richness and diversity were reduced 10 and 22 mo after treatment by aminopyralid. For example, native plant richness 10 mo after treatment averaged 12 species in non-treated compared to less than 9 species in treated sub-

plots. Plant species richness and diversity were similar following aminopyralid treatment between all Canada thistle-infested sub-plots. In summary, aminopyralid reduced Canada thistle density and did not affect plant species composition in Canada thistle-infested areas, but native plant species richness and diversity were reduced.

A PATTERN OF ROOT DISTRIBUTION BY YELLOW STARTHISTLE (*CENTAUREA SOLSTITIALIS*). Steve L. Young*, University of California, Davis.

Yellow starthistle (YST) is a late season non-native annual forb that is common throughout much of California. The root growth and activity of YST maybe contributing to the inhibition of establishment by deep-rooted native perennial species in mesic regions of California. Field studies were conducted near Davis, California to determine root growth, activity [CO_2] and soil moisture use of YST. Roots of YST were measured weekly from late winter through fall using a rhizotron chamber with a 2 m^2 viewing window. A maximum of 0.75 roots/cm^2 occurred at the 30 cm depth during rosette stage, while maximum root counts at 120 and 180 cm coincided with the bolting and budding stages, respectively. Between the flowering and seeding stage, total roots, none of which were living, declined to less than 0.16 roots/cm^2. The most rapid decline in soil moisture occurred between 30 and 60 cm for rosette to bolting stages and 120 and 180 cm for bolting to budding stages. The peak in root growth at 30, 60 and 120 cm occurred before maximum soil temperatures reached 20 C. In this study, YST used shallow soil water (0-60 cm) from rosette to bolting and deep soil water (120-180 cm) from bolting to budding over a very short time period (April to June). YST root activity was at maximum just prior to bolting and then declined for the remainder of the season. The short spurt of root growth and activity during late spring and early summer by YST is an intense period of below ground resource utilization that must be temporally or spatially compensated for by native perennial species to remain competitive.

PROSPECTS FOR BIOLOGICAL CONTROL OF RUSSIAN THISTLE (TUMBLEWEED; *SALSOLA SPP.*). Lincoln Smith*, USDA-ARS, Albany, CA; Rouhollah Sobhian, USDA-ARS-EBCL, Montferrier sur lez, France; Massimo Cristofaro, ENEA C.R. Casaccia, Rome, Italy.

Russian thistle (tumbleweed, *Salsola tragus*) is an alien weed that first appeared in North America in the 1870s and has invaded about 100 million acres in the western U.S. Tumbleweeds invade fallow fields, clog irrigation systems, are hazardous to automobile traffic, spread wildfires and harbor a insect pest (beet leafhopper) that transmits viruses to many vegetable crops. Two moth biological control agents that were introduced in the 1970s have became widely established, but they are not providing sufficient control. We have evaluated several prospective new agents of this weed and have rejected two of them because they are not sufficiently host specific. A petition was submitted to the USDA-APHIS Technical Advisory Group (TAG) in Dec. 2004 requesting permission to release the blister mite (*Aceria salsolae*) to control Russian thistle. A seed-feeding and stem-boring caterpillar, *Gymnancyla canella*, is undergoing a third year of host-specificity evaluation in Albany. Two interesting weevils (*Anthypurinus biimpressus*, *Baris przewalskyi* and *Salsolia morgei*) have been discovered

during foreign exploration in Tunisia and Kazakhstan. These new biological control agents should help reduce the populations of this weed to innocuous levels over extensive regions. Successful biological control would provide self-perpetuating long-term management of this weed, reduce the need to apply pesticides, and increase the productivity and utility of millions of acres in the western U.S.

SUCCESS OF MEDUSAHEAD CONTROL USING PRESCRIBED BURNING DEPENDS ON SITE PRODUCTIVITY. Joseph M. DiTomaso*, Guy B. Kyser, Steve Orloff, Rob Wilson, Morgan Doran, Neal McDougald, University of California Cooperative Extension, Davis.

Medusahead (*Taeniatherum caput-medusae*) is a European native that currently occupies about a half million hectare of annual-dominated grassland in the western US. The high silica content can reduce livestock, and slow the rate of tissue decomposition, leading to heavy litter build-up that remains intact for two or more years. Since medusahead matures about two or more weeks later than most range species, this directly exposes seeds to fire flame when the senesced vegetation of other species or medusahead litter provides adequate fuel. Prescribed burning, even at a similar phonological stage of development, has given inconsistent results for medusahead control. We compared burning for control of medusahead in four widely separated California counties. Burns conducted in late spring or early summer, before seed drop, proved very effective in three counties (Fresno, Yolo and Siskiyou), providing better than 90% control after one or two consecutive years. However, in Lassen County, prescribed burning failed in two consecutive years, even when plots were burned at the ideal phenological stage. This suggests that factors other than burn timing may be critical to the success of this strategy. From previous experiments, we found that medusahead seeds become viable early in inflorescence development and 90% seed mortality required a four to five second exposure to direct flames at 300-450 C. Thus, for burning to be successful, fires must either move slowly or be very hot. In Lassen County, there was very little flammable litter build-up, due to heavy snowpack, and almost no competing vegetation to add to the fuel load. Thus, at this location we hypothesize that seedheads were not exposed to sufficient heat long enough to cause seed death. In contrast, fuel loads at all other sites were high, likely leading to hotter slower burns capable of causing seed mortality. In conclusion, burn site and fuel loads can determine the effectiveness of prescribed burning for medusahead control.

SMOOTH BROME (*BROMUS INERMIS*): THE SILENT INVADER OF NATIVE AREAS. Jody K. Nelson*, USDOE - Rocky Flats Site, Westminster, CO.

Smooth brome (*Bromus inermis*) is an exotic graminoid species that has been used for over a century across much of North America for range improvement and revegetation. While most “noxious” weeds invade quickly and are quite noticeable, a smooth brome invasion can imperceptibly transform the native grassland diversity to a near monoculture over many years or decades. At the Rocky Flats Site, a U.S. Department of Energy facility near Denver, Colorado, smooth brome is increasingly problematic, as it is along much of the Front Range. This study was conducted to determine the expansion rate of smooth brome circles, evaluate the

effectiveness of different control methods to kill smooth brome circles, and evaluate the effectiveness of revegetating dead smooth brome circles with native plant species. From spring 2003 to fall 2005 (three growing seasons), the size of smooth brome circles in a native grassland increased by 208% (mean 4.3 m^2) for small circles (< 4 m^2 initially) and 35% (mean 26 m^2) for large circles (>30 m^2 initially). The mean increase for all size circles combined from this study was 40% (mean 15 m^2). Assuming an average increase of 5 m^2 per year per smooth brome circle, one acre of native grassland diversity is lost annually for every 807 circles. Three control techniques were tested on smooth brome circles: shading, glyphosate applications (rate = 2.5 fl.oz/gal/300 ft^2 of 50.2% glyphosate solution; hand sprayer), and glyphosate plus shading. After three years (2004 to 2006), the effectiveness of the above treatments (as determined by no presence of smooth brome in the plot) was 60%, 20%, and 40%, respectively. The most effective treatment was shading which still had a 40% return of smooth brome. The least effective treatment was the glyphosate application which had an 80% return rate of smooth brome. Whether from the seed bank or residual root systems, smooth brome returned with all of the treatments. The control methods tested were not successful as one-time applications and so continued follow-up treatments are necessary to kill new smooth brome plants that establish in the previous circles. The revegetation of the old circles had mixed results. While seeded species have come up, the disturbance resulting from the control actions has resulted in post-treatment circles that are in an early successional state. Competition from various native and non-native early successional species combined with the 2006 drought, has limited establishment of seeded species. Continued proactive management of the circles to prevent smooth brome re-establishment as well as establishment of the desired seeded species will be necessary for long-term success.

THE EFFECTS OF MULTISPECIES GRAZING ON CONTINUOUS CRP. Stephen Van Vleet*, Washington State University, Colfax.

Whitman County has approximately 200,000 acres (20% of the county's cropland) in CRP. Undesirable weeds in CRP lands have steadily worsened and are increasingly difficult to control. In 2005 and 2006, cattle and sheep were used to graze continuous CRP stands in Whitman County. A holistic management approach was used. Pastures of varying sizes were set up and permanent sampling points were placed in each pasture. The permanent sampling points were evaluated on weed control, weed shift and reestablishment of grasses. The livestock (cattle: Black Angus, sheep: Suffolk) were evaluated for weight gain and maintenance of health. Spring in-flow temperatures were evaluated (20 foot sections) in an area infested with cattails and in an open area without cattails. Differences were observed in the percentage of forage eaten, vegetation change and the reestablishment of grassy vegetation. In all pastures, reed canarygrass (*Phalaris arundinaceae*) increased 50% or more in sampling areas containing some canarygrass. Sampling areas containing primarily catchweed bedstraw (*Galium aparine*), lambsquarter (*Chenopodium album*), and fiddleneck (*Amsinckia menziesii*) in 2005 were repopulated, after one grazing season, with tumble mustard (*Sisymbrium altissimum*) and downy brome (*Bromus tectorum*). Animal health was maintained and cattle weight gains ranged between 1.8 lb/day in 2005 to 1.6 lbs/day in 2006. Sheep remained at their maintenance weights because they did not lamb. Following grazing, in-stream flow temperatures decreased 2 degrees

from an average of 66 degrees in the cattails to 64 degrees. The open water remained at the average 64 degrees throughout the study period.

STEMMING THE TIDE: STATUS AND HISTORY OF MICONIA (*MICONIA CALVESCENS*) CONTROL ON MAUI, HAWAII AFTER 17 YEARS OF ESCALATING MANAGEMENT ACTION. Jeremy Gooding*, National Park Service, Pacific Islands Exotic Plant Management Team, Maui, HI.

Miconia is a highly invasive tree that is native to Central America and threatens native tropical forest ecosystems throughout the Pacific Islands. Miconia displaces complex native communities by forming monotypic stands of shallowly rooted individuals that disrupt watershed integrity and cause economic and cultural damage to affected communities. Introduced to Tahiti in 1937, miconia had displaced 70% of its functioning forest ecosystems by 1998, resulting in a notable loss of topsoil and native vegetation. From the first discovery of miconia on Maui in a botanical garden in 1988, awareness and resources devoted to its control have steadily increased. Development of interagency partnerships and support from federal, state, county, and private entities has significantly improved the level of knowledge about miconia invasion and the effectiveness of control work. Escalation of the control effort on Maui was initiated in 1999 with systematic reconnaissance and control by the Maui Invasive Species Committee (MISC). Additionally, the Maui County Office of Economic Development and the Department Water Supply both provided consistent funding as the backbone for the effort. In 2000, the National Park Service Pacific Islands Exotic Plant Management Team (PI-EPMT) began serving Hawaiian Parks as a weed assessment and control force that further identified the scope and significance of miconia problem on Maui. Until 2003, when Haleakala National Park and the PI-EPMT infused additional resources that resulted in an eight-fold increase in effort, the program was plagued with inadequate resources, and a rapidly expanding and poorly defined problem. Now, the program extensively utilizes helicopters and ground-based crews to monitor and control infestations. Due to the invasiveness of this species, an estimated 37,000 acres on Maui require at least annual aerial reconnaissance to detect and / or control miconia. Approximately 2,500 acres of the 33,000 acres are heavily infested, and approximately another 7,500 acres are known to be lightly to moderately infested. Following multiple years of repeat treatments, numerous outlier infestations show a promising trend in visible reduction of the number of sexually mature individuals and a reduction in seedling recruitment. This suggests that current management strategies could successfully control miconia on Maui. However, areas not receiving timely re-treatment due to economic or other concerns show a trend that suggests the need for a more concerted effort to achieve long-term control. As we enter the next stage of management, we will learn if the promising methods developed to control the miconia infestation on Maui will have the sustainability and consistent funding needed to support the large-scale maintenance control efforts that will eventually defeat this super-weed.

BIOLOGICAL CONTROL OF MEDITERRANEAN SAGE - A PARTIAL SUCCESS IN OREGON. Eric M. Coombs*, Oregon Department of Agriculture, Salem and Jeffrey C. Miller, Oregon State University, Corvallis.

Mediterranean sage, *Salvia aethiopis* (Lamiaceae) is a serious naturalized invasive plant of rangelands in the sagebrush steppe in the Pacific Northwest area of the USA. Two species of weevils, *Phrydiuchus tau* and *P. spilmani* (Coleoptera: Curculionidae) were introduced from Europe as classical biological control agents. Only *P. tau* established and was widely redistributed throughout the region. Our observations show that following the establishment and population increase of the weevil, densities of Mediterranean sage decreased at three of the four initial release sites, and subsequently at 17 of 25 weevil release sites where plant densities dropped 3-5 orders of magnitude from >1 m2. Level of control appears to be associated with a combination of plant community type, disturbance, and grazing intensity. The decline was most apparent in the sagebrush steppe community with light to no grazing. In comparison, salt desert scrub, annual grass dominated, and heavily grazed communities showed little change in Mediterranean sage density in over 25 years. This is the first report of successful biological control against Mediterranean sage.

VIPER'S BUGLOSS: BIOLOGY AND MANGEMENT OF A NEW INVADER ON RANGELAND. Celestine A. Duncan*, Weed Management Services, Helena, MT; Bill Kral, DuPont Crop Protection, Twin Falls, ID; Bryce Christiaens, Ravalli County Weed District, Stevensville, MT; and Rob Johnson, Ravalli County Extension Agent, Hamilton, MT.

Viper’s bugloss (*Echium vulgare* L.) is a biennial to short-lived taprooted perennial in the borage family. The plant grows 2 to 3 feet tall, and both stems and leaves are covered with stiff trichomes that emerge from a bulbous base. Brilliant blue flowers are borne on a thyrse, and produce from 500 to 2000 seeds per plant. Viper’s bugloss contains pyrrolizidine alkaloids poisonous to livestock. The plant is native to Europe preferring dry, coarse textured, rocky soils. It is established in temperate zones worldwide especially along transportation corridors, overgrazed pastures, and rangeland. Rapid expansion of the weed in western Montana and other areas of the Pacific Northwest during the past 8 yrs have concerned private and public land managers. Research trials were established in 2004 and 2005 in western Montana to determine the response of viper’s bugloss to various herbicide treatments. Herbicides were applied at rosette growth stage in both spring and fall using a hand-held boom sprayer delivering 13.5 gpa. Treatment plots were replicated three times in a randomized complete block design. Visual evaluations were collected during season of application and 1 YAT (yr after treatment). Metsulfuron at 0.3 and 0.6 oz ai/A applied in spring at rosette growth stage provided 100% control of rosettes and flowering the season of application. Metsulfuron at 0.6 oz ai/A provided good (90%) control of rosettes 1 YAT. Aminopyralid at 1.75 oz ae/A, and picloram at 4 oz ae/A plus 2,4-D at 16 oz ae/A did not stop flowering in viper’s bugloss the year of treatment or control rosettes 1YAT when applied in spring. Fall applied herbicide treatments providing 100% control of germinating rosettes 1 YAT included metsulfuron alone at 0.6 oz ai/A, metsulfuron at 0.15 oz ai/A plus chlorsulfuron at 0.19 oz ai/A, and chlorsulfuron alone at 0.75 oz ai/A. Metsulfuron rates of 0.3 oz ai/A applied in fall provided excellent control (99%) 9 months after treatment, but control declined to less than 50% 1 YAT. Metsulfuron alone at rates less than 0.3 oz ai/A applied in fall does not provide effective control of the weed. Metsulfuron,

chlorsulfuron, or a combination of these two herbicides applied to rosettes in either spring or fall has an excellent fit for managing viper's bugloss on rangeland, roadsides, and wildland sites.

COMPETING VEGETATION AND LOGGING DEBRIS INTERACT TO INFLUENCE DOUGLAS-FIR SEEDLING GROWTH. Timothy B. Harrington*, Research Forester, USDA Forest Service, PNW Research Station, Olympia, WA 98512; Stephen H. Schoenholtz, Professor, College of Natural Resources, Virginia Tech, Blacksburg, VA 24061.

Logging debris (non-merchantable wood 5-12 cm in diameter) is common after timber harvest in the Pacific Northwest, yet little is known about how it affects microclimate, vegetation recovery, and growth of planted conifer seedlings. Research was initiated in 2005 on industrial forestland near Matlock, Washington and Molalla, Oregon to quantify mechanisms by which competing vegetation and logging debris influence resource availability and growth of Douglas-fir (*Pseudotsuga menziesii*) seedlings. At each site, a randomly-assigned combination of logging debris (0, 40, or 80% debris cover) and competing vegetation (removed versus retained) was applied within a 2- x 2-m area surrounding each of 48 Douglas-fir. Soil temperature (15-cm depth) and volumetric water content (20- to 40-cm depth) were monitored periodically throughout 2005-2006. Douglas-fir foliar nitrogen, mid-day water potential, and growth also were measured. During the growing season, soil temperature varied inversely with coverage of either logging debris or competing vegetation. Soil water was greater in the absence of competing vegetation but did not differ significantly among levels of logging debris. During June 2006, mid-day water potential of Douglas-fir was greater (i.e., less negative indicating lower stress) in the presence versus absence of logging debris. Foliar nitrogen of Douglas-fir increased with control of competing vegetation, especially in the presence of logging debris. Seedling growth responses mirrored those of foliar nitrogen. Results suggest that additional soil water made available from the absence of competing vegetation and the mulching (i.e., conserving) effect of logging debris facilitated increases in Douglas-fir seedling growth.

THE EVALUATION OF BOOMLESS NOZZLES FOR WEED CONTROL IN PASTURES, RANGELANDS, AND ROADSIDES. Robert Wolf*, Dallas Peterson, Walter Fick, Kansas State University, Manhattan; Jeffery Davidson, Kansas State University Research and Extension, Eureka; and Gary Kilgore, Kansas State University Research and Extension, Chanute.

Controlling and eliminating weeds in pastures and rangelands is an enormous challenge for farmers and ranchers. Similar challenges exist for those with responsibility to control weeds in rights-of-way areas. Dense, tall brush and rugged terrain limit the use of ground application systems equipped with booms to spray these areas. Therefore, applications of herbicides are commonly relegated to the use of airplanes or helicopters, which can be very cost prohibitive; or handheld spray systems, which are not very efficient for large areas. Deciding what approach to

use is one major challenge. In recent years the use of four-wheelers equipped with small capacity spray tanks and boomless nozzle systems have become popular. These systems are better adapted to uneven terrains and have potential to spray 25-30 foot swaths using a centrally located single or dual nozzle arrangement. Most recently there have been several nozzle designs introduced for this purpose. The adoption of these nozzle types is occurring without a clear understanding of correct operating parameters. Indications are that these nozzle types may not be as effective for weed control as hoped. Field trials were initiated using a four-wheeler spray system to evaluate boomless nozzles evaluating pattern quality, swath width, droplet spectra, and efficacy. Replicated studies were conducted in a manner consistent with recommended practice for boomless nozzle systems. The nozzle types compared were the TeeJet BoomJet (XP), Hypro Boom Extender (XT), Wilger Combo-Jet (WC-J), and the Evergreen Boom Buster (BB). Tank mix treatments containing glyphosate and paraquat were applied to a growing wheat crop planted in 20-foot wide strips for comparing each nozzle treatment. Visual ratings for efficacy, uniformity of control, and measurements for width of control at four weeks after treatment are reported. Two trials were completed, one with new growth wheat (4-5 inches tall) and the other in a later growth stage (24-30 inches tall). Three replications were evaluated for each treatment. Multiple water sensitive papers (WSP) were used to collect spray droplets across the swath width for each treatment. DropletScan® software, a computer, and a flat-bed scanner were used to calculate critical droplet statistics for all treatments. The spray system was calibrated to deliver 18 GPA at a spray speed of 3.5 MPH and a spray pressure between 35 and 40 PSI for all treatments. The nozzles for each treatment were configured according to manufacturer's recommendations (charts) to deliver the desired swath width. In the tall wheat trials differences were found at 4 WAT between chemical treatments with glyphosate showing complete control (100%) in the sprayed swath for all nozzle types and with paraquat having significantly less control across all nozzle types. There were differences in nozzle type in the paraquat treatments with the XT showing the most control (77%), the BB next at 73%, followed by the WC-J at 67%, and the XP at 60%. Evaluation for uniformity of control across the pattern width and depth was also measured with little differences found for all nozzle treatments in the glyphosate block. However, on a scale of 1-10 the uniformity of control in the paraquat block indicated some differences. The highest uniformity score was with the XT and the BB (8) and the lowest was with the XP (5) with the Wilger at 7. Another critical evaluation for these nozzle types was effective swath width. Measurements were taken for each treatment in the plot center starting the measurement from the edge of the first wheat row across the effectively controlled area away from the sprayer. Differences were found ranging from 131-inches for the WC-J with glyphosate to a low of 94-inches for the XP with paraquat. The widest swaths were found with the glyphosate treatments. A second trial in smaller wheat had different results for swath width. The XT with paraquat at 192-inches was best and the XP and WC-J with glyphosate measuring the least width at 134 and 146-inches respectively. Efficacy and control uniformity ratings for this trial are not yet completed. The droplet analysis is not complete at this time.

MANAGING INTRODUCED EXOTIC GRASSES USING GRAZING AS A TOOL.
Michael G. McMurry*, Texas Department of Agriculture, Austin.

Many, if not most, exotic, introduced grasses commonly found in rangelands today were originally introduced for livestock forage. Although palatability differs between species, many of these introduced grasses can be managed to be less invasive if a holistic approach is applied that treats these exotics as an integral part of a planned grazing program using livestock, particularly cattle, as a management tool. The total absence of grazing on a range where these species are present usually favors the invasive tendencies of these introduced plants as much, or even more so, than overgrazing.

TOLERANCE OF CONIFEROUS AND DECIDUOUS TREES TO AMINOPYRALID.
Celestine A. Duncan[1]*, Vanelle F. Peterson[2], and Mary B. Halstvedt[2], [1]Weed Management Services, Helena, MT, [2]Dow AgroSciences, LLC, Mulino, OR 97042 and Billings, MT 59106, respectively.

Aminopyralid is a broadleaf weed management herbicide introduced by Dow AgroSciences in 2006 for use in range, pasture, wildlands, and rights-of-way. The maximum broadcast label use rate for aminopyralid for herbaceous noxious weed control is 1.75 oz ae/A. Noxious weeds often occur in forested and riparian habitats, so tolerance of desirable trees to aminopyralid is an important issue. Research trials were established from 2004 through 2006 in Montana, Washington, and Oregon to assess the response of trees to aminopyralid. Herbicide treatments were applied using a hand-held boom sprayer delivering 13 to 21 GPA. Applications were made broadcast over the top or under tree canopy. Aminopyralid at 1.75 oz ae/A was applied over willow (*Salix* sp.) in spring, and over pine (*Pinus* sp.) in both spring and fall. Aminopyralid at 1.75 oz ae/A applied under the tree canopy was made in spring to poplar (*Populus* sp.), pine, and Douglas-fir (*Pseudotsuga menziessi*). Experimental design varied depending on tree size and genus. Visual evaluations were made during season of application and 1 YAT (year after treatment). Aminopyralid at 1.75 oz ae/A applied over the top of pine in spring caused 14% injury to newly emerged terminal growth the season of application and 20% damage 1 YAT. Fall application of aminopyralid over pine resulted in death of new growth 9 MAT (months after treatment). Willow injury from aminopyralid applied over canopy was 67% 14 DAT (days after treatment) but declined to 18% 45 DAT and was less than 10% 1 YAT. Aminopyralid applied under canopy to pine and poplar caused minimal (<5%) injury the season of application and 1 YAT. Douglas-fir was more sensitive to aminopyralid applied under the canopy with 10% injury to new growth 156 DAT. Results from these studies suggest that aminopyralid should not be applied over the canopy of either western conifers or deciduous trees, or under canopy within the drip-zone of western conifers unless injury is acceptable. Poplar and willow were more tolerant than these conifers, and applications of aminopyralid at 1.75 oz ae/A or less can be applied under the tree canopy within the drip zone and cause negligible injury to poplar and willow.

EFFICACY OF AMINOPYRALID ON HAWKWEEDS. Linda M. Wilson, Tim S. Prather, University of Idaho, Moscow, ID; Dean R. Gaiser* and Vanelle F. Peterson, Dow AgroSciences LLC, Spokane, WA and Mulino, OR.

Meadow hawkweed invades pastures and rangeland at mid to upper elevations primarily in the Pacific Northwest. One of about eight invasive hawkweeds, meadow hawkweed is difficult to control once the clonal, apomictic infestations establish at a site. Two experiments were established near Santa, ID from 2005 to 2006. The first experiment evaluated the effectiveness of aminopyralid, a new rangeland herbicide. Treatments included two herbicide rates, 3 and 7 fl oz product/A, applied at three growth stages, bolting, flowering and senescence. An additional experiment was conducted to evaluate surfactants in combination with aminopyralid. Treatments included four herbicide rates, 0.12, 0.24, 0.36 and 0.51 l ha^{-1} (1.5, 3, 5, and 7 fl oz product/A), and four surfactant treatments, non-ionic (R-11), organosilicone/methylated seed oil blend (Syl-Tac), ammonium sulfate (Bronc), and a surfactant control, applied at the bolting stage. Experiments were established in 3 by 9 m plots arranged as randomized complete block with four replications. All treatments were applied with a CO_2-pressurized backpack sprayer at 141 l ha^{-1}. Meadow hawkweed control was evaluated at 1 and 6 months after treatment (MAT) and 1 year after treatment (YAT) for each experiment. Herbicide treatments at the bolting and flowering stage provided greater meadow hawkweed control than fall senescence treatments in the aminopyralid efficacy study. Meadow hawkweed control did not differ in comparison between bolting and flowering treatments. There was no difference between the two herbicide rates in controlling hawkweed, where 98 and 99% control is maintained at 1 YAT. Biomass samples (0.125m^2) were collected in herbicide plots on June 23, 2006 about 1 YAT and were separated into meadow hawkweed, graminoids, and forbs in the laboratory. Aminopyralid at both rates and applied at each growth stage significantly reduced meadow hawkweed biomass in comparison to the untreated check. Meadow hawkweed and graminoid biomass did not differ between the low and high treatment rates. All aminopyralid rates and timings showed greater graminoid biomass than the untreated check. Significant increases in graminoid biomass resulted from aminopyralid treatments at both rates applied at bolting and applied at 0.51 l ha^{-1} at flower , Herbicide treatments did not affect forb biomass. The type of surfactant did not affect meadow hawkweed control across herbicide rates following each evaluation in the surfactant study. Meadow hawkweed control declined at 0.12 l ha^{-1} in comparison to other herbicide rates.

PROJECT 2: WEEDS OF HORTICULTURAL CROPS

COMMON LAMBSQUARTERS AND FRESH CARROT GROWTH IS AFFECTED BY BRASSICACEAE SEED MEAL APPLICATION AND CARROT PLANTING DATE. Lydia A. Clayton* and Donn C. Thill, University of Idaho, Moscow, Idaho.

Management of annual weed species continues to be one of the most troublesome and expensive components of organic agricultural production. Yellow mustard (*Sinapis alba*) seed meal has been shown to reduce emergence and growth of various weed species. A field study was conducted to determine the effect of yellow mustard seed meal on emergence and subsequent growth of common lambsquarters (*Chenopodium album*) and 'Nelson' carrot (*Daucus carota*

var sativa) from May to September 2006. Common lambsquarters were seeded at 1000 seeds/m^2. Yellow mustard seed meal was applied at 0.0, 0.5, 1, 2, 3, and 4 mt/ha and 'Nelson' carrot seed was planted at 1, 3, 6, and 12 days after treatment (DAT) during June. Biomass of common lambsquarters was determined 27, 49, and 89 DAT. Carrot weight was measured on a per meter row basis at harvest (90, 92, 95, and 102 DAT). Regression analysis showed that carrot yield for seeding dates 1, 2, and 6 DAT was not different among yellow mustard seed meal doses. However, the 12 DAT seeding date was significantly different from the other three timings showing greater yield at all meal rates. Common lambsquarters biomass at 49 DAT was reduced with increasing rates of yellow mustard seed meal. Statistically, seeding date did not affect weed biomass; however, there was a trend for decreasing biomass with increasing DAT. Future research should include testing other weed and crop species sensitivity to yellow mustard seed meal.

MESOTRIONE IMPREGNATED FERTILIZER FOR WEED CONTROL DURING TURFGRASS ESTABLISHMENT. Matt Williams*, William Johnston, Charles Golob, and Karine Pare, Washington State University, Pullman.

Fertilization and effective weed control are both necessary components of establishing a new stand of turfgrass. Impregnating mesotrione on a fertilizer for application at seeding would aid in reducing cost and labor. There is currently only one herbicide, siduron, which is impregnated on fertilizer for use at seeding in turfgrass. Mesotrione is under evaluation for weed control in Kentucky bluegrass, perennial ryegrass, and tall fescue. Field trials were conducted at the Turfgrass and Agronomy Research Center, Pullman, Washington in the spring and fall of 2006 to evaluate turfgrass safety, broadleaf weed control, and grass weed control across four rates of mesotrione (161 g ai/ha, 282 g ai/ha, 343 g ai/ha, and 565 g ai/ha) applied to 'Treasure' chewings fescue, 'Gallery' perennial ryegrass, 'NuDestiny' Kentucky bluegrass, and 'Inferno' tall fescue. The 161 g rate was safe to all turfgrass species in both the spring and fall. The 282 g rate was safe on perennial ryegrass, Kentucky bluegrass, and tall fescue, while the 343 g rate was safe only on Kentucky bluegrass and tall fescue; 545 g was only safe on Kentucky bluegrass. Broadleaf weed control was greater than 85 percent across turfgrass species using the 343 g and 545 g rates. Grass weed control was generally only greater than 85 percent at the 545 g ai/ha rate.

PUNCTUREVINE CONTROL IN RIGHT-OF-WAY AREAS. Richard P. Affeldt*, Marvin D. Butler, and Claudia K. Campbell, Oregon State University, Madras.

Puncturevine poses a risk for contamination in some crops because of the long-spined woody burs the plant produces. Control of puncturevine in areas adjacent to cropland is difficult because seeds can germinate throughout the summer then rapidly flower and produce mature seed. In 2005, five soil active herbicides were tested for residual puncturevine control on a roadside in the Willamette Valley near Albany, Oregon. Treatments were applied June 7 at rates registered for non-cropland use. Conditions in 2005 in the Willamette Valley, allowed for puncturevine germination throughout the summer. In 2006, six soil active herbicides were tested for residual puncturevine control on two roadside locations in central Oregon near Prineville and Madras. Treatments were applied on April 7 and May 9, respectively at rates registered for

non-cropland use. At Prineville, some precipitation occurred after the April 7 application. At Madras, no precipitation occurred after the May 9 application. Conditions in 2006 in central Oregon were very dry and allowed for only one flush of puncturevine to germinate. In 2005 in the Willamette Valley, diuron, imazapyr, and triclopyr controlled more than 90% of the puncturevine 30 days after application (DAA). At 71 DAA, imazapyr and hexazinone were controlling more than 85% of the puncturevine. At 86 DAA, hexazinone controlled 100% of the puncturevine. As the summer progressed hexazinone efficacy increased while diuron and triclopyr efficacy decreased. In 2006 in central Oregon at Prineville, flumioxazin, imazapyr plus diuron, and oryzalin controlled 100% of the puncturevine 117 DAA. At Madras only imazapyr plus diuron controlled 100% of the puncturevine 92 DAA. Across the three environments, puncturevine control was consistently good with treatments containing imazapyr.

WEED CONTROL AND POTATO CROP SAFETY WITH REDUCED RATES OF SULFENTRAZONE ALONE AND IN TANK MIXTURES. Pamela J.S. Hutchinson, University of Idaho, Aberdeen.

The lowest sulfentrazone rate for potatoes in 2004 - the first full-label year, was 0.094 lb ai/A. Since some growers experienced injury and perceived yield reductions that year, a study was conducted in 2005 and 2006 at the Aberdeen Research and Extension Center to determine crop safety and efficacy with reduced sulfentrazone rates of 0.047 or 0.7 compared with 0.094 lb ai/A applied preemergence. Regardless of rate or tank-mix partner, redroot pigweed, common lambsquarters, and green foxtail control usually was greater than 90% both years. Two-way tank mixtures of the lowest rate with other hairy nightshade potato herbicides – rimsulfuron or dimethenamid-p, provided 88 to 100% season-long hairy nightshade control both years. The 0.7 lb/A rate provided more consistent hairy nightshade control when tank-mixed with metribuzin or EPTC, and 0.094 lb/A combined with any of these four herbicides provided 90% or better control. In 2005, all three-way tank mixtures with 0.047 lb/A plus other non-hairy nightshade herbicides provided less than 90% hairy nightshade control, while only two of the five 0.7 lb/A mixtures provided greater than 90% control. Little or no crop injury was observed in 2005 while in 2006, up to 23% early-season injury was caused by any tank mixture including 0.7 or 0.94 lb/A. This early injury did not impact potato yield and quality negatively, however. Overall, low sulfentrazone rates used with appropriate tank-mix partners can provide lower crop injury risk levels while still providing effective hairy nightshade and other broadleaf and grass weed control in potatoes.

A 20 YEAR CHALLENGE - ACHIEVING SELECTIVE PERENNIAL BROADLEAF WEED CONTROL IN CRANBERRIES. Kim Patten*, Washington State University Long Beach Research and Extension Unit, Long Beach, WA.

Cranberries are shallow-rooted (4 to 8 cm), long-lived perennial vines that are grown as solid ground cover in wetland environs. Numerous species of low-growing herbaceous perennial broadleaf weeds out-compete cranberries, causing serious crop losses. Mechanical and physical control of these weed species are not viable options. Many hundreds of pre-emergent and post-emergent herbicides and soil fumigant trials have been conducted over the past 20 years in an attempt to find viable solutions for the cranberry industry. Dichlobenil is the mostly widely used herbicide, but its persistent use causes significant permanent decline in cranberry vine vigor and yield. Attempts to maintain efficacy and reduced crop damage using split timings and various herbicide combinations were not successful. Selective control of creeping buttercup (*Ranunculus repens*) and birdsfoot trefoil (*Lotus corniculutus*) with naproamide was achieved, but efficacy was lost in subsequent seasons due to enhanced microbial degradation. Dormant season metham sodium (126 lb ai/ac) and acetic acid drench (5000 gal/ac) provided selective control of false-lily-of-the valley (*Maianthemum dilatatum*), but crop tolerance was not consistent enough for this to be a viable option. Numerous sulfonylurea chemistries showed excellent efficacy across an array of perennial weed species, with no to minor phytotoxicity. With the exception of chlorimuron, registrants have declined to pursue registration. Chlorimuron's Section 3 registration is pending in 2008, but has taken 15 years to obtain. Its efficacy is limited in range, mainly to creeping buttercup. Clopyralid showed efficacy for Lotus and other similar species and was eventually registered on cranberries. However, dealing with the sensitivity of the crop outside its narrow timing window has proven problematic for the industry. Mesotrione showed excellent efficacy across an array of weed species with no phytotoxicity. After several years of Section 18's for mesotrione in the PNW, Pacific Silverleaf (*Potentilla pacifica*), which was previously causing the most crop loss of any cranberry pest in the PNW, has ceased to be a significant concern. Mesotrione has proven to be an ideal herbicide for use in cranberries and the industry has been ecstatic. Research is now focused on fine-tuning its efficacy by varying surfactant chemistry, timing, and spray volume. Surfactant effects on efficacy vary by weed, but have not proven to be not too critical. Ideal timings have been split applications (0.25 lb ai/ac) done at first weed emergence and again on subsequent regrowth. Low spray volumes (5-10 GPA), appeared to improve efficacy on weed species with waxy cuticles (*M. dilatatum*).

DIFFICULT TO CONTROL WEEDS IN PRODUCTION STRAWBERRY. Oleg Daugovish*, University of California Cooperative Extension, Ventura; and Steve Fennimore, University of California, Davis, CA.

California leads national strawberry fruit production, with annual value in Ventura County alone over $300 million. Weeding costs routinely range from $ 300-700/acre even after methyl bromide fumigation. Control of weeds with hard seed coats (little mallow, clovers) and yellow nutsedge with alternative fumigants is even more difficult. In a first phase of the program (2003-2006), a series of eight studies conducted in Ventura and Monterey Counties, CA

evaluated oxyfluorfen (Goal XL or GoalTender) for weed control and crop safety. Oxyfluorfen at half-rate provided 89-100% control of little mallow and most other broadleaf weeds, but a full rate was needed to control sweetclover 45 to 95% and, oxyfluorfen did not control yellow nutsedge. Additionally, weeds with wind-dispersed seed or 'wind-blown' weeds (such as horseweed, sowthistle, groundsel) continued to be a problem and weed control in non-fumigated furrows (drip-fumigation of beds only) remained to be difficult. The second phase (2006-2007) of the program focused on these issues. A single layer of paper (made from recycled newspaper and gypsum) placed under the black plastic that covered strawberry beds (30 day pre-transplant) completely eliminated yellow nutsedge germination that otherwise germinated through plastic at a density of 0.5 plants/ft^2. A separate study concluded that sulfentrazone (Spartan 4F) was not effective in controlling nutsedge germination from tubers or nutlets. A furrow weed control study showed that flumioxazin (Chateau) and oxyfluorfen/Devrinol combination reduced weed number of groundsel and sowthistle (weeds with wind-dispersed seed) 84-95% at 4 weeks after application and by about 68% during the following 8 weeks, also reducing the weeding time by 50% or more. An additional study evaluated Chateau and Goaltender for horseweed and sowthistle control (weed seed were dispersed manually on bed tops, and covered by clear plastic to simulate natural dispersal). Due to lack of horseweed germination we could not assess the herbicide efficacy, but both Chateau and GoalTender controlled sowthistle near 100% and did not injure strawberry. In this and in previous studies we have observed that wind-blown weeds continuously reinfest the strawberry planting holes and furrows as they blow in from the surrounding areas, thus, destruction of outside seed source is essential in minimizing weeding expenses in production strawberry. Overall, this weed management program identified cost-effective management tools for difficult to control weeds in California strawberries.

PECAN ORCHARD WEED MANAGEMENT STUDIES WITH OXYFLUORFEN FORMULATIONS. Jesse M. Richardson*, Dow AgroSciences, Hesperia, CA; William B. McCloskey and Ryan J. Rector, University of Arizona, Tucson; Mark. J. Renz, University of Wisconsin, Madison; Richard J. Heerema and Justin H. Norsworthy, New Mexico State University, Las Cruces; and Roger E. Gast, Dow AgroSciences, Indianapolis.

Field studies were established at Las Cruces, New Mexico and Picacho, Arizona in 2005 and 2006 to evaluate weed management in pecans with two oxyfluorfen formulations. Studies compared season-long residual programs with a postemergence glyphosate program at both locations. At Las Cruces, a postemergence program that utilized reduced rates of oxyfluorfen plus glyphosate with extended spray intervals was included. The best overall weed control was achieved with the oxyfluorfen plus glyphosate treatments. The residual program with either oxyfluorfen formulation also provided good control of target weeds, particularly in 2006 where the residual program with the EC formulation was the efficacy leader. At Picacho, all preemergence treatments reduced the cumulative number of weeds that emerged compared to the glyphosate postemergence program in both years. The lowest cumulative weed density occurred in the flumioxazin plus pendimethalin treatment in 2005 and the oxyfluorfen plus flumioxazin treatment in 2006. Cumulative weed emergence was lower when oxyfluorfen, flumioxazin and pendimethalin were applied alone at the high rate when compared to the low rate. At both locations, the glyphosate postemergence program resulted in the poorest weed control. No pecan tree damage was observed in any treatment in either Las Cruces or Picacho.

EPTC RATE RANGE USED IN TANK MIXTURES FOR WEED CONTROL IN POTATOES. Pamela J.S. Hutchinson, Justin Wheeler*, University of Idaho, Aberdeen.

Historically, EPTC has been tested in potatoes at three different rates in University of Idaho studies. Those three rates of 3.0, 4.0, or 5.25 lb ai/A were compared in a 2006 trial tank-mixed with metribuzin, rimsulfuron, dimethenamid-p, or flumioxazin at standard rates. Season-long redroot pigweed and common lambsquarters control with all tank-mixtures ranged from 93 to 100%. Both the EPTC rate and tank-mix partner effect were significant for hairy nightshade control. Averaged across tank-mix partners, as the EPTC rate increased, hairy nightshade control increased in a linear fashion from 83 to 92%. Averaged over EPTC rates, dimethenamid-p or flumioxazin tank-mixtures provided 97 to 99% control and rimsulfuron or flumioxazin mixtures provided less control at 88 or 67%, respectively. Green foxtail data were sorted by tank-mix partner for analyses due to a significant rate by partner interaction. Regardless of the EPTC rate, dimethenamid-p, metribuzin, or rimsulfuron mixtures controlled green foxtail 100%. However, control by flumioxazin + EPTC mixtures increased in a linear fashion from 50 to 87% as the EPTC rate in those mixtures increased. Flumioxazin tank-mixes caused 8 to 13% early visual injury, consisting mainly of stunting and some leaf necrosis, whereas injury from other mixtures was never greater than 2%. Injury was not evident after row closure. Even though some tank-mix treatments did not provide adequate hairy nightshade or green foxtail control and some caused early injury, all tank-mix treatment U.S. No. 1 and total tuber yields were greater than weedy, and comparable to the nontreated, weed-free control yields.

EFFECTIVE TIMING OF SEQUENTIAL HERBICIDE APPLICATIONS FOR NUTSEDGE CONTROL IN TURF. Kai Umeda* and Gabriel Towers, University of Arizona Cooperative Extension, Phoenix.

Sequential applications of all of the ALS-inhibiting herbicides offered acceptable to excellent levels of nutsedge control in turf. Single applications generally provided nutsedge control for 2 to 6 weeks. Single applications of halosulfuron and flazasulfuron offered effective control for 2 weeks and less than 4 weeks. Effective nutsedge control by trifloxysulfuron and sulfosulfuron was observed at 31 days after treatment (DAT) and began to decline at 42 DAT. Sulfosulfuron at 0.094 lb a.i./A applied sequentially at either 4 or 6 weeks gave near complete nutsedge control at the end of the season at the end of September. A second application of trifloxysulfuron at 0.026 lb a.i./A at 4 or 6 weeks after a first application in mid-July resulted in controlling nutsedge better than 85% at the end of September. Flazasulfuron at 0.047 lb a.i./A applied sequentially at 6 weeks provided improving nutsedge control through the summer and resulted in near complete control at 95% at the end of September. Halosulfuron at 0.062 lb a.i./A showed only 65% control after the first application and a sequential application at 4 weeks improved control to 92% for only an additional 2 weeks and then control was less than acceptable at the end of the season. Imazaquin at 0.5 lb a.i./A gave less than acceptable but consistent control until sequential applications at both 4 and 6 weeks improved nutsedge control to acceptable levels.

PREEMERGENCE CARFENTRAZONE INJURY TO VEGETABLE AND ROOT CROPS. Rick A. Boydston*, USDA-ARS, Prosser, WA.

Soil activity and persistence of carfentrazone-ethyl are generally believed to be limited. Several commercial onion fields in Washington and Oregon were damaged in 2005 where carfentrazone-ethyl was applied prior to onion emergence. Carfentrazone-ethyl applied preemergence at 0.032 lb ai/A damaged onion, sugar beet, carrot, broccoli, cabbage, and lettuce planted in sandy soil in greenhouse trials. Subsequent field studies were conducted in 2006 to measure the response of onion, carrot, sugar beets, peas, and snap beans to carfentrazone-ethyl applied at 0, 0.004, 0.008, 0.016, and 0.032 lb ai/A 5 to 7 days prior to planting, 1 day after planting, and 6 to 8 days after planting on a Warden sandy loam soil near Prosser, Washington. Carfentrazone-ethyl applied at all rates and timings did not reduce stand counts or yield of peas or snap beans compared to nontreated checks. Carrot stand was reduced by 25 and 53% and final yield was reduced 23 and 45% by carfentrazone-ethyl at 0.016 and 0.032 lb ai/A, respectively. Carrots were injured more by later preemergence applications than by treatments applied 5 days prior to planting. Onion and sugar beet stand counts were reduced by 28 and 42%, respectively, and final yields were reduced by 22 and 19%, respectively, by carfentrazone-ethyl at 0.032 lb ai/A. The timing of carfentrazone-ethyl application in relation to planting date had no effect on any onion or sugar beet parameters measured. In a trial conducted on a Quincy sand soil near Paterson, Washington, sugar beet stand and final yield were reduced by 50 and 47%, respectively by carfentrazone-ethyl at 0.016 lb ai/A when applied 1 day after planting. Based on these results, rates of carfentrazone-ethyl applied near the time of planting should not exceed 0.008 lb ai/A to carrots and should not exceed 0.016 lb ai/A to onion and sugar beets on sandy loam soils to avoid injury. Carfentrazone-ethyl should not exceed 0.008 lb ai/A to avoid injury to sugar beets on sandy soils.

TILLAGE SEQUENCE STRATEGIES TO REDUCE WILD PROSO MILLET SEED SURVIVAL AND EMERGENCE. Ed Peachey* and Carol Mallory Smith, Oregon State University, Corvallis, OR.

Wild proso millet reduces yield in sweet corn and other crops and is difficult to control with herbicides. The seed of wild proso millet is relatively short lived in crop rotations and seed dormancy is dependent on burial depth. These characteristics should allow design of crop rotations that increase seed mortality rates. This study tested the potential of five fall tillage and cover crop planting schemes to increase wild proso seed mortality rates. The study was conducted over 2 years (2005 and 2006) at two sites. Millet seeds (500/m^2 in 2005 and 1000/m^2 in 2006) were broadcast on the surface of the soil after sweet corn harvest. Cover crops of oats or barley were either direct-seeded or drilled after tillage in the fall. Snap beans were direct-seeded or conventionally planted the following spring on subplots. Only 3-5% of the seeds sown on plots in the fall produced seedlings in the spring and summer. Seed mortality during the winter ranged from 46% when fall tillage preceded cover crop planting to 64% in plots that were not tilled or planted to cover crops in the fall (fallow). Wild proso millet emergence in the spring and during the snap bean crop was greatest when cover crops were direct-drilled and

least in fallow plots. Notill planting of snap beans in the spring did not significantly reduce wild proso millet emergence. Pitfall traps and seed predation stations with exclusion fences indicated that invertebrate predation caused some of the seed mortality.

PROJECT 3: WEEDS OF AGRONOMIC CROPS

THE NEBRASKA GUIDE FOR WEED MANAGEMENT. Robert N. Klein*, University of Nebraska WCREC, North Platte; Alex R. Martin, University of Nebraska, Lincoln; Robert G. Wilson, University of Nebraska, Scottsbluff; Stevan Z. Knezevic, University of Nebraska, Haskell Agricultural Laboratory, Concord; Mark L. Bernards, Univeristy of Nebraska, Lincoln; Drew J. Lyon, University of Nebraska PREC, Scottsbluff; Roch E. Gaussoin, University of Nebraska, Lincoln.

The Nebraska Guide for Weed Management has been published in some form since 1960. Then it was called "Chemicals that Control Weeds," and was a single 8.5 by 24 sheet. The guide has grown from eight pages in 1968 to 199 pages in the 2007 version. It is now a comprehensive source of information on principles of weed management, human safety and stewardship, and application equipment, practices and calibration. Information on controlling weeds in various crops, non-crop areas, and noxious and troublesome weeds is included as well. The 24 page herbicide dictionary is among the most valuable sections of the guide, listing all herbicides labeled for use in Nebraska, as well as many herbicides labeled for surrounding states.

TILLAGE AFFECTS IMAZAMOX PERSISTENCE IN SOIL. Jonquil Rood*, Traci Rauch, Donn Thill, University of Idaho, Moscow; Dan Ball, Sandy Frost, Larry Bennett, Oregon State University, Pendleton; Joe Yenish and Rod Rood, Washington State University, Pullman.

Research is being conducted near Genesee, ID; Pendleton, OR; and Davenport, WA to determine the effect of tillage on persistence of imazamox herbicide. Fall and spring applications of imazamox were applied at one, two, and three times the maximum labeled rate to Clearfield® ORCF-101 winter wheat and soil samples have been collected regularly at each site since herbicide applications. Soil samples are frozen until used in bioassay tests. Wheat injury from fall applied imazamox treatments was not evident until spring at all three sites. At all locations, imazamox at the 3X rate applied in the fall stunted and thinned the wheat stand 50 to 54%. Wheat injury from spring applied imazamox was greatest at the Pendleton site (3 to 44%) and the least at the Genesee site (1%). At Pendleton, a sparse population of downy brome and interrupted windgrass was controlled 96 to 100% by all imazamox treatments. Downy brome was controlled 84 to 98% at the Davenport site. At Davenport and Pendleton, wheat biomass was not affected by imazamox treatments. Wheat seed yield and test weight were not different among treatments and the untreated check at Genesee and Davenport. At Pendleton, fall applied imazamox at the 3X rate reduced wheat yield 7% compared to the untreated control. The soil bioassay is underway.

FLORASULAM: NEW BROADLEAF HERBICIDE FOR WHEAT AND BARLEY.
Peter C. Forster*, Donald J. Porter and Stephen M. Schraer, Syngenta Crop Protection Inc., Greensboro, NC.

Florasulam is a new selective postemergence herbicide being developed for the US market by Syngenta Crop Protection for the control of broadleaf weeds in wheat and barley. The active ingredient Florasulam is a broadleaf active compound from the chemical class triazolopyrimidine sulfonanilide. Florasulam inhibits the plant enzyme acetolactate synthase (ALS) which is essential for the synthesis of amino acids necessary for plant growth. Florasulam is taken up primarily through leaves of treated broadleaves and then translocated in both the xylem and phloem to growing points. Florasulam has excellent crop safety to wheat (including spring, winter and durum) and barley. Florasulam can be applied from the 3-leaf stage up to the boot stage of crops. Florasulam has a short soil half-life allowing for flexible crop rotations the following growing season. Syngenta is developing florasulam in a premix with MCPA ester for broad spectrum weed control. Florasulam at 5 g ai/ha + MCPA at 350 g ae/ha effectively controls wild buckwheat (*Polygonum convolvulus*), common lambsquarters (*Chenopodium album*), wild mustard (*Sinapis arvensis*), prickly lettuce (*Lactuca serriola*), smartweed (*Polygonum spp*.), common ragweed (*Ambrosia artemisiifolia*), annual sunflower (*Helianthus annuus*) and several other broadleaf weeds. Based on its broad weed control spectrum, excellent crop safety and rotational crop flexibility, Florasulam/MCPA ester premix will become a new standard for broadleaf weed control in wheat and barley crops.

EFFICACY OF RECENTLY DEVELOPED HERBICIDES FOR ITALIAN RYEGRASS CONTROL IN OKLAHOMA WINTER WHEAT. B. Heath Sanders*, Mark C. Boyles, Deena L. Morley, and Thomas F. Peeper, Oklahoma State University, Stillwater, OK.

Hard red winter wheat producers in the southern Great Plains are experiencing increasing problems with Italian ryegrass in their continuous wheat cropping systems. Italian ryegrass is a harsh competitor for winter wheat and reduces yield and grain quality. The 2005-06 crop year was characterized by sparse rainfall throughout the season. Dry weather seemed to have a negative impact on the efficacy of some herbicides. Finesse Grass and Broadleaf (chlorsulfuron + flucarbazone) applied at labeled Rate II to tillered ryegrass in the fall controlled it 55 and 68% at two locations. Control was similar when application was delayed until late winter. Because Axial (pinoxaden) has a 50 day grazing restriction and ryegrass is typically worse in fields with a history of grazing + grain wheat production, applications of pinoxaden are most feasible in late winter in the southern Great Plains. Under severe drought stress, late winter applied pinoxaden control ryegrass 58%. Under moderate drought conditions control was 89%. Applying pinoxaden in 100% urea-ammonium nitrate liquid fertilizer carrier reduced ryegrass control 8% at one location and 6% at another. Neither fall nor winter applications of Osprey (mesosulfuron) with NIS at 0.14 to 0.21 ounces a.i./acre controlled ryegrass over 66%. At one

site adding MSO to the spray mix instead of NIS improved control by 12%. Wheat yield increases attributed to treatment were limited by drought. However, reductions in dockage due to ryegrass seed were achieved with most treatments.

FERAL RYE CONTROL WITH IMAZAMOX IN CLEARFIELD WINTER WHEAT. Philip Westra*, Lynn Fandrich, Todd Gaines, and Scott Nissen, Colorado State University, Ft. Collins; and Dale Shaner, USDA-ARS, Ft. Collins, CO.

Clearfield winter wheat has been widely adopted by Colorado wheat producers for the control of jointed goatgrass, downy brome, and feral rye. Approximately 12% of the fall 2006 wheat acres were planted to Above or Bond Clearfield wheats. Since Clearfield wheat technology was introduced in Colorado, it has been used with good success to control jointed goatgrass and downy brome with imazamox. Control of flixweed and blue mustard has also been good with this technology. However, control of feral rye has been more variable, sometimes ranging from only fair to good. In some cases, much feral rye is killed, and the rye stand is greatly reduced, but some stunted plants may survive and produce greatly reduced seed heads. The reasons for this variable control are not well understood. Generally, fall treatments when the rye is small provide the best control, but occasionally spring treatments provide the best control. It is unknown if there are different accessions of feral rye in Colorado that vary in their response to imazamox. Thirty accessions of feral rye were collected from diverse areas of Colorado for use in a greenhouse dose response study with imazamox. In addition, a series of field imazamox application timing studies were conducted. This field research indicates that very drought stressed feral rye plants may be more difficult with imazamox. Studies are being conducted with radiolabeled imazamox to better understand possible metabolism in feral rye plants.

BEST MANAGEMENT PRACTICES AND IMIDAZOLINONE-TOLERANT WINTER WHEAT. Phillip W. Stahlman* and Patrick W. Geier, Kansas State University, Hays.

Because winter wheat and jointed goatgrass are genetically related and can cross pollinate to form interspecific hybrids, there is risk of moving imidazolinone herbicide tolerance from imidazolinone-tolerant (Clearfield™) wheat into jointed goatgrass populations. An experiment was conducted for 5 years near St. John, KS to investigate management practices designed to minimize the risk of developing imidazolinone-tolerant jointed goatgrass. Conventional winter wheat (‘Jagger’) and imidazolinone-tolerant winter wheat (‘AP502CL’) were grown using Best Management Practices (large sized-seed; 50% higher-than-normal seeding rate; narrow row spacing; in-furrow starter fertilizer plus nitrogen topdress in spring) compared to conventional production practices (non-sized seed, normal seeding rate and row spacing; and broadcast fertilizer preplant plus nitrogen topdress in spring). Certified Jagger and AP502CL winter wheat were seeded each year as well as certified AP502CL the first year followed by saved (bin-run) seed in subsequent years. Jagger wheat was sprayed each year with sulfosulfuron at 35 g/ha, and AP502CL wheat was sprayed with imazamox at 27 or 45 g/ha. In all years, imazamox use

substantially reduced in-crop jointed goatgrass populations compared to conventional wheat production. Generally, Best Management Practices enhanced imazamax effectiveness in most years. However, differences between BMP and conventional practices combined with imazamox use were not significant when averaged over years. The occurrence of jointed-goatgrass-wheat hybrid spikes varied widely by year. The percentage of hybrid spikelets producing viable seed has ranged from 0 to 1.1%. Most plants did not survive treatment with imazamox indicating progeny from the hybrids remained sensitive to imazamox. A few imazamox-treated plants did not die but none recovered to produce seed.

COMPARISON OF ROUNDUP READY FLEX AND LIBERTY-LINK COTTON WEED CONTROL SYSTEMS. William B. McCloskey*, University of Arizona, Tucson.

Experiments conducted in 2004 to 2006 at the University of Arizona Maricopa and Safford Agricultural Centers (MAC and SAC) investigated weed management in RR Flex cotton and Liberty Link Cotton. Factors investigated included the type of pendimethalin application (preplant incorporated or preemergence), rate and sequence of glyphosate or glufosinate applications, the method of post-directed spray application and the use of residual layby herbicides. The preplant incorporated (PPI) use of pendimethalin provided excellent control of Palmer amaranth (AMAPA) and suppression of ivyleaf morningglory (IPOHE) in terms of both reduced weed density and slower growing weeds. These two effects resulted in a longer early season topical glyphosate or glufosinate application window and improved weed control later in the season. For example at MAC in 2005 at 34 DAP (days after planting), AMAPA plants were 6.8 cm tall with 8.8 leaves per plant and there were 205 plants m^{-2} in the absence of pendimethalin compared to plants that were 2.5 cm tall with 6 leaves per plant and a density of 5.2 plants m^{-2} in the presence of pendimethalin (1.06 kg ha^{-1}). Similarly, at 34 DAP, IPOHE plants were 4.8 cm tall with 4 leaves per plant and there were 48 plants m^{-2} in the absence of pendimethalin compared to plants that were 2.0 cm tall with 2 leaves per plant and a density of 13.3 plants m^{-2} in the presence of pendimethalin. The effects of pendimethalin on weed size resulted superior Palmer amaranth control after early season topical herbicide applications and in greater suppression of ivyleaf morningglory after two sequential postemergence herbicide applications. In Roundup Ready Flex cotton at 14 days after topically applying glyphosate (0.84 kg ha^{-1}), AMAPA control was 99% and 80% with and without PPI pendimethalin, respectively, and there was no difference in IPOHE control (73%). Cotton plants averaged 8 nodes of growth in treatments with PPI pendimethalin but cotton plants in treatments without PPI pendimethalin only averaged 2 nodes of growth and were stunted 87%. At 24 days after post-directed glyphosate applications (1.26 kg ha^{-1}) that followed topical applications (0.84 kg ha^{-1}), AMAPA control was 99% and 81% with and without PPI pendimethalin, respectively, and IPOHE control was 91% and 83% with and without PPI pendimethalin, respectively. Cotton growth (i.e., height and number of nodes) was greater throughout the season and cotton yields were greater in weed control programs that included a preplant incorporated pendimenthalin application. The use of pendimethalin was especially critical in Liberty Link cotton; most treatments without PPI pendimethalin could not be harvested due to the presence of large pigweeds. At Safford in 2006, IPOHE control in treatments with preplant incorporated pendimethalin (1.06 kg ha^{-1}) following topical applications of glyphosate (0.84, 1.26, and 1.73 kg ha^{-1}) averaged 73% compared to an average of 37% control in the absence of pendimethalin.

Similarly, IPOHE control in treatments with PPI pendimethalin following topical applications of glufosinate at 0.59, 0.74 and 0.89 kg ha^{-1} were 60, 67 and 69%, respectively, compared to 14, 29 and 44%, respectively, in the absence of pendimethalin. After sequential topical and post-direct applications of glyphosate (0.84, 1.26, and 1.73 kg ha^{-1}), IPOHE control was greater than 90% in treatments both with and without pendimethalin. In contrast, following sequential topical and post-direct applications of glufosinate at 0.59 and 0.74 kg ha^{-1}, the use of PPI pendimethalin improved IPHOE control from 62 to 72% and from 74 to 94%, respectively. At both Maricopa and Safford, using pendimethalin PPI usually reduced the amount of morningglory vines present in the cotton canopy at the time of harvest resulting in less weed seed production.

DOWNY BROME AND FOXTAIL BARLEY CONTROL WITH ALS-INHIBITING HERBICIDES. Angela J. Kazmierczak* and Kirk A. Howatt, North Dakota State University, Fargo.

Downy brome populations in North Dakota have continued to move from the west to the eastern part of the state. Downy brome and foxtail barley infestations have become more frequent as there has been an increased interest in no-till cropping systems. Greenhouse experiments were conducted to evaluate several ALS-inhibiting herbicide treatments applied to pre- and post-vernalized downy brome and to three- to five- tiller or perenniated foxtail barley plants. Control of species was visually evaluated 14 and 28 d after treatments were applied. Dry weights were recorded 28 d after treatment. Growth stage response was not significantly different between treatments. Imazamox at 35 g ae/ha provided the greatest control of downy brome with 82% control 28 d after treatments were applied. Sulfosufuron at 35 g/ha increased control as well at 28 d with 65% control and dry weights were 59% less than the control. Other herbicide treatments gave less than 40% control 28 d after treatment. Imazamox also provided the best control of foxtail barley with visual ratings greater than 80% at 28 d after treatment when compared to the control and also exhibited the lowest dry weight. Sulfosulfuron gave 55% control of foxtail barley at 14 d with a slight increase in control 28 d to 68%. Propoxycarbazone at 10 and 30 g ai/ha provided 45 and 52% control 28 d after treatment with a four to 10% increase compared to the 14 d ratings. Dry weight was decreased by 58 to 64%, respectively, when compared to the control.

COMPETITIVE CHARACTERISTICS OF PROTOX-RESISTANT COMMON WATERHEMP. Michael G. Duff*, Kassim Al-Khatib, and Dallas Peterson, Kansas State University, Manhattan.

A biotype of common waterhemp was confirmed to have resistance to protox-inhibiting herbicides near Sabetha, KS in 2001. The objective was to determine competitiveness and fitness of a protox-resistant (PR) common waterhemp biotype. In the greenhouse, PR and protox-susceptible (PS) biotypes were grown under monoculture (noncompetitive) and replacement series (competitive) arrangement. Photosynthesis, leaf area, and plant dry weight were determined at 10, 20, 30, and 40 days after transplanting (DATP). In noncompetitive conditions, leaf area was greater for PR than PS biotype at 20, 30, and 40 DATP. Photosynthesis and plant dry weight, however, were similar between the biotypes. Under competitive conditions, photosynthesis, leaf area, and plant dry weight of PR and PS biotypes were similar. This resulted in PR-PR and PS-PS intracompetition equaling PR-PS intercompetition. Due to the lack of differences between growth of PR and PS biotype at late growth stages in noncompetitive conditions and similar growth of PR and PS under competitive conditions, the PR biotype has no competitive advantage or disadvantage. Therefore, presence of protox resistance and frequency of resistance genes in PR biotype are unlikely to decrease, even in the absence of protox selection pressure.

CANADA THISTLE GROWTH AND PHYSIOLOGICAL RESPONSE TO A PATHOGEN, INSECT, AND HERBICIDE. Joanna K. Sciegienka*, Fabián D. Menalled, Perry R. Miller, Nina K. Zidack, and Sue L. Blodgett, Montana State University, Bozeman; Stephen Enloe and Timothy Collier, University of Wyoming, Laramie.

Canada thistle (*Cirsium arvense*) is a vigorous creeping perennial that affects many environments due to its extensive root system, its capability for vegetative reproduction, and its tendency to make thick, dense stands. Current Canada thistle weed management strategies are mostly based on single-method practices. However, the integration of chemical and biocontrol tactics may increase management efficiency and efficacy. A greenhouse study was done at MSU's Plant Growth Center in Bozeman, Montana to evaluate Canada thistle response to an herbicide, an insect, and a pathogen (glyphosate, *Hadroplontus litura* and *Pseudomonas syringae* pv. *tagetis*, respectively). Our hypothesis was that synergism between the herbicide and the biological controls would provide the highest degree of Canada thistle control. Relative to the control, a 5.5 lb ai/A rate of glyphosate did not affect aboveground biomass, but decreased belowground biomass by 80% and decreased shoot survival by 35%. The largest change occurred when the biocontrols were combined with glyphosate at a rate of 0.92 lb ai/A. These treatments reduced aboveground biomass by 90 to 100%, reduced belowground biomass by 96 to 100%, and reduced shoot survival by 80 to 97%. These results support our hypothesis of increased control using a multi-faceted management approach and also strongly suggest the possibility of synergistic interactions among management practices. This experiment will be repeated later this year. In addition, these ideas will be implemented in a field experiment to be performed during the 2007 growing season and repeated in 2008.

INTEGRATION OF INFORMATION, KNOWLEDGE, AND ENVIRONMENTAL INDICATORS IN NATURAL AREA WEED MANAGEMENT DECISION MAKING.
Karin K. McShea*, Susan Beatty, University of Colorado, Boulder.

A large body of literature provides information about the effects of weed species, their evolution and history, and includes recommendations for best management strategies. Yet a gap still exists between recommendation and actual practices. This gap may be due in part to the under-representation of weed managers' input in the aforementioned literature, or due to the differences between the information that is provided in academic literature and the information that land managers use in their jobs. Land managers face limitations and hurdles that prohibit them from fully following the recommendations made by scientists. After interviewing 36 land managers in Colorado, I found the most frequently reported hurdle was limited funds, however other limitations included low personnel and equipment resources, timing issues, and opinion-based restrictions on control techniques. Another reason for the scientist/manager gap may be that each uses different techniques to assess potential problems. Scientists mainly utilize quantitative techniques, while land managers mainly utilize qualitative visual assessment of land. Information utilization and dissemination may also shed light on the scientist/manager gap. I found that land managers used experience and networking with colleagues as their best source of weed management information but infrequently relied on academic journals. Although managers believed experience is very important in this field, few thought that this kind of hands-on knowledge is publishable or presentable at conferences. By understanding how on-the-ground decisions are made, future work can then focus on bridging the gap and blurring the lines between the scientist and the land manager.

FOXTAIL BARLEY CONTROL IN NATIVE GRASSES GROWN FOR SEED IN ALASKA. Brian Jackson*, Stephen Sparrow, University of Alaska Fairbanks; and Steven Seefeldt, USDA-ARS, Fairbanks, AK.

Foxtail barley is one of the most detrimental weeds in the Alaska native grass seed industry. Its control is essential for improving seed production and stand longevity so producers can meet statewide seed demands. The objective of this study was to determine suitable chemical controls of foxtail barley for three different native grass species: 'Nortran' tufted hairgrass (*Dechampsia caespitosa*), 'Gruening' alpine bluegrass (*Poa alpina*), and 'Wainwright' slender wheatgrass (*Elymus trachycalus*) formerly (*Agropyron pauciflorum*). In 2005 initial trials were performed in pre-existing fields with the permission of cooperating producers in Delta Junction and the Eielson area. We observed weed control and crop response to five different herbicides on foxtail barley and three crops which allowed us to identify two herbicides as possible management tools: fluazifop-p-butyl and propoxycarbazone sodium. We then conducted greenhouse experiments during the winter 2005-2006 at the Matanuska Experiment Farm to determine dose response curves of the two herbicides on grass seedlings. In 2006, additional field studies were conducted at the Fairbanks Experiment Farm and the Delta Junction Field Research Site. Test plots were fall seeded and fluazifop-P-butyl and propoxycarbazone sodium were applied at five rates during spring 2006 prior to shoot elongation. Our results indicate that 'Nortran' tufted

hairgrass is tolerant of propoxycarbazone sodium at rates that proved to be highly efficacious on foxtail barley.

CORN AND PALMER AMARANTH INTERACTIONS IN TWO SOIL WATER ENVIRONMENTS. Dwain M. Rule*, J. Anita Dille, Scott A. Staggenborg, Jay M. Ham, and Stacy L. Hutchinson, Kansas State University, Manhattan.

Palmer amaranth is a competitive weed in corn fields in the Great Plains of the United States. Field experiments were conducted in 2005 and 2006 at the Department of Agronomy Ashland Bottoms Research Farm, near Manhattan, KS. The objective was to monitor corn and Palmer amaranth competition under two soil water environments. The experiment was arranged in a side by side design with whole plots being dryland and furrow irrigation. Within each soil water environment, sub-plot treatments were monoculture Palmer amaranth at 1 plant m^{-1} of row, and corn with 0, 1, and 4 Palmer amaranth plants m^{-1} of row. These were replicated four times in a randomized complete block design. Water stress occurred earlier and caused more severe drought in 2006 than 2005. Corn height was impacted more by water stress than by Palmer amaranth. Corn leaf number, LAI, and (leaf, stem, plant) dry weight were reduced with increasing water stress and were stressed further in the presence of Palmer amaranth. In both years, dryland monoculture corn yield was 50% less when compared to irrigated monoculture corn. Corn yield loss was similar with increasing Palmer amaranth density within soil water environments in each year, except for 2006 dryland corn. Growth and development trends of corn and Palmer amaranth in dryland and irrigated environments are used to understand competition and corn yield loss. The information will be used to improve crop-weed competition models and ultimately, optimize corn water use and weed management decisions in diverse environments.

TOLERANCE OF *CAMELINA SATIVA* TO PREEMERGENCE AND POSTEMERGENCE HERBICIDE APPLICATIONS. Steven R. King*, Montana State University - Southern Agricultural Research Center, Huntley.

Camelina (*Camelina sativa*) together with other oilseed crops has garnered interest as a potential source of biodiesel. This study was conducted in 2006 to determine herbicide tolerance of camelina. Two rates of eight preemergence (PRE) and ten postemergence (POST) herbicides were applied to camelina. PRE herbicides evaluated included: acetochlor, trifluralin, ethalfluralin, pendimethalin, triallate, metolachlor, sulfentrazone, and EPTC. POST herbicides evaluated included: fluroxypyr, bromoxynil, clopyralid, MCPA, 2,4-DB, bentazon, clethodim, sethoxydim, thifensulfuron, and tribenuron. PRE herbicides were applied prior to planting and POST herbicides were applied to 6 to 10 inch tall camelina plants. Camelina was planted at 3 lb/A and treatments were replicated four times. The entire experiment was conducted weed-free in order to focus on herbicide tolerance. Treatments were compared to two nontreated controls. PRE herbicide injury typically was evident as stand reduction, while POST herbicide injury was

recognizable as stunting/chlorosis. Stand reduction was less than 5% with trifluralin, ethalfluralin, and pendimethalin at 42 days after treatment (DAT). Sulfentrazone completely eliminated camelina from treated plots. The other PRE herbicides reduced camelina stand 14 to 36% at the low rates and 36 to 49% at the high rates. Camelina seed yield, with the exception of sulfentrazone, did not differ from the nontreated controls. This result occurred because plants in plots treated with PRE herbicides that did survive became larger and produced more seed per plant compared to plants treated with herbicides that did not cause stand reduction. Stunting/chlorosis was less than 5% with clopyralid, 2,4-DB, clethodim, and sethoxydim at 42 DAT. The two sulfonylurea herbicides caused greater than 70% camelina stunting. The other POST herbicides stunted camelina 16 to 40% at the low rates and 29 to 59% at the high rates. Camelina in plots treated with clethodim, sethoxydim, and the low rate of bromoxynil produced yields equivalent to the nontreated controls. Plants in plots treated with clopyralid were essentially sterilized and did not produce seed. Results indicate that there are several herbicides that have the potential to be utilized in camelina for weed control, however additional research needs to be conducted to confirm these results.

SCOURINGRUSH CONTROL WITH HERBICIDES. Kirk A. Howatt*, North Dakota State University, Fargo.

Questions regarding the control of *Equisetum* spp. are resulting from the encroachment and invasion of crop and rangeland by field horsetail and scouringrush in the Dakotas and Minnesota. An experiment was established near Britton, South Dakota, to evaluate the efficacy of individual active ingredients to control an infestation of scouringrush in cropland. Seven auxinic herbicides and six ALS-inhibiting herbicides were applied in June. Four of the auxinic herbicides and two of the ALS-inhibitors also were applied to separate plots in October. Triclopyr at 24 oz ae/A applied in June provided 88% control in July and maintained 85% control in October. MCPA at 16 oz ae/A, chlorsulfuron at 0.75 oz ai/A, metsulfuron at 0.6 oz ai/A, and imazapic at 3 oz ae/A provided 73 to 85% control and were not different from triclopyr. The effect of each herbicide applied in June dissipated by the next season and did not affect the number of stems 12 months after application. Triclopyr applied in October provided 98% control of scouringrush the following June, and activity persisted through October with 93% control. MCPA gave 85% control but allowed more stem emergence than triclopyr. Metsulfuron and imazapic gave 90 and 85% control, respectively, in June but only 13% control in October. Aminopyralid at 1.75 oz ae/A gave less than 15% control when applied in June. When applied in October, aminopyralid provided 92% control in June but could not be discerned from the control plots by the following October. Triclopyr or MCPA provided control for a full season regardless of June or October application. However, considering soil residuals and expenses of products, MCPA was the best option for controlling scouringrush.

THE EFFECT OF ADJUVANTS ON GLYPHOSATE EFFICACY. Curtis Thompson*, Kansas State Univeristy Southwest Research and Extension, Garden City, and Dallas Peterson, Kansas State University, Manhattan.

Most glyphosate labels recommend that ammonium sulfate should be added to the spray solution to counteract the effects of hard water and improve weed control. The recommended ammonium sulfate rates with glyphosate are relatively high and generally inconvenient to use. Several low rate water conditioner products are available as an alternative to ammonium sulfate with glyphosate. Pesticide applicators testimonials suggest that performance with those products has been inconsistent. Field experiments were conducted at Manhattan, Garden City, and Tribune, Kansas in 2005 and 2006 to compare the efficacy of glyphosate with ammonium sulfate or various other commercial water conditioners. Each experiment consisted of a sublethal (0.27 or 0.38 lb ae/a) dose of glyphosate applied in combination with the recommended application rates of the adjuvants. Water hardness and species evaluated varied by experiment. Glyphosate control for crop and weed species was consistently enhanced by the addition of 2% (w/w) ammonium sulfate and is some cases by as much as 40%. The addition of 1% (w/w) ammonium sulfate to glyphosate generally provided similar or slightly less control than with 2% (w/w) ammonium sulfate. Commercial products that included an ammonium sulfate component at the equivalent rate of 1% (w/w) gave equal or slightly better control than glyphosate plus 1% (w/w) ammonium sulfate. Commercial water conditioners that did not contain ammonium sulfate, or that were applied at a much lower rate of ammonium sulfate gave less control than glyphosate with 1 or 2% (w/w) ammonium sulfate, and were often no better than glyphosate alone. Glyphosate tank mixed with the low rate water conditioners evaluated did not provide the same level of control compared to the recommended rate of ammonium sulfate.

COMPARING RIMSULFURON WITH SOIL-APPLIED CORN HERBICIDES. Jerry Ries* and Richard Zollinger, North Dakota State University, Fargo.

Experiments were conducted to evaluate weed efficacy from registered soil-applied herbicides in corn with different soil characteristics. Three locations were established in May of 2006, one location near Prosper, ND, and two locations near Valley City, ND. At Prosper, a heavy clay loam textured soil, contained 30.3% sand, 14% silt, 28.8% clay, 4.3% OM, and pH 6.5. At Valley City, a medium sandy loam textured soil, contained 52.1% sand, 30.2% silt, 17.7% clay, 4.6% OM, and pH 6.0. At Valley City, a light sandy loam textured soil, contained 76.2% sand, 13.2% silt, 10.7% clay, 2.1% OM, and pH 5.4. The same treatment protocol was used at all locations to evaluate the affect of soil type on weed efficacy. Treatments were applied PRE. Herbicides were applied at 0.5X and 1X rates and then tank-mixed with rimsulfuron at the 0.5X rate. Treatments were acetochlor at 16 and 32 oz/A, s-metolachlor at 13.8 and 27.5 oz/A, dimethenamid-P at 7.2 and 14.4 oz/A, flufenacet&isoxaflutole at 4 and 7 oz/A, rimsulfuron at the 1X rate of 0.25 oz/A, and rimsulfuron&thifensulfuron at 0.375 oz/A. Rimsulfuron at 0.187 and 0.25 oz/A was tank-mixed with acetochlor at 16 oz/A. Rimsulfuron at 0.25 oz/A was tank-mixed with s-metolachlor or dimethenamid-P at 13.8 and 7.2 oz/A, respectively. Lack of rainfall and dry conditions existed after herbicides were soil-applied. No corn injury was

observed. At Prosper, heavy textured soil, acetochlor at 0.5X and 1X gave 84 and 93% yellow foxtail control and 73 and 87% common lambsquarters control, respectively. Weed control in all other treatments ranged from 47 to 80% yellow foxtail and 52 to 81% common lambsquarters control at 0.5X and 1X rates. Acetochlor at 0.5X and 1X gave 57 and 64% control of wild buckwheat and 75 and 79% control of hairy nightshade. Tank-mixes of rimsulfuron plus acetochlor gave 73% control. Other treatments gave less than 46% wild buckwheat control and less than 68% control of hairy nightshade. Acetochlor gave 57 and 61% common ragweed control, where as tank-mixes of rimsulfuron plus acetochlor gave 53 and 59% control. All other treatments gave less than 41% control of common ragweed. At Valley City, medium textured soil, all acetochlor and dimethenamid-P treatments gave greater than 90% control of foxtail species, pigweed species, common lambsquarters, and eastern black nightshade. Flufenacet&isoxaflutole gave greater than 86% control of foxtail, pigweed, common lambsquarters, and eastern black nightshade. Weed specie ratings will be referred in the order of foxtail, pigweed, common lambsquarters, and eastern black nightshade. s-Metolachlor at 0.5X and 1X gave 78, 81, 81, 83%, and 88, 91, 96, 89% control, respectively. Rimsulfuron and rimsulfuron&thifensulfuron gave less than 72% control of weed species. Tank-mixes of rimsulfuron plus acetolchlor gave greater than 90% control of weed species. Rimsulfuron plus s-metolachlor gave less than 85% control of weed species, and rimsulfuron plus dimethenamid-P gave 75% foxtail control and greater than 88% control of other species. At Valley City, light textured soil, weed control was similar to the medium texture study. Weed control from acetochlor applied alone was greater than flufenacet&isoxaflutole followed by dimethenamid-P to foxtail species, prostrate pigweed, common lambsquarters, and wild buckwheat. s-Metolachlor, rimsulfuron, and rimsulfuron&thifensulfuron gave statistically much lower control. Tank-mixes of rimsulfuron plus acetochlor gave greater weed control than the tank-mixes of rimsulfuron plus s-metolachlor or dimethenamid-P. Acetochlor consistently provided the greatest level of weed control throughout soil textures. Weed control with dimethenamid-P and flufenacet&isoxaflutole improved in lighter textured soils. Rates of 1X generally provided greater weed control than the 0.5X rates, especially in shortage of activating rainfall at all locations.

EFFECT OF ATRAZINE AND ADJUVANTS ON WEED CONTROL WITH TEMBOTRIONE IN CORN. Charlie Hicks*, George Simkins and Jayla Allen, Bayer CropScience, Research Triangle Park, NC.

Studies were conducted at several locations across the western corn belt to determine the effect of atrazine and adjuvants on the herbicidal activity of postemergence applied tembotrione in field corn. All treatments consisted of tembotrione (92 g ai./ha), 28% nitrogen (3.5 L/HA) with either crop oil concentrate or methylated seed oil with or without atrazine. Crop injury measurements were recorded 7 and 14 days after application, and weed control efficacy was recorded approximately 21 and 40 days after application. Tembotrione treatments provided 95 to 100 % control of the broadleaf weeds present (Common lambsquarter, Eastern black nightshade, Smooth pigweed, Redroot pigweed, Common waterhemp, Ladysthumb, Giant ragweed, Palmer amaranth, Common ragweed, Velvetleaf, Kochia and Venice mallow). Either crop oil concentrate or methylated seed oil could be used for the additive system for control of broadleaf weeds. Effective control (> 95%) of Giant and Yellow foxtail, Barnyardgrass, Woolly

cupgrass and Downy brome was obtained with all tembotrione treatments. Green foxtail and Field sandbur control was fair to poor depending on additive system or whether atrazine was used in the tank-mix. Generally the methylated seed oil additive system was more effective for the control of grass weeds than crop oil concentrate. Consistent control of grass weeds required the use of 0.75% v/v or more of methylated seed oil. The addition of atrazine to tembotrione treatments results in superior control of grass weeds.

BROADLEAF WEED CONTROL IN ROUNDUP READY ALFALFA. Richard N. Arnold*, Mick K. O'Neill and Dan Smeal, New Mexico State University Agricultural Science Center, Farmington, NM.

Alfalfa is New Mexico's leading cash crop, accounting for approximately 20% of the state's crop income. Weeds compete vigorously with spring-seeded alfalfa for light, nutrients, and moisture. Some weeds, when harvested with alfalfa, may reduce quality. Hay quality, particularly protein content and relative feed value are an important consideration in feed rations in some markets, such as the dairy and horse racing industries. A field experiment was conducted in 2006 at Farmington, NM to evaluate the response of glyphosate tolerant alfalfa (var. Dekalb RR05-060104) and annual broadleaf weeds to postemergence applications of glyphosate, imazamox and imazethapyr applied alone or in combination. Treatments were applied with a compressed air backpack sprayer calibrated to deliver 30 gal/A at 30 psi. Alfalfa was planted at 20 lb/A on May 16. Treatments were applied on June 6 when alfalfa was in the second trifoliolate leaf stage and weeds were small. Black nightshade, redroot and prostrate pigweed, and common lambsquarters infestations were heavy and Russian thistle infestations were light throughout the experimental area. Evaluations were made on July 6 and August 7. Alfalfa was harvested on August 7, using a self-propelled Almaco plot harvester. A grab sample was taken from each plot of the first cutting and separated into weeds and alfalfa and weighed separately. Another grab sample was taken from each plot to determine protein content and relative feed value. All treatments except the weedy check gave 96 percent control or better of Russian thistle, prostrate pigweed, black nightshade, and common lambsquarters. Bromoxynil applied at 0.25 lb ai/A gave poor control of redroot pigweed. Glyphosate weathermax or original max both applied at 1.95 lb ai/A had a decrease in redroot pigweed control among herbicide treatments of approximately 22 percent from those plots evaluated on July 6. Bromoxynil applied alone or in combination with glyphosate weathermax at 0.25 and 0.25 plus 1.95 lb ai/A had the highest percent of weeds in the separated grab sample of 28.1 and 32.7, respectively. Protein and relative feed value in herbicide plots ranged from 18.2 to 22.9 percent and from 165.1 to 199.7, respectively. There were no significant differences between treatment means for either protein content or relative field value.

THE IMPACT OF MULTIPLE SEASON REDUCTIONS IN HERBICIDE AND IRRIGATION INPUTS ON CORN YIELD. Randall S. Currie and Norman Klocke, Kansas State University, Garden City.

Previous work has shown that a wheat cover crop can improve water-use efficiency (WUE), weed control, and yield of irrigated corn. (Weed Science 53:709-716). Therefore, we hypothesized that downy brome may not need to be controlled in irrigated corn if it provides some of the same benefits as a wheat cover crop. A split-plot experiment was established with in 4 blocks, with irrigation as the main plot and a random factorial 4-way split consisting of densities of downy brome and two rates of herbicide. The main plots were 120 by 98 feet with 49 by 60 foot subplots. Downy brome was allowed to naturally reseed in the fall of 2003. In March 2004, two of four subplots were treated with 0.75 lb ae/ A of glyphosate to remove downy brome. In May corn was planted at 26,000 kernels per acre across the whole plot area with no-till techniques. Two rates of preemergence herbicides, Isoxaflutole+atrazine+S-metolachlor at .05 +1.5+2 lbs/A or half of this rate, were applied on each of the two levels of downy brome within the larger main plot. Irrigation began when total soil available water in the top 4 ft was depleted 25 to 40 % in the high water treatments. The high-water treatment simulated a well capacity 5 gal/min/A to supply a maximum of 2 inches of water per week. The low-water treatment simulated half of the full capacity with a maximum application of 1 inch per week. Corn was harvested when grain moisture dropped below 15.5%. Irrigation-water-use efficiencies (IWUE) were calculated by dividing total corn grain mass by total water applied. The experiment was repeated in 2005 at a separate location. Further, these same set of treatments were imposed on the same plots at location 1 in 2005 and 2006. The experiment was repeated at location 2 in 2005 and 2006. The third season of location 2 will be executed in spring of 2007. Johnsongrass was present in the second and third seasons. Therefore, nicosulfuron was applied at 0.031 lb ai/A, or half this rate, to the high- and low-input herbicide plots, respectively. There were no 3 way interactions of corn grain yield irrigation or herbicide inputs or level of downy brome in any of the 5 location-year combinations. In 4 of the 5 location-year combinations, irrigation increased yield from 3.8 to 120 bu/A. The higher herbicide rates increased corn yield (7.8 bu/A) in only one location-year combination. The presence of downy brome at planting time depressed corn yield from 3.7 to 12.1 bu/A in two of the 5 location- year combinations and increased yield by 8.9 bu/a in one location-year. IWUE at location 1 in 2004 and location 2 in 2006 produced a complex interaction of three inputs. At both of these locations, the presence of downy brome at planting did not change IWUE at the high level of irrigation regardless of the level of herbicide input. However, with less irrigation the presence of brome at planting decreased IWUE, regardless of the level of herbicide inputs at location 1 in 2004. In subtle contrast, at location 2 in 2006 reduced irrigation inputs, and in the presence of downy brome, IWUE increased with added herbicide inputs. In the other 3 location-years, IWUE was increased from 3.9 to 5.4 bu/in with reduced irrigation inputs. More herbicide inputs increased IWUE (0.8 bu/in) in only one of these 3 location-year combinations. At a single location IWUE was depressed (0.2bu/in) by the presence of downy brome at planting. Clearly the decision to control downy brome prior to planting is complex and affected other production inputs.

PYROXSULAM: A NEW POSTEMERGENCE HERBICIDE FOR WHEAT. Roger E. Gast*, Mark S. Krieger, Nick Simmons and Nelson Keeney, Dow AgroSciences, Indianapolis, IN.

Pyroxsulam is a new triazolopyrimidine sulfonamide herbicide that provides broad spectrum postemergence weed control in wheat. The control spectrum includes key annual grasses occurring in global cereal markets such as Alopecurus sp., Apera spica-venti, Avena sp., Bromus sp., Lolium sp. and Phalaris sp., and certain broadleaf species. Herbicidal activity with pyroxsulam is achieved through ALS inhibition at low use rates ranging from 9 - 18.75 g ai ha-1 depending upon timing and target weed species. At these rates it provides some level of residual weed control; however it quickly degrades allowing rotation to most crops the following season. When combined with the safener cloquintocet-mexyl, pyroxsulam is selective in winter and spring wheat varieties (including durum), winter rye and winter triticale over a wide application window. Product offerings will consist of pyroxsulam formulated alone and premixed with other broadleaf herbicides tailored to provide complete weed control and meet needs of local geographies. Field evaluations have shown that pyroxsulam can be tank mixed with a wide range of broadleaf herbicides for one-pass grass and broadleaf weed control. Overall, pyroxsulam has a very favorable environmental and toxicological profile. It undergoes rapid aerobic microbial soil degradation with an average laboratory soil half-life of 3 days. In studies conducted in western Canada the median field soil half life was 13 days. No degradates of concern were produced in any studies. Pyroxsulam exhibits very low acute and chronic toxicity (practically nontoxic) to mammals, birds, fish and aquatic invertebrates. Studies have shown it not to be carcinogenic, teratogenic, mutagenic, neurotoxic, or a reproductive hazard. Pyroxsulam is currently under registration review in the U.S., Canada, Australia and several European Union countries. Dow AgroSciences is seeking to widely register pyroxsulam for use in all major cereal producing countries with first registrations anticipated in late 2007.

GLYPHOSATE RESISTANCE MECHANISM IN PALMER AMARANTH. Todd A. Gaines*, Philip Westra, and Jan E. Leach, Colorado State University, Ft. Collins; Christopher Preston, University of Adelaide, Australia; A. Stanley Culpepper, Timothy L. Grey, William K. Vencill, and Ted M. Webster, University of Georgia, Tifton.

Glyphosate resistance has recently been reported in Palmer amaranth (*Amaranthus palmeri*) populations from Georgia. Seeds were obtained from scientists in Georgia and screened with an in-vivo shikimate accumulation assay. Using a range of glyphosate concentrations from 100 to 2,000 µM, susceptible plant leaf discs accumulated shikimate in 100 µM glyphosate while resistant plant leaf discs accumulated detectable shikimate only in 2,000 µM glyphosate. Candidate glyphosate resistance mechanisms under investigation include mutations in EPSPS and over-expression of EPSPS. Gene sequences have been obtained for 1,056 base pairs of EPSPS from resistant and susceptible plants. These results have been compared using current bioinformatics protocols to determine whether any detected mutations may be significant. Semi-quantitative PCR has been used to determine whether EPSPS is over-expressed in resistant plants. Preliminary results indicate that resistant plants may have higher EPSPS expression than

susceptible plants. The exact mechanism of glyphosate resistance in Palmer amaranth has not yet been determined.

SUNFLOWER RESPONSE TO KIH-485. Rich Zollinger*, North Dakota State University, Fargo; Brian Jenks, North Dakota State University, Minot; Darrell Deneke, South Dakota State University, Brookings; Curtis Thompson, Kansas State University, Garden City; Dallas Peterson, Kansas State University, Manhattan; Brian Olson, Kansas State University, Colby; Phil Stahlman, Kansas State University, Hays; Alan Helm, Colorado State University, Holyoke.

KIH-485 has the proposed common name of pyroxasulfone, is soil active, is compared to but unlike acetanilide herbicides in chemistry and mechanism of action, is safe to corn and some legume crops, and controls many annual grass and broadleaf weeds but not common cocklebur, common ragweed, and sunflower. Field experiments of identical treatments were conducted at Prosper, Valley City, and Minot, ND, Highmore, SD, Tribune, Hays, Colby, and Manhattan, KS, and Julesburg, CO to determine sunflower response to KIH-485. In medium textured soils, KIH-485 was applied at 2.8, 3.5, 4.2, and 7 oz/A and at 2.4, 3.0, 4.8, and 6.0 oz/A in light textured soil. Rates of 3.5 and 3.0 oz/A are the x rate for each soil type, respectively. Sunflower response and weed control evaluations were made at early to mid-sunflower growth stages and up to 4 months after application. Generally, no sunflower injury or yield loss occurred at any evaluation timing or any rate at Julesburg, CO, Tribune, Hays, and Manhattan, KS, Highmore, SD, and Prosper, and Valley City, ND. At Colby, KS 3% and 10% sunflower injury occurred at the 1x rate of 3.5 oz/A and 2x rate of 7 oz/A, respectively, but there was no reduction in yield or sunflower population. The only significant injury occurred at Minot, ND. Up to 10% and 24% sunflower was observed at the x rate of 3 oz/A and the 2x rate of 6 oz/A, respectively. However, sunflower yield from the 2x rate of KIH-485 was about twice that of sunflower in the 1x treatment. Of the nine locations where KIH-485 was tested on sunflower, only one location had significant injury. KIH-485 at rates three to eight times lower than comparable products gave 60 to 99% control of green and yellow foxtail, crabgrass, kochia, redroot pigweed, tumble pigweed, Palmer amaranth, Russian thistle, velvetleaf, puncture vine, common lambsquarters, hairy nightshade, common ragweed, prostrate spurge, wild mustard, and wild buckwheat. This is significant since many parts of the Plains and northern Plains region of the U.S. were in drought conditions through the spring and summer months and soil-applied herbicides failed from lack of moisture activating rainfall.

TIMING OF CLETHODIM, GLUFOSINATE OR PARAQUAT TANK MIXES FOR CONTROL OF VOLUNTEER CORN. Randall S. Currie*, Kansas State Univ., Garden City, Brendon Fast, Don Murray Oklahoma State Univ., Stillwater; and John Fenderson, Monsanto Company, St. Louis, MO..

In southwestern Kansas corn can be grown with out irrigation in a wheat fallow corn rotation. Further when enough irrigation water is available, corn can be profitably grown continuously without rotation for more than 20 years. With increasing use of glyphosate-resistant corn hybrids, volunteer corn has become a much more difficult weed to control. Therefore, it was the objective of these studies to determine a non-glyphosate tank mix to control this emerging weed

problem. Volunteer corn was simulated by planting standard glyphosate-resistant corn hybrids in conventionally randomized complete-block experiments, with 4 or more replications, conducted near Stillwater, Oklahoma, and Garden City, Kansas. In Stillwater, 2-leaf corn control was 100% at all rates of clethodim higher than 0.015 lbs ai/a. At the 3-leaf stage control declined to 90% with this rate. Twice as much was needed to kill 100% of the 3-leaf corn. In a second study 0.06 lb/a of clethodim was needed to get 100% control of 3-leaf or 6-leaf corn. Although it was assumed that these plants were dead, plots were not maintained after this evaluation, so it is not known whether corn would have recovered. In Garden City, 4-leaf corn with the growing point below ground and to 8-leaf corn with the growing point above ground, was treated with 0, 0.015, 0.03, and 0.06 lbs ai/a of clethodim in a balanced factorial arrangement of treatments. As seen in Stillwater, 0.06 lbs ai/a of clethodim controlled greater than 90% of the corn 21 DAT, regardless of timing. Regardless of treatment or timing all corn recovered to various degrees and was harvested for grain as an index of injury. Although the lowest clethodim rate yielded 6 bu/a more than the control (no clethodim), this was not statistically significant. When the 0.015-lb/a rate was applied to 8-leaf corn, yield was reduced from 52 bu/a to 23 bu/a. Clethodim applied at 0.03 lbs/a to 4-leaf corn, resulted in a yield of 22 bu/a. In contrast, when application of the 0.03-lb/a rate was delayed to the 8-leaf stage, yield dropped to 3.9 bu/a. Regardless of timing of application, corn treated with 0.06 lb/a yielded less than 1.7 bu/a. These plants did not escape application, and were severely stunted. Depending on the objectives of a producer, these treatments would have been commercially acceptable. Although corn was completely defoliated by paraquat at rates from 0.28 to 0.6 lb/a by its self or tank mixed with 0.5 lbs/a linuron or 0.14 lb/a or metribuzin in all instances the corn recovered and produced a crop that ranged from 23 to 39 bu/a, which was not statistically significant from no treatment. Glufosinate at 0.42 lb/a also produce similar levels of control. Delaying application of these tank-mixes until the 8-leaf stage reduced corn yield from 36 to 21 bu/a. None of these tank-mixes produced a level of control that would be considered commercially viable. At Stillwater, 100% control of 3-leaf corn was achieved with Paraquat at 0.57 lb ai/a tank mixed with 0.14 lb/a or metribuzin or 0.5/a atrazine. Only 44% control of 6-leaf corn was seen with any paraquat tank mix. These studies suggest that clethodim, when applied early at lower rates or applied late at the higher rates, might provide the best control of volunteer glyphosate-resistant corn.

LANCELEAF SAGE (*SALVIA REFLEXA* HORNEM.) CONTROL IN SUGARBEETS.

Abdel O. Mesbah*, University of Wyoming Research and Extension Center, Powell; and Stephen D. Miller, University of Wyoming, Laramie.

Lanceleaf sage, also known as blue sage or Rocky Mountain sage, is a native annual broadleaf weed commonly found throughout the Rocky Mountain region at elevations from 3,500 to 8,000 feet. This weed species is becoming a significant problem in sugarbeet fields in northern Wyoming and southern Montana. The degree of infestation and the number of fields infested is increasing each year. Lanceleaf sage is a prolific seed producer that reproduces by seed. It is commonly found in bare areas or disturbed habitats and in pasture, lawns, roadsides, and waste areas from which it has spread into cropped fields. Lanceleaf sage germinates and emerges about the same time as sugarbeets and germination will continue through the summer months. Lanceleaf sage has a strong aroma and contains high quantities of nitrates. Normally, lanceleaf

sage is avoided by livestock, but cattle and sheep have been poisoned when lanceleaf sage is chopped or mixed with other feed. This might be cause for concern should lanceleaf sage-contaminated sugarbeet tops be fed to cattle or sheep. Field experiments were conducted in 2005 and 2006 at the Powell Research and Extension Center, Wyoming to evaluate lanceleaf sage control and sugarbeet response to several postemergence applications using full, half, and micro-rate systems with several rates of clopyralid. 92% lanceleaf sage control was achieved with three applications using full rate system plus methylated seed oil at 1% v/v; however this treatment caused 5% sugarbeet injury. Lanceleaf sage control with four applications using micro and half rate systems with 3 oz/ac of clopylarid was 96 and 95%, respectively, without causing any damage to sugarbeets.

KIH-485 TIMINGS COMPARED TO STANDARD TREATMENTS IN GRAIN SORGHUM. Patrick W. Geier*, Phillip W. Stahlman, Kansas State University, Hays; Mark M. Claassen, Kansas State University, Hesston; Larry D. Maddux, Kansas State University, Silver Lake; and Curtis R. Thompson, Kansas State University, Garden City.

Field studies conducted at four locations in Kansas during 2006 compared KIH-485, s-metolachlor, and dimethenamid, each alone or with atrazine, for efficacy and crop safety in grain sorghum. Herbicides were applied 14 days preplant (EPP), 7 days preplant (LPP), or preemergence (PRE). Averaged over application timings, kochia control at Hays increased 20 to 25% when atrazine was added to KIH-485, s-metolachlor, or dimethenamid, and 40% for those three herbicide mixtures at Tribune. Regardless of application timing, most herbicides controlled tumble pigweed 85% or more at Hays, Tribune, and Hesston; exceptions were s-metolachlor alone at Hays and dimethenamid alone at Hays or Tribune. Palmer amaranth control at Hesston was 99 or 100%, whereas large crabgrass was controlled 89 to 100%. When applied EPP or LPP, the addition of atrazine to KIH-485, s-metolachlor, or dimethenamid improved redroot pigweed control at Tribune, but not when treatments were applied PRE. KIH-485 alone was 17 to 19% more effective on Russian thistle than s-metolachlor or dimethenamid EPP or LPP at Tribune. At Ottawa, waterhemp and velvetleaf control exceed 95%, regardless of herbicide or timing. KIH-485 alone or in combination with atrazine stunted sorghum 32 to 48% at Ottawa and Tribune early in the season. Other herbicides caused 6% or less stunting. At Hays and Hesston, no herbicide stunted sorghum more than 6%. Grain yields did not differ between herbicides or application timings at Hays, Hesston, or Ottawa. However, yields generally were lower at Tribune for KIH-485 alone or with atrazine, especially when applied PRE.

A NEW PROJECT TO ASSESS THE LONG-TERM VIABILITY OF GLYPHOSATE IN GLYPHOSATE-RESISTANT CROPPING SYSTEMS. Robert G. Wilson*, University of Nebraska, Scottsbluff; Michael D. K. Owen, Iowa State University, Ames; David R. Shaw, Mississippi State University, Mississippi State; Stephen C. Weller, Purdue University, West Lafayette, IN; John W. Wilcut, North Carolina State University, Raleigh; and Bryan G. Young, Southern Illinois University, Carbondale.

Weed scientists from six states; Illinois, Indiana, Iowa, Mississippi, Nebraska, and North Carolina, are conducting similar studies over a four-year period at on-farm sites to determine the viability of various cropping management strategies for the preservation of Roundup Ready programs as an effective tool for weed control. This research initially employed a grower survey of approximately 200 growers in each state to determine trends and, based on the survey results, a subset of 28 to 30 of the growers surveyed in each state were contacted to establish alternative management strategies on their farms over the next four years. Shifts in weed populations, changes in weed species present, and levels of weed control will be monitored over this period with various combinations of cropping, tillage, and herbicide rotations systems. Survey results indicated that corn, cotton, and soybean growers have noted changes in their weed pressure after adoption of Roundup Ready technology. Prior to Roundup Ready usage, 18 to 25% of the growers reported only light infestations of weeds in their fields, whereas after Roundup Ready adoption, 77 to 79% reported only light weed infestations. Before using Roundup Ready technology 11 to 30% of the growers were utilizing no-till crop production while after adopting Roundup Ready technology the number of growers using no-till increased to 28 to 54%. Growers were aware of weeds developing resistance to glyphosate and 11 to 37% of the respondents felt it was a very serious problem, while 18 to 52% of growers did not think it was a serious problem. Growers indicated they first went to farm publications (52-69%), followed by dealers and retailers (14-29%), university/extension (14-41%), other farmers (5-11%) or the internet (1-7%) to gain information on weed resistance. Growers indicated the most effective methods of managing herbicide resistance were: using the labeled herbicide rate (63%), rotating crops (37%), rotating herbicide chemistries (34%), rotating away from a Roundup Ready crop (31%), using more than one herbicide chemistry in a given year (25%), or tillage (14%).

EFFECT OF NON-GLYPHOSATE TREATMENTS OVER NINE YEARS IN A GLYPHOSATE-RESISTANT CORN OR A ROTATION OF GLYPHOSATE-RESISTANT CROPS. Robert G. Wilson*, University of Nebraska, Scottsbluff; Stephen D. Miller and Andrew R. Kniss, University of Wyoming, Laramie; Phillip Westra, Colorado State University, Ft. Collins; and Phillip W. Stahlman, Kansas State University, Hays.

Experiments were conducted at Scottsbluff, Nebraska from 1998 through 2006 to determine if glyphosate use patterns in glyphosate-resistant cropping systems influenced weed control by placing selection pressure on weed species, altered weed population dynamics, or lead to the development of herbicide resistant weeds. Experiments were designed as a two factorial split plot set in a randomized complete block design with four replications. Main plots were either continuous glyphosate-resistant corn or a rotation of glyphosate-resistant corn, sugarbeet, corn, sugarbeet, wheat, and corn. Sub-plots were glyphosate at 0.4 kg/ha applied postemergence twice each spring, glyphosate at 0.8 kg/ha applied postemergence twice each spring, a rotation of glyphosate at 0.8 kg/ha applied twice each spring followed the next year by a non-glyphosate

treatment, or a non-glyphosate treatment each year. In continuous corn, the non-glyphosate treatment was a combination of isoxaflutole plus acetochlor at 0.049 plus 1.222 kg/ha applied preemergence and in some years, if needed, followed postemergence with diflulenzopyr plus dicamba at 0.196 kg/ha. The seed bank was examined each year before crop planting. Weed density was measured before herbicide treatment, 2 wk after the last postemergence herbicide treatment and at crop harvest when crop yields were also determined. After 7 years of study weed populations in the isoxaflutole plus acetochlor treatment shifted to kochia. From 1999 to 2003 kochia density was low and ranged from 0 to 8 plants/10 m^2 but increased from 28 to 253 plants/10 m^2 from 2004 to 2006. In the fall of 2006 seed was collected from individual kochia plants in isoxaflutole plus acetochlor treated areas. At the same time kochia seeds were also collected from a range site that had not been treated with isoxaflutole. Kochia seeds harvested from areas treated with isoxaflutole plus acetochlor had a slower rate of germination than seeds harvested from non-isoxaflutole treated areas. Kochia seeds were planted in plastic cones filled with potting mix and treated preemergence with isoxaflutole at rates of 0, 1, 3, 6, 11, 22, 45, 90, and 179 g/ha. Kochia seedlings were allowed to grow for 30 days in isoxaflutole treated soil to develop a dose response curve for the two kochia populations. Seedlings derived from kochia seeds collected from areas treated for 7 yrs with isoxaflutole had a GR_{50} to isoxaflutole that was four times greater than seedlings from kochia seed collected from non-isoxaflutole treated areas.

WEED COMMUNITY RESPONSE TO EIGHT YEARS OF GLYPHOSATE RESISTANT CROPS IN WYOMING. Andrew R. Kniss* and Stephen D. Miller, University of Wyoming, Laramie; Sandra Frost, Oregon State University, Pendleton; Lisa Boggs, Southwestern Oklahoma State University, Weatherford; Philip Westra, Colorado State University, Ft. Collins; and Robert G. Wilson, University of Nebraska, Scottsbluff.

A long-term field study was initiated at Torrington, Wyoming in 1998 as part of a four-state effort to examine potential weed shifts brought on by glyphosate-resistant and conventional cropping systems. A split-plot randomized complete block design with four replications was employed with two crop rotations (continuous corn or corn-sugarbeet-wheat) as whole-plot factors and four herbicide treatments as split-plot factors. Herbicide treatments included glyphosate applied twice each year at 840 g/ha (high glyphosate), glyphosate applied twice each year at 420 g/ha (low glyphosate), a conventional herbicide program designed to provide 95% weed control applied each year (no glyphosate), and a treatment that rotated between the high glyphosate and no glyphosate treatments in alternating years (rotating glyphosate). Soil samples were collected each year in the fall following harvest. Weed seeds were extracted from soil samples using a NC semi-automatic elutriator, identified by species, and counted. For each plot, seed counts by species were analyzed as a percent of the total seed bank. Associations between weed species prevalence and herbicide treatments varied by crop rotation. In the continuous corn system, correspondence analysis revealed associations between wild buckwheat (*Polygonum convolvulus*) and the low glyphosate treatment, common lambsquarters (*Chenopodium album*) and the rotating glyphosate treatment, and redroot pigweed (*Amaranthus retroflexus*) with the high glyphosate treatment. Under a corn-sugarbeet-wheat rotation, associations were observed between kochia (*Kochia scoparia*) and green foxtail (*Seteria viridis*) with the no glyphosate treatment, hairy nightshade (*Solanum sarrachoides*) with the high

glyphosate and rotating glyphosate treatments, and common lambsquarters with the low glyphosate and rotating glyphosate treatments. Differences in seed bank composition between herbicide treatments increased over time.

PYRASULFOTOLE - A NEW SELECTIVE HERBICIDE FOR DICOT WEED CONTROL IN WHEAT AND BARLEY. Mary D. Paulsgrove*, Monte A. Anderson, Dean R. Christie, Charles P. Hicks, Kelvan R. Luff and W. Dennis Scott, Bayer CropScience, Research Triangle Park, NC.

Huskie™ is a new postemergence herbicide being developed by Bayer CropScience for broadleaf weed control in spring wheat, durum, winter wheat, barley and triticale. Huskie is a new herbicide containing the novel active ingredient pyrasulfotole with bromoxynil and a highly effective wheat safener, mefenpyr. This product utilizes both and HPPD and PSII inhibition and will control a broad spectrum of dicot weeds with a short duration of in-season residual activity on some species, such as redroot pigweed and common lambsquarters. Mefenpyr-diethyl is a postemergent safener registered for use on wheat and barley in the United States and Canada. Huskie exhibits excellent crop tolerance alone and in tankmixture with other herbicides. In field experiments in North America, Huskie was tested on 46 different species and controlled key weed species such as kochia, pigweed sp., wild buckwheat, common lambsquarters, field pennycress, Russian thistle, prickly lettuce, mustards, common waterhemp and nightshade species. Huskie is applied to dicot weeds between the 1 - 8 leaf stage of growth depending on weed species. Best weed control is achieved when 0.5 kg/HA AMS or 2.34 - 4.7 L/HA 28% UAN is added to the tankmixture. Huskie has a very favorable ecological, ecotoxicological and environmental profile with low acute mammalian toxicity and no genotoxic, mutagenic or oncogenic properties noted. Microbial degradation is the primary degradation pathway in the environment. Pyrasulfotole is rapidly degraded and unlikely to pose any risk to succeeding crops. Excellent control of sulfonylurea resistant weeds such as kochia, prickly lettuce and Russian thistle biotypes have been attained with Huskie in field trials. The broad spectrum weed control, including control of weeds exhibiting resistance to other herbicide modes of action and excellent crop safety will make this product a valuable tool for cereal grain farmers.

PERFORMANCE OF CEREAL GRASS HERBICIDES IN TANKMIX COMBINATIONS WITH FLUROXYPYR, CLOPYRALID, AMINOPYRALID, BROMOXYNIL, AND MCPA MIXTURES. Brett Oemichen*, Monte Weimer, and Roger Gast, Dow AgroSciences, Indianapolis, IN.

Wild oat, green foxtail, and yellow foxtail efficacy obtained from postemergence applications of clodinafop, fenoxaprop, flucarbazone, mesosulfuron, pinoxaden, propoxycarbazone plus mesosulfuron, or tralkoxydim, were evaluated when applied alone or in tank-mix combination with the premix broadleaf products fluroxypyr + clopyralid (WideMatch), fluroxypyr + aminopyralid (CleanWave), or fluroxypyr + bromoxynil (Starane NXT) with and without MCPA. A total of 30 field trials were conducted with various combinations from 2004-2006 in Idaho, Montana, North Dakota, South Dakota, and Washington. No significant decrease in wild oat, green foxtail, or yellow foxtail efficacy was observed with any of the grass herbicides evaluated when tank-mixed with either WideMatch or CleanWave. A slight decrease in wild oat efficacy provided by fenoxaprop was observed with a tank-mix combination of Starane NXT with MCPA (93% verses 87% control, respectively). Wild oat efficacy was not affected when clodinafop, flucarbazone, tralkoxydim, or pinoxaden was tank-mixed with Starane NXT alone or with MCPA. A 12 percent decrease in flucarbazone activity on green foxtail was observed when tank-mixed with Starance NXT and MCPA. The greatest reduction in control observed in these studies was a 22 or 18 percent decrease in visual control of yellow foxtail with fenoxaprop when applied with combinations of Starane NXT alone or with MCPA, respectively. Yellow foxtail activity from clodinafop was decreased 11% when tank-mixed with Starane NXT. No antagonism of yellow foxtail activity was observed when pinoxaden or flucarbazone was tank-mixed with Starane NXT alone or with MCPA. These studies indicate that Starane NXT with or without MCPA demonstrated compatibility issues with certain graminicides depending on the grass weed target. Tank-mix combinations of either WideMatch or CleanWave with common graminicides can deliver broadspectrum weed control solutions without compromising grass efficacy.

POSTEMERGENCE GRASS CONTROL WITH PYROXSULAM IN SPRING AND DURUM WHEAT IN CANADA. Bill McGregor*, Norbert Satchivi, Len Juras, Gary Turnbull, Don Hare, Brian Wintonyk, Glenn Lehmann, Gilbert Rawluck and Vaughn Leuschen, Dow AgroSciences Canada Inc., Calgary, AB, Canada.

The efficacy and crop tolerance of pyroxsulam applied alone and in various tank mix combinations with bromoxynil, MCPA, florasulam, clopyralid, tribenuron and thifensulfuron, was tested in spring wheat (*Triticum aestivum*) and durum wheat (*Triticum durum,*) from 2004 to 2006. Rotational crop carryover effects from pyroxsulam treatments in cereals were also investigated from 2001 to 2005. More than 96 small-plot field trials were established across various ecozones in western Canada in a randomized complete block or factorial split-plot design with herbicide rates and adjuvant as factors. Pyroxsulam was applied POST (@ 0, 7.5, 11.25, 15 and 30 g ai ha^{-1}) with and without crop oil concentrate (COC) at 0.8% v/v. The tank mix partners were applied at their recommended field rates. Eight to ten weeks after treatment (WAT), pyroxsulam applied alone at the proposed label rate of 15 g ai ha^{-1} with COC provided consistent control of wild oats (Avena fatua) up to 4-leaf and 2 tillers with 17 out of 21 trials averaging more than 90% control. The average control of wild oats (94.4%) was equivalent to

flucarbazone-sodium (95.0% control) applied at 30 g ai $ha^{-1}$with the non-ionic surfactant Agral 90. The 15 g ai ha^{-1}, rate of pyroxsulam provided acceptable control of yellow foxtail (*Pennisetum glaucum*) up to 4-leaf, and suppression of green foxtail (*Setaria viridis*). Spring wheat varieties including Hard Red Spring (HRS), Canadian Prairie Spring (CPS), Hard White Spring (HWS) and durum wheat up to 6-leaf and 2 tillers exhibited only slight injury symptoms ($^{-1}$. Even at twice the proposed label rate of 30 g ai ha $^{-1}$, pyroxsulam caused less than 10% injury and was less injurious than flucarbazone-sodium at either 30 g ai ha^{-1}(10.6%) or the 60 g ai ha^{-1} (29% injury). By the end of the growing season, crop injury was marginal and no significant delay in crop maturity was observed either at heading or at seed maturity. No negative effect on crop yield was observed at harvest. The addition of tested tank mix partners did not cause any observable levels of antagonism to the efficacy of pyroxsulam on *Avena fatua, Pennisetum glaucum* or *Setaria viridis*. Similarly, no adverse effect of pyroxsulam on the dicot weed efficacy of bromoxynil + MCPA, florasulam + MCPA, florasulam + clopyralid + MCPA, tribenuron + thifensulfuron and MCPA was observed. These tank mix combinations will allow broader weed control flexibility depending on weed spectrum. Sensitive dicot crops such as lentils (*Lens esculenta*), chickpeas (*Cicer arietinum*), canola (*Brassica napus*), flax (*Linum usitatissimum*), soybean (*Glycine max*) and peas (*Pisum sativum*) planted back in wheat fields treated with 1 X (15 g ai ha^{-1}) and 2X (30 g ai ha^{-1}) rates of pyroxsulam 10-11 months after treatment did not show any injury symptoms or yield reduction. Similarly, wheat, barley and tame oats (*Avena sativa*) were not affected by soil residues of pyroxsulam up to 30 g ai ha^{-1}.

COMPARISON OF GLYPHOSATE TOLERANT AND CONVENTIONAL WINTER CANOLA HERBICIDE SYSTEMS FOR CONTROLLING DIFFICULT WINTER ANNUAL GRASSES CAUSED BY CONTINOUS WINTER WHEAT PRODUCTION .

Deena L. Morley, Josh A. Bushong, Mark C. Boyles*, Tom F. Peeper, Oklahoma State University, Stillwater.

As wheat producers in Oklahoma continue to reduce tillage frequency they are experiencing increasing problems with winter annual grassy weeds. Growing winter canola in rotation with winter wheat increases herbicide options for controlling winter annual grasses. In 2005-2006, experiments were conducted in north central Oklahoma to compare weed control strategies for control of Italian ryegrass, jointed goatgrass, feral rye and volunteer wheat in conventional and glyphosate tolerant winter canola. Herbicide treatments included trifluralin at 1X for each soil incorporated immediately before planting and several postemergence treatments. Postemergence treatments were applied in November or sequentially in November and February. Efficacy was visually estimated in late April. Trifluralin alone controlled ryegrass 93%, jointed goatgrass 70%, feral rye 59% and volunteer wheat 79%. Quizalofop p-ethyl at 0.88 lbs a.i./acre applied in November controlled ryegrass 67%, jointed goatgrass 40%, feral rye 99% and volunteer wheat 99%. Quizalofop at the same rate applied only in late winter controlled ryegrass 53%, jointed goatgrass 16%, feral rye 95% and volunteer wheat 97%. Sequential applications of quizalofop controlled ryegrass 85%, jointed goatgrass 85%, feral rye 98% and volunteer wheat 99%. Trifluralin incorporated prior to planting followed by quizalofop in the fall controlled ryegrass 98%, jointed goatgrass 78%, feral rye 98%, and volunteer wheat 99%. Glyphosate applied in the fall at 0.56 lbs a.i./acre controlled ryegrass 79%, jointed goatgrass 99%, feral rye 97%, and volunteer wheat 99%. Sequential applications (fall, late winter) of glyphosate controlled all of

all grass species 98%. Clethodim at 0.078 lbs a.i./acre applied only in the fall controlled ryegrass 78%, jointed goatgrass 87%, feral rye 63%, and volunteer wheat 86%. Thus, efficacy of the herbicides varied among the four species evaluated.

COMPARISON OF DESICCANT TIMING AND HARVEST METHOD IN CANOLA.
Brian M. Jenks*, Gary P. Willoughby, Shanna A. Mazurek, North Dakota State University, Minot; John R. Lukach, North Dakota State University, Langdon; and Fabian D. Menalled and Edward S. Davis, Montana State University, Bozeman.

A study evaluating the use of desiccants as a harvest aid in canola was conducted at three locations in 2005 and 2006: 1) North Central Research Extension Center, Minot, ND, 2) Langdon Research Extension Center, Langdon, ND, and 3) Montana State University, Bozeman, MT. The objectives of the study were to: 1) determine the effect of paraquat applied preharvest at three timings on canola yield, seed moisture, and seed quality, 2) determine the effect of diquat applied preharvest at three timings on canola yield, seed moisture, and seed quality, 3) compare yield, seed moisture, and seed quality of swathed canola to paraquat and diquat-treated canola, and 4) determine the effect of harvest timing following a paraquat or diquat application on canola yield, seed moisture, and seed quality. Paraquat and diquat were applied preharvest at three timings (early, optimum swath timing and late). Paraquat was applied at 7.8 oz ai with NIS at 0.25% v/v. Diquat was applied at 6 oz ai with NIS at 0.25% v/v. One treatment was swathed with a plot swather on the same days the paraquat/diquat treatments were applied as a comparison to current grower practices. The paraquat, diquat, and swath treatments were harvested 7 and 14 days after treatment (DAT). The study was a 3-factor factorial (desiccant, timing, harvest date) arranged in a randomized complete block design. In Minot, paraquat- and diquat-treated plots produced similar canola yields compared to swathed treatments averaged across all timings and harvest dates. Canola yields were also similar for the 2 harvest dates averaged across desiccants and timings. Additionally, there were no significant differences in test weight and oil content between desiccated or swathed canola averaged across all timings and harvest dates. Seed lost due to pre-harvest shattering was less than 37 lb/A for any either desiccant or swathing. This loss would likely be considered minimal in canola production. At Langdon in 2005 and 2006, paraquat- and diquat-treated plots produced similar canola yields and seed weight compared to swathed treatments averaged across all timings and harvest dates. However, in 2005, the later desiccant/swath timing produced higher yield and seed weight than timing 2, which in turn, was higher than timing 1. Also, canola harvested 14 DAT yielded higher than that harvested 7 DAT. This is probably because of higher seed moisture at the first two application/swath timings where seed was less physiologically mature compared to the Minot location. In 2006, yield and seed weight results were similar for desiccants and timings. Seed lost due to pre-harvest shattering was less than 59 lb/A for any either desiccant or swathing. At Bozeman in 2005 and 2006, paraquat- and diquat-treated plots generally produced similar canola yield and test weight compared to swathed treatments averaged across all timings and harvest dates. Canola yields were also similar for the 2 harvest dates averaged across desiccants and timings. However, in 2005, canola swathed or desiccated at the third or latest timing produced higher yield than canola treated at the two earlier timings. Additionally, all canola desiccated or swathed at the earliest timing had a significantly lower test weight than canola desiccated or swathed at the later two timings. Furthermore, canola

harvested 7 DAT had a lower test weight than canola harvested at 14 DAT. This may be due to lack of physiological maturity at earlier desiccation/swath timings. However, in 2006, canola yield and test weight was slightly lower at the latest timing. Test weight was slightly lower when harvested 14 DAT compared to 7 DAT. Seed lost due to pre-harvest shattering in 2005 was less than 59 lb/A for any either desiccant or swathing, but was 112-193 lb/A in 2006.

LATE SEASON WEED CONTROL IN SUGAR BEETS. Don W. Morishita*, Robyn C. Walton, University of Idaho, Twin Falls; and Michael P. Quinn, Oregon State University, Corvallis.

Controlling weeds after row closure in sugar beet is usually done by hand weeding. Some growers have tried some novel methods such as mowing weeds growing above the crop canopy while others have tried using glyphosate in wiper or wick applicators. Postemergence glyphosate applications with a wiper or wick applicator have been labeled on other crops for several years. However, sugar beet injury has been reported previously. It was presumed that injury was caused by glyphosate translocating out of the weed roots and being taken up by the roots of the adjacent sugar beets. In 2003, Idaho sugar beet growers obtained a special local needs registration to apply glyphosate postemergence on sugar beet with a wiper or wick applicator. Unfortunately, some growers experienced crop injury and some weeds have escaped control with glyphosate. Field experiments were conducted from 2004 to 2006 to compare glyphosate applications, mowing, and hand weeding on crop injury, weed control, and sugar beet yield and quality. Kochia, common lambsquarters, and redroot pigweed were the major weed species present in 2004. These same species plus green foxtail and barnyardgrass were present in 2005 and 2006. Herbicides were applied as broadcast sprays or with a wiper applicator. The wiper applicator was equipped with a hydraulic-driven rotating 4-inch tube, covered with carpet. The foam on the carpet-covered tube was transferred to plant surfaces as the applicator was pulled over the crop contacting only those plants above the crop canopy. In 2004, a single wiper application was made. In 2005 and 2006, two wiper applications were applied with the first 39 and 44 days after the last postemergence treatment was sprayed. The second wiper application was made 22 and 13 days after the first wiper application. All of the wiper treatments, mowing treatments, and late hand weeding followed two postemergence herbicide applications. In addition to crop injury and weed control evaluations during the growing season, root injury at harvest was scored on a 0 to 10 scale where 0 = no injury and 10 = completely dead roots. Crop injury among all treatments, in 2004, ranged from 14% to 86% 17 days after the late season treatments were applied, and some of the injury was due to foam dripping onto sugar beet leaves. Crop injury among all treatments in 2005 and 2006 ranged from 0 to 33% at 11 and 12 DALT. Glyphosate was applied alone each year at 25, 37.5 and 50% concentrations. Injury ratings in 2004, ranged from 44 to 58%, but were not different between the concentrations. In 2005 and 2006, crop injury from the three glyphosate applications averaged 21 and 18%, respectively over the three concentrations. By 11 and 15 days after the second wiper application in 2005 and 2006, crop injury averaged 11 and 17% across the three glyphosate concentrations. Hand weeding as needed, hand weeding one time following standard sugar beet herbicide applications, and mowing once or twice had the lowest injury among treatments in all three years. Root injury ratings at harvest ranged from 0 to 7 among all treatments in 2004, from 0 to 2 in 2005, and 0 to 3 in 2006. In 2005 and 2006, the

observed injury did not appear to be severe enough to reduce storage life in the pile. Weed control with the standard weed control treatment consisting of ethofumesate preemergence followed by two postemergence applications of ethofumesate & desmedipham & phenmedipham + triflusulfuron + clopyralid was generally good to excellent for all weed species except kochia. Hand weeding as needed, late hand weeding, and glyphosate wiper application were the best overall weed control treatments. Sugar beet root and sucrose yield were best with hand weeding as needed, late hand weeding, and mowing one or two times. The standard treatment was usually close or equal to the highest yielding treatments, which indicates that it's best to make timely applications with the standard treatments and not rely on the late season treatments for a weed control program. Sugar beet yields with the glyphosate wiper applications were improved compared to the same herbicide treatment without glyphosate, but usually were not equal to late hand weeding or mowing.

PROJECT 4: TEACHING AND TECHNOLOGY TRANSFER

UTILIZING NEW TECHNOLOGY TO MANAGE, STORE AND SHARE NOXIOUS WEED GROWTH AND TREATMENT DATA. Tracy Bosen*, InterLocking Software Corp, Poulsbo, WA.

The collection, storage and sharing of maps, data, efforts, and treatment information is one of the most important issues facing noxious weed and vegetation managers today. Monitoring data, task management, weed locations including landowner information, expenses, files and information associated with individual geographical locations can be cumbersome to store and share with partners. Effective landscape/mapping information management tools are needed to provide weed managers the ability to view resource information from very small sub-watershed to very large and complex regional scales. Effective tools include: 1) A system that is relatively simple & intuitive 2) The ability to securely share information via web technology 3) Ability to integrate with existing systems & information 4) Ability to search & view information/locations by individual watershed, monitoring point or regional planning unit 5) Ability to use aerial and topographical maps & GIS layers 6) Reporting capability to illustrate results and effectiveness 7) Ability to spatially evaluate various watershed factors 8) Ability to review historical efforts when planning for future treatment & budget requirements Using current web technology noxious weed managers can effectively manage time, staff, budgets, data, partnerships, and share information spatially, securely and quickly.

PRECISION AERIAL APPLICATION TECHNOLOGY. Barney G. Lee*, North Star VMS, Gardendale, TX President North Star VMS.

Why should land managers care about aerial application technology? Precision application improves our ability to address problems with the least effects on our environment. With advancements in equipment, we can improve productivity as well as improve the environment. When most people think of aerial application, they only think of helicopters and airplanes. However, ground support equipment has also seen great improvements too. Trucks with DOT spec 406 certification, provides the highest standards in case of an accident or roll over. Doubled walled tanks, measuring devices and rinse capabilities all contribute to quality application. Additional support technology that has benefited the application industry comes from the use of computers in the field. Lap tops and hand held GPS units on the ground complement the GPS systems used by the pilots in the air. Aerial GPS systems, flow meters, flow controllers using ground speed calibrations, and the use of avoidance zones, gives us the precision application needed today. Improvements in boom and nozzle configurations give us more control of where and how herbicides are applied. By using the USDA computer drift model in conjunction with the improved system set up, we are able to minimize the potential of herbicides being applied outside the target area. In most cases using a helicopter with the specifically configured equipment, potential drift can be reduced to approximately .33% of the total spray volume. However, equipment and advanced technology are only a part of the puzzle of precision aerial application. The final and most important piece of the puzzle is personnel. The right personnel that are properly trained and demonstrate the right attitude about the job, while having respect for the project goals, gives us the best possible outcome for the project. In conclusion, by the incorporation of all the most current state-of-the-art technology, equipment and highly trained personnel, we can effectively and safely apply herbicide by the aerial method.

PROJECT 5: WETLANDS AND WILDLANDS

DEVELOPING CRITERIA FOR PLANT SURVEY SITES FOR AN INVASIVE PLANT EARLY DETECTION NETWORK IN NORTHERN IDAHO. Timothy Prather* and Sandra Robins, University of Idaho, Moscow, Leonard Lake, USDA Forest Service.

Removing invasive plant infestations when they are small enhances the likelihood of eradication and minimizes ecological damage and control costs. Finding species as they establish requires prioritization of sites to survey frequently since a census of all lands is not possible. Initial establishment is a tenuous process prone to failure. Factors that enhance initial establishment might be measurable and may include plant community productivity, disturbance and length of growing season. We sampled sites ranging from low elevation grassland communities to forested communities and higher elevation shrub communities. Within these community types, higher and lower disturbance regimes were also sampled (i.e. higher use airstrips, improved roads, accessible or remote campsites). Species were identified along 30 m transects for

presence/absence in the disturbed area and adjacent lower disturbance area. The frequency of occurrence for nonidigenous versus native species was calculated. We found that grassland sites contained greater percentages of nonindigenous species than forested sites (72% vs. 9%, respectively). We found that improved roads through grasslands had higher percentages of nonindigenous species than roads that were not improved (72% vs. 22%). Within wilderness areas, air strips were dominated by nonindigenous species and higher-use air strips had marginally higher percentages of nonindigenous species than lower use air strips. High elevation, subalpine sites along roads had lower percentages of nonindigenous species than low elevation wilderness airstrips. Results indicate that differences exist among measurable site characteristics that will be useful in prioritizing sites to survey for efficient use of resources dedicated to survey for incipient populations.

PERENNIAL PEPPERWEED AND RUSSIAN KNAPWEED INVASION FOLLOWING TAMARISK REMOVAL ALONG THE RIO GRANDE RIVER. Scott Steinmaus*, California Polytechnic State University, San Luis Obispo; Mark Renz, New Mexico State University, Las Cruces.

The removal of monotypic stands of the invasive woody phreatophyte, saltcedar (*Tamarix* spp.), may facilitate the establishment of the invasive herbaceous perennials, perennial pepperweed (*Lepidium latifolium*) and Russian knapweed (*Acroptilon repens*), along the banks of the Rio Grande River in New Mexico. Saltcedar removal and subsequent restoration efforts involving the reestablishment of the native cottonwood (*Populus deltoids*) allow sufficient light to the under-story where perennial pepperweed and Russian knapweed grow. The leaf area indices (m^2 leaf m^{-2} ground) under typical saltcedar and cottonwood canopies were 4.71 and 1.45, respectively, resulting in photosynthetic photon flux levels of 172 and 689 umol m^{-2} s^{-1}, respectively. The light compensation points for the pepperweed and knapweed were well below these under-story light levels at 85 and 54 umol m^{-2} s^{-1}, respectively, based on photosynthetic-light response curves characterized in the field and laboratory. Light response curves of plants grown under shaded and unshaded conditions indicated that perennial pepperweed had a greater ability to acclimate when grown under full sun conditions with a higher light-saturated photosynthetic capacity (26.1 umol CO_2 fixed m^{-2} s^{-1}) than Russian knapweed (11.6 umol CO_2 fixed m^{-2} s^{-1}). However, knapweed was better able to maintain a higher net assimilation rate at lower light levels with its lower light compensation point and a lower dark respiration rate than pepperweed (-1.25 versus -2.2 umol CO_2 fixed m^{-2} s^{-1}, respectively). It is predicted that based on these light response curves and light levels along the Rio Grande River riparian under-story that Russian knapweed will be problematic under restored cottonwood habitat because of its tolerance for low light levels while perennial pepperweed will expand rapidly wherever over-story canopy is absent.

SIBERIAN ELM (*ULMUS PUMILA*): THE CHALLENGES OF CONTROLLING A VERY LARGE INVASIVE SPECIES. April Fletcher*, U.S.Fish and Wildlife Service, Albuquerque, New Mexico.

Siberian elm, *Ulmus pumila,* is a native of northeastern Asia. Although from an area of generally cold and often inhospitable climate, it has demonstrated a tolerance of a wide range of growing conditions, being limited apparently only by low soil moisture. Introduced to the U.S. in the 1860s for windbreaks and as a fast-growing ornamental, it is now known to occur in at least 43 states and in Canada. It is a particular threat to mountain riparian areas. Like other invasive tree species, Siberian elm may form dense monocultures, crowd out native species, consume large quantities of water, and degrade wildlife habitat. Once established, it poses major control challenges due not only to its inherent characteristics but also because of common public opposition to cutting large trees. Herbicides effective for its control include cut stump and basal applications of triclopyr in mid to late summer, fall and late winter or cut stump applications of glyphosate applied in fall, or early or late winter. Spring and early summer applications generally result in poor control, as does a delay between cutting and application of herbicide or use of inadequate active ingredient. Correct application techniques and timing are critical to achieving effective results.

GOATS PLUS CHLORSULFURON FOR PERENNIAL PEPPERWEED CONTROL. Carl E. Bell*, Regional, Advisor-Invasive Plants, University of California Cooperative Extension, San Diego, CA.

Perennial pepperweed is an invasive plant that occurs in some wet areas, especially in riparian corridors, in southern California. These infestations can become monocultures and can be so dense that they are nearly impenetrable for workers on foot, making herbicide application very difficult. Because of this access problem, the San Diego Weed Management Area decided to try goats as an option to control this weed or to facilitate access for spray crews. Field studies were initiated in 2004 and again in 2005 to compare grazing alone to chlorsulfuron alone and to grazing followed by chlorsulfuron for weed control efficacy. Treatments were; goat grazing once in May, goat grazing twice (May and late July), grazed once in May followed by chlorsulfuron applied in August, grazed twice (May and late July) followed by chlorsulfuron applied in August, ungrazed with chlorsulfuron applied in August, ungrazed with chlorsulfuron applied in June and August, untreated control. Grazing periods lasted for 2 to 3 weeks. Goats were herded but were not confined by fences. Goats were kept out of the ungrazed plots with steel fencing as exclosures. Grazing was not intense, lots of the plant material was uneaten, but the plants were severely trampled by repeated visits of the goats. Goats were not available in 2005, so grazing was simulated with mowing with a brush cutter at a 4 inch height and walking over the plots. Chlorsulfuron was applied at 0.14 lbai/A. in all treatments. Plots were sampled for biomass the year following grazing and herbicide application (July 2005 and April 2006). Herbicide treated plots in both years had no biomass. Untreated control plots had 16,117 and 10,345 lbs/A of perennial pepperweed biomass in 2005 and 2006 respectively. Plots grazed once had 5,990 and 13,503 lbs/A of perennial pepperweed biomass in 2005 and 2006 respectively. Plots grazed twice had 7079 and 15,137 lbs/A of perennial pepperweed biomass in

2005 and 2006 respectively. Goats did not provide sufficient perennial pepperweed control to justify the expense (ca. $300/A), but did significantly improve access for spray crews.

EURASIAN WATERMILFOIL AND SAGO PONDWEED RESPONSE TO IMAZAMOX. Joe D. Vassios*, Scott J. Nissen and Galen R. Brunk, Colorado State University, Ft. Collins.

The invasive Eurasian watermilfoil (Myriophyllum specatum), currently infests 45 states including Colorado, and negatively impacts recreation lakes and irrigation canals. The native, sago pondweed (Potamogeton pectinatus L.), is a recurring problem in irrigation ditches along the Front Range and eastern plains of Colorado. To maintain flow where infestations exist, the irrigation districts are forced to dredge canals with backhoes. Laboratory, greenhouse and field studies were established to evaluate Eurasian watermilfoil and sago pondweed response to the herbicide, imazamox. In small tank studies, Eurasian watermilfoil was controlled with 200 ppb imazamox, while emerged sago pondweed was not susceptible even at 800 ppb. We evaluated herbicide absorption by Eurasian watermilfoil using 14C-imazamox. Maximum herbicide absorption was about 1% of the total applied and was reached between 6 and 12 hours after treatment. In the greenhouse, we simulated PRE applications to dry canals and found that imazamox did reduce sago pondweed biomass by 95% when shoots emerged through treated soil. We monitored weed control and imazamox dissipation by treating three small lakes heavily infested with Eurasian watermilfoil. Applications were made in mid-May and monitored through August. Imazamox treatments significantly reduced Eurasian watermilfoil growth, keeping these lakes completely open for the summer. The imazamox concentrations in these lakes decreased rapidly after application due to photodegradation. The half-life of imazamox in these aquatic ecosystems was approximately 4 days. Imazamox appears to be an effective management tool for control of both sago pondweed and Eurasian watermilfoil.

INTEGRATING THE STEM MINING WEEVIL (*HADROPLONTUS LITURA*) WITH HERBICIDES FOR CANADA THISTLE CONTROL: HOW USEFUL IS IT?. Stephen Enloe*, Timothy Collier, University of Wyoming, Laramie, Joanna Sciegienka, and Fabian Menalled, Montana State University, Bozeman.

Canada thistle [*Cirsium arvense* (L.) Scop.] is a deep-rooted perennial weed in agronomic, rangeland, pasture, and riparian areas throughout North America. While integrated control strategies are frequently recommended for Canada thistle, the incorporation of biological control agents into these strategies has not been well studied. The Canada thistle stem mining weevil has provided generally poor control of Canada thistle as the early season damage it causes is compensated for during the late summer and fall. Since the stem mining weevil exits the plant by mid-summer, herbicide treatments following weevil damage may be useful in an integrated strategy. We tested three herbicides with and without the stem mining weevil in greenhouse studies conducted in 2005 and 2006 at the University of Wyoming and in 2006 at Montana State University. In all experiments, Canada thistle was grown in 7.9 l pots from roots collected near Cheyenne, Wyoming. Following shoot emergence, pots were caged with a fine mesh and five adult weevils were placed in each pot receiving the weevil treatment. The weevils

and cages were then removed after one week. Herbicide treatments included 2,4-D, glyphosate, and clopyralid at commercial rates and were applied when plants reached the early flower stage. The plants were then harvested 90 days after herbicide treatment, separated into roots and shoots, oven dried, and weighed. Analysis of variance of root and shoot dry weights indicated that the weevil alone generally had little impact while clopyralid provided the most consistent reductions in root biomass. 2,4-D applied alone reduced root biomass in only one out the three experiments while glyphosate applied alone reduced root biomass in two out of the three experiments. There were few significant interactions between herbicides and the stem mining weevil for root or shoot biomass. These greenhouse studies indicate that the integrated strategy of using herbicides after weevil damage did not consistently result in greater reductions in Canada thistle biomass compared to herbicides alone.

GIANT CANE (*ARUNDO DONAX*) AND CASTORBEAN (*RICINUS COMMUNIS*) CONTROL USING THE JKINJECTION TOOL. R.P. Crockett, Monsanto Company, Vancouver, WA.

Giant Cane and castorbean are two aggressive invasive weeds found broadly across the southwestern United States. Arundo and castorbean thrive in wet, or near seasonally wet areas such as: ditch banks, ditches, streambeds, and river courses. The JKinjection® tool has been shown to be an effective tool for control of many hollow-stem weeds, including Japanese Knotweed. When applied as directed through stem injection, 6 mls Roundup Pro Concentrate/cane of Arundo and 4 mls Roundup Pro Concentrate/plant of castorbean provided excellent control. For best results, each Arundo cane should be treated within the first three internodes above the ground.

PROJECT 6: BASIC SCIENCES

THE SIGNIFICANCE OF HERBICIDE RESIDUE IN NON-TARGET SPECIES. William T. Cobb*, Cobb Consulting Services, Kennewick, Washington and Stephen P. Stupp, APT Laboratories, Inc., Reading, Pennsylvania

Herbicides registered for use on US crops are required, as part of the registration documentation, to have an analytical method for the herbicide as well as a data package on the residues which might be found in the registered target crops. Residue analysis and the development of a residue data set for crops on which the herbicide is intended to be registered on, is an expensive and time consuming endeavor. Consequently, very little residue information is collected on non-target crops. In the real world of American production agriculture, herbicides used on the crops they are registered on sometimes end up on non-target crops because of spray drift, contaminated equipment and even the application of an herbicide on a non-registered crop by error. When the herbicide gets off-target, then in many instances, soil, plant tissue and even water may be tested for the presence of residue of the errant herbicide on

the non-target crop. Once the residue results are reported, then the inevitable question is asked as to the significance that should be attached to the results. Glyphosate and thifensulfuron residues, or lack thereof, could be correlated to some degree with plant symptomology in seed potatoes (*Solanum tuberosum*). Some measurable crop response was noted in seed potatoes after glufosinate residue was no longer detectable in the tubers. The glyphosate rate and resultant residue to which a non-target apple (*Malus x domestica*) crop was exposed to, as well as the timing of the exposure, influenced residue levels and symptom expression. Symptomology, on varietal grape plants (*Vitis vinifera*) testing positive for both triclopyr and glyphosate residues, appeared confounded.

PLANT LEAF SURFACES AS A SOURCE OF CATIONS ANTAGONISTIC TO GLYPHOSATE. Andrew R. Kniss* and Stephen D. Miller, University of Wyoming, Laramie; Robert G. Wilson, University of Nebraska, Scottsbluff.

It is well established that cations present in water can antagonize glyphosate efficacy. It has also been demonstrated that addition of ammonium sulfate to the glyphosate solution can counteract this hard-water antagonism. However, reports exist describing an increase in glyphosate efficacy when ammonium sulfate is added to glyphosate solutions mixed with de-ionized water, indicating that the effect of ammonium sulfate is not solely related to cations present in the spray solution. One possible explanation for this phenomenon is the presence of available cations on the plant leaf surface. Growth chamber studies were conducted to quantify the amount of calcium and magnesium ions present on the leaf surface of velvetleaf (*Abutilon theophrasti*), redroot pigweed (*Amaranthus retroflexus*), and common lambsquarters (*Chenopodium album*). The concentration of cations was greater on the leaves of velvetleaf than for redroot pigweed or common lambsquarters. Based on a theoretical glyphosate retention value of 0.032 umol/cm^2, velvetleaf leaves have a greater number of available cations (Ca and Mg) than glyphosate molecules on the leaf surface. This high concentration of cations on the leaf surface of velvetleaf explains the consistent effect of ammonium sulfate in velvetleaf, compared to the more variable response observed in common lambsquarters.

DIFFERENCES IN SPECTRAL REFLECTANCE OF NATIVE AND EXOTIC WOODY PLANT LEAVES IN AMERICAN SAMOA: PRELIMINARY DATA FOR REMOTE SENSING OF INVASIVES. D. Eric Hanson*, American Samoa Community College.

American Samoa is a US Territory in the South Pacific 4,700 km southwest of Hawai'i. Like many tropical islands, it has challenges with invasive plant species that threaten its native ecosystems. Moreover the rugged topography and dense diverse forest cover can make detection of populations of such invasive plants difficult at best. A project was initiated to use remotely sensed hyperspectral imagery to assess the extent of selected invasive plant species affecting the forests. Seventeen species, a combination of exotic and native woody plants, were selected and their spectral reflectance signatures assessed. Many of the exotic species had reflectance patterns that could be distinguished from the native ones. The next phase of the project will be to obtain hyperspectral satellite imagery and use it to predict the location of various invasive populations. Finally, this assessment will be ground-truthed to determine the accuracy with

which the species can be determined. Assuming a high success rate, the procedure will then be ready for management applications.

USING MOLECULAR MARKERS TO IDENTIFY WEED SPECIES FROM STERILE MATERIAL. Kelly P. Steele*, Martin F. Wojciechowski, Arizona State University; Ed Northam, University of Arizona Cooperative Extension; David Maddison, Jeffrey Meyers, Arizona Department of Agriculture.

Samples of plants often do not include the characteristics necessary for definitive identification. In particular, floral and fruit features are likely to be present only at limited times of the year. It would be useful to have alternative methods of identification to identify sterile samples. A number of molecular markers, sequences of chloroplast and nuclear encoded genes, have been developed primarily by plant molecular systematists. Sequences of these genes have been deposited in GenBank, a data base that is part of the National Center for Biotechnology Information (NCBI) supported by the federal government. We recently had an opportunity to test the use of such markers to confirm the identification of kudzu, an invasive species more typical of the southeastern United States that had not been recorded previously in Arizona. Dried vegetative material was collected in late September, 2006 from Huachuca City, Arizona. Vegetative features including the presence of asymmetric leaflets, stipules with retrose lobes and stipellate leaflets strongly supported the hypothesis that the plant was kudzu. But to confirm its identification and to test the use of molecular markers to identify sterile plant material, we extracted DNA from approximately a gram of plant material and used primers specific for the chloroplast gene *mat*K in the polymerase chain reaction (PCR) to obtain sufficient material for DNA sequencing. After sequencing the gene we used BLAST, a search tool on the NCBI web site, to compare our unknown sequence with sequences already present in GenBank. That comparison confirmed the identification of the sterile plant material to be kudzu and supports the use of molecular markers to identify sterile material. Additionally, as part of our interest in developing this use of molecular markers we are analyzing the currently available sequences of important weed species in GenBank to help prioritize genera and species that need additional DNA sequences that we plan to obtain from known plant material. Our larger goal is to help provide a comprehensive resource for weed biologists and land managers.

POTENTIAL FOR THE AUXIN-RESPONSIVE GENE *GH3* IN DIAGNOSING OFF-TARGET AUXINIC HERBICIDE INJURY IN DICOT PLANTS. Kevin B. Kelley*, USDA-ARS, Aberdeen, ID; and Dean E. Riechers, University of Illinois, Urbana.

Auxinic herbicides have been used in monocot crops for many years and effectively control many dicot weeds. However, dicot crops are also sensitive to these herbicides, and off-target movement of auxinic herbicides can cause significant injury and yield loss. Due to the low doses of these herbicides required to cause injury in sensitive crops, residue analysis may be insufficient to detect reduced rates of off-target movement. An alternative to residue analysis is the detection of gene expression specific to auxinic herbicide injury. The soybean gene *GH3*, which encodes an enzyme that conjugates auxin to amino acids, is not expressed above a low constitutive level in soybean leaf tissue in the absence of auxinic herbicides, but is strongly and specifically induced in response to auxinic herbicides. Expression of *GH3* was measured

following application of reduced rates of dicamba, clopyralid, and 2,4-D to soybean, and also in response to several environmental stresses and application of herbicides of other modes of action registered for use in soybean. *GH3* expression was induced by dicamba, clopyralid, and 2,4-D, but not by any other herbicide or stress treatment. *GH3* was most strongly induced by dicamba, followed by clopyralid, then 2,4-D. Soybean sensitivity to these herbicides follows a similar pattern, indicating a high level of correlation between *GH3* expression and visual soybean injury in response to auxinic herbicides. *GH3* transcript expression was detectable for over two weeks following application to soybean of 1/1000th of a dicamba use rate in corn. GH3 protein expression was detectable for at least 3 days following application to soybean of 1/100th of a dicamba corn use rate. However, *GH3* expression was not induced in response to heat, drought, or salt stress, virus infection, or applications of glyphosate (to glyphosate-resistant soybean), imazethapyr, or fomesafen. Previous immunoblot analyses in other dicot species using antisera raised against soybean GH3 showed proteins of a similar size to GH3 were similarly induced by auxins. Also, *GH3* homologs have been identified in *Arabidopsis* that respond similarly to auxins. Therefore, there is great potential for diagnosis of injury caused by off-target movement of auxinic herbicides onto dicot crops via detection of expression of *GH3* homologs in these crops.

APPLICATION TECHNOLOGY SYMPOSIUM

WHAT A WEED SCIENTIST SHOULD KNOW ABOUT APPLICATION TECHNOLOGY...AN INTRODUCTION AND OVERVIEW. Robert E. Wolf*, Kansas State University, Manhattan.

What a Weed Scientist Should Know About Application Technology…an Introduction and Overview. Robert E. Wolf*, Kansas State University, Manhattan Many changes have occurred with spray systems in recent years (last 20) that are dramatically influencing the application of crop, pasture, and rangeland protection products. These changes have been driven by the chemical industry, drift issues, and emphasis on droplet spectra. As a result sprayers have become more advanced in design and are more electronic oriented. The drift issues have strongly influenced the nozzle designs in recent years with a major research attention on maintaining efficacy while minimizing drift. Spray droplet standards are in place that the EPA recommends and regulators are being trained to use in complaint driven situations. Chemical manufactures are also expected to incorporate droplet strategies on labels to guide the application industry in setting sprayers to maximize efficacy while minimizing drift. The intent of this symposium will be to provide the latest information on these issues from the perspective of a weed scientist. Another important part of the seminar will focus on the current and future technologies that are and will influence the application of chemical products. A part of the symposium will include the use of a spray demonstration table to illustrate nozzle designs and other technologies critical to this discussion. Background discussion: The incidence and impact of spray drift has been and continues to be of concern. The Environmental Protection Agency (EPA) has responsibility to ensure that pesticide use does not cause unreasonable adverse effects to human health and the environment. As a way for the EPA to broaden its understanding of the science and predictability of spray drift new studies were requested in the

process of registration or reregistration of crop protection products by the manufactures. In 1990, the Spray Drift task Force (SDTF) was formed in response to the EPA's spray drift data requirements. The SDTF, a consortium of 38+ agricultural chemical companies, spent approximately eighteen million dollars to support the reregistration of nearly 2,000 existing products and the registration of future products. Aerial, ground, air blast, and chemigation field studies were conducted establishing a drift database (40 reports) for the EPA. Computer models predicting drift and risk assessment are being developed from the database. In 2001, the EPA developed draft document (PR Notice – OPP-00730) regarding labeling guidance for the purpose of informing pesticide registrants, applicators and other individuals responsible for pesticide applications with improved and more consistent product label statements for controlling pesticide drift. Public comment regarding any aspect of the PR notice was sought by the EPA for a period of 90 days which was later extended two more times. More than 5000 comments were received from many public and private sectors, for and against, either in part or totally. Many letters were originated by various trade organizations. The EPA has since met with many major agribusiness trade groups to help each other understand the issues. Most of the responses were against the proposed 'zero tolerance', '10 MPH' wind limit, and the '4 and 10 foot' boom height limits for ground and aerial respectively. Most thought the proposal was completely unworkable and some felt the proposal had not gone far enough. Essentially the EPA has abandoned this effort and is now involved in a new focus. However, what has resulted form this original EPA thrust has been an incorporation of spray droplet standard for the purpose of improving efficacy while minimizing spray drift. The standard is a result of work done in agricultural engineering and is modeled after a similar standard for application of crop protection products in Europe. The American Society of Agricultural and Biological Engineers (ASABE) is a professional and technical organization, of members worldwide, who are dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the society membership to meet the standardization needs within the scope of the society. Standard S-572 (Spray Nozzle Classification by Droplet Spectra) was developed by the ASABE Pest Control and Fertilizer Application Committee; approved by the Power and Machinery Division Standards Committee; and adopted by the society in August 1999. The purpose of this standard is to define droplet spectrum categories for the classification of spray nozzles, relative to specified reference fan nozzles discharging spray into static air or so that no stream of air enhances atomization. The purpose of the classification is to provide the nozzle user with droplet size information primarily to indicate off-site spray drift potential and secondarily for application efficacy. Generally the standard is based on spraying water through the reference nozzles and the nozzles to be classified. Nozzle manufacturers that intend to market spray tips will need to test their nozzles against the reference tips and should be measured with a laser-based instrument. The manufacturer can conduct the testing or have it done in an approved testing lab. The standard sets forth the guidelines for completing the test. Droplet spectra measurements for reference nozzles and nozzles being classified shall be performed with the same: instrument; measuring method; sampling technique; scanning technique; operator; and in a similar environmental condition. Classification categories, symbols, and corresponding color codes are as following: Very Fine (VF, red); Fine (F, orange); Medium (M, yellow); Coarse (C, blue); Very Coarse (VC, green); and Extremely Coarse (XC, white). The reference flow rate and operating pressure are specified for each reference nozzle because droplet size spectra from pressure atomizers are affected by flow rate and operating pressure. The included angle of the

fan spray is also specified. Future product labels will provide droplet spectra information and classification categories to guide applicators in setting up and calibrating sprayers for use in applying crop protection materials. This information will also be useful in handling complaints regarding misapplication which could include reduced efficacy and drift. Current information: The most recent EPA focus is on identifying drift reduction technologies (DRT). The DRT project is in partnership with leading government, industry, academic, and other stakeholders, to identify and foster the use of pesticide application technologies that can significantly reduce spray drift in row and field crop agriculture. EPA's objective for the DRT project is to encourage the use of DRTs, such as improved sprayer designs, low drift nozzles/atomizers, drift retardant spray adjuvants, and natural/artificial barriers that significantly reduce spray drift from ground boom or aerial applications to row and field crops (funding to support a similar project for orchard/vineyard crops has been requested). The goal is to achieve improved environmental and human health protection through drift reduction by accelerating the acceptance and use of improved and cost-effective application technologies. Pesticide products used with verified DRTs should pose lower risks and therefore, fewer application restrictions may be necessary for spray drift control when DRTs are employed. Thus, DRT use could provide applicators with greater flexibility in product application while affording equal or greater protection to the environment and human health compared to applications with standard application equipment. Participants at EPA sponsored DRT Stakeholder Technical Panel meetings have identified a number of important issues for consideration in our development of a test protocol to measure spray drift reduction. Two sets of participants volunteered to provide information on potential reference spray systems and a matrix of appropriate testing methodologies for different types of DRTs. Other participants indicated they may submit information on existing methods for measuring drift reduction. These types of information will assist us in developing a quality draft protocol for your consideration in Portland. We look forward to receiving soon any EPA's Office of Pesticide Programs (OPP) and Office of Research and Development (ORD) are co-leading this initiative and have developed a framework for moving forward. The project is one of a number of environmental projects under EPA's Environmental Technology Verification (ETV) program that has as its operating principles high quality, peer-reviewed data, cost-sharing, and stakeholder involvement in planning technology performance verifications. In order to quantitatively credit DRTs in risk assessments and on product labels, EPA must be assured of their performance in reducing off-target drift and thus must be confident that the protocol (test/quality assurance plan) used to evaluate DRT performance is adequate and scientifically sound. EPA has formed a Stakeholder Technical Panel of academic, industry, and government scientists, experienced with pesticide drift studies and application equipment to provide input in the development of a test protocol that can be used to test or verify the drift reduction capabilities of DRTs. This panel met in January and July 2006 to discuss the DRT project in general and specifics on the outline of a draft test/quality assurance plan. The minutes of the Stakeholder Technical Panel meetings are posted on EPA's ETV website: http://www.epa.gov/etv/este.html The DRT project is also meeting strong resistance from stakeholders.

NOZZLE TIP AND SIZE SELECTION - FOR MAXIMIZING EFFICACY AND DRIFT MANAGEMENT FOR VARIOUS PESTICIDES. Robert N. Klein*, Jeffrey A. Golus, and Amanda S. Cox, University of Nebraska, North Platte.

When selecting the appropriate nozzle tip to use when applying pesticides, efficacy and drift potential are the two factors that must be considered. Many nozzle tips and sizes exist, and each produces a different droplet size spectra. A Sympatec laser particle size analyzer has been utilized to determine the particle size distribution of various nozzle tips, each at several pressure levels. The nozzle tips have been tested with water, as well as common herbicide and fungicide solutions. Adjuvants and other additives have also been analyzed. The results have shown nozzle types react differently to the same herbicide, fungicide and additives. It is very important to consider the effect of the products and additives being applied when selecting a nozzle tip.

UTILIZING SPRAYER TECHNOLOGIES FOR APPLYING HERBICIDES TO MAXIMIZE EFFICACY WHILE MINIMIZING DRIFT. Robert E. Wolf*, Kansas State University, Manhattan.

Several application equipment technologies have been developed to assist in the minimization of spray drift. One of the major concerns with technology to minimize drift is will the reduced drift be accomplished with sacrificing efficacy. The most popular and least costly technology for the application industry has been in the design of spray nozzles. Most all manufactures have designed new nozzle types with the emphasis on improved droplet size control to enhance efficacy and minimize drift potential. Chamber and venturi style nozzles have been the most popular introductions with this effort. Two additional technologies have shown moderate success with drift minimization. One, air-assisted boom sprayers, uses a high velocity air stream channeled along the boom to assist the spray into the target. Research data will support improved deposition and potential for enhanced efficacy, but unless used in a canopied target the excess air velocity has potential to increase spray drift. The second involves the use of an electrostatic boom sprayer that will create and distribute electrically charged spray droplets into the target. The spray droplets are opposite polarity of the plant material and are attracted into the canopy. In theory electrostatic sprayers are expected to increase coverage in canopy and thus reduce the incidence of spray drift. Research has shown that this technology does not always improve the efficacy for all pest control products (NCWSS, Wolf, 2004). In fact, by design smaller droplets are required for best performance. The smaller droplets are more subject to environmental factors causing drift. For each of these technologies, the additional cost added to the spray equipment has been a limiting factor in the adaptation of each. A system utilizing pulse width modulation (PWM) for controlling droplet size while varying application volumes, speeds, and pressure is currently available commercially (Capstan Ag Systems, Inc., Topeka, KS). By maintaining the application volume while adjusting spray pressure, operators are able to manipulate droplet size to meet changing wind and weather conditions or protect sensitive downwind areas. It is also possible to adjust application volumes without changing nozzles or adjusting pressure. This technology can also help maintain pattern uniformity when slowing in turns, for corners, and on hills preventing over-application at lower speeds and reducing under-application during acceleration (WSWS, Wolf 2004 and NCWSS, Wolf 2004). However,

adaptation by the industry is slow because the system adds considerable expense to standard spray systems, adequate scientific data supporting the use of the technology does not exist, and exposure to the application industry has been limited. Spray hoods and shields also have proven successful for reducing spray drift. Proper design is very critical for hoods to be beneficial. Hoods are typically designed to completely cover the boom while shields are usually placed in front or behind the boom and act strictly to shield the boom from wind. Special row-hoods are also popular for use with glyphosate applications in cotton or when incorporating electronic sensors to detect weeds in the row under the hood. Field conditions, size and added weight to modern agricultural spray systems has limited the adaptation of this technology. A recent trend in cotton has been to move away from this technology because of limited application speeds. Flex cotton varieties which allow over-the-top glyphosate applications beyond the 4-5 leave stage are helping with this trend. The latest sprayer technology involves the incorporation of various electronic controls designed to improve the efficiency of the application process. The benefits of GPS technology are allowing for the incorporation of various components including auto-steer, automatic boom swath control, and field mapping for prescription/variable rate applications. Boom swath control will prevent or reduce the incidence of spray overlap helping eliminate costly overspraying while also preventing any skips that may occur. Automatic boom height control is also available to help maintain a consistent boom position for more uniform applications and potential for reduced drift in terraced or uneven fields.

VARIABLE RATE APPLICATION TECHNOLOGIES FOR WEED MANAGEMENT.
J. Anita Dille*, Kansas State University, Manhattan.

By bringing together information about weed spatial distribution and competitiveness, sprayer application technologies, and economics, we can begin to develop variable rate application (VRA) strategies for weed management. To economically manage weeds and use VRA technologies, there are still a number of challenges. One is to get good information about the spatial distribution of weed populations and second is to ensure that weed populations are not missed during the application process. We have proposed a two-pass system: variable or low rate soil-applied herbicide, followed by a map-based, foliar-applied herbicide. Soil texture, organic matter, and pH can interact with soil-applied herbicides and determine the amount of chemical available for plant uptake compared to that bound to soil particles. This would still require application across the entire field. The next level of sophistication would be to tie in to weed seed bank populations, where are they, or not. Postemergence VRA is possible with a map of weed populations across the field. The challenge is to obtain an accurate map (weed species and density) at an appropriate resolution (grid cell size = swath width, boom section, individual nozzles). Once we have an accurate weed species and density map, the “economically optimal rate” to apply in each grid cell was determined using algorithms programmed into an Excel spreadsheet. The economically optimal rate may be below-label, however much research has been conducted to document that below-label rates are effective as part of an IWM plan (e.g. timeliness of application, match rate to weed species and density, establishing competitive crops with appropriate row spacing and seeding rates, etc.). As a result of our research work (Vogel, 2005, MS thesis, Dept. of Agronomy, K-State Univ.), we built and used our own VRA sprayer made from commercially available equipment. It was a 3-point hitch mounted sprayer (150 gallons, 25 ft boom) with a Raven SCS 440 controller, fast-close ball valve, and sprayer

mounted radar. A Trimble AgDGPS 132 was used with Coast Guard correction, connected to a Compaq iPAQ 3850 with FarmWorks Farm Site Mate VRA software. We mixed one concentration of herbicide product in the tank and changed our rates by changing the output volume applied in each grid cell. Thus applications were limited to 0 or between 0.4 and 1.0X of the recommended rate. We were also limited by the choice of nozzle and pressure range that it could accommodate. Thus changes occurred in total volume and droplet size which can influence efficacy of foliar-applied herbicides. Several equipment challenges were identified and modifications made, such as replacing the standard butterfly control valve with a fast-close ball valve. As a result, though, rate spikes occurred as rates changed during application, which caused crop injury and yield loss. The DGPS antenna was moved over the boom on sprayer in order to ensure correct geo-reference logging by VRA software. There are several delays to enter into the logging program, such as timing of when to initiate rate change based on speed and length of hoses (e.g. 1.3 seconds). Overall, this commercial pressure-based VRA spray system was successfully used to accomplish SSWM. Obtaining an accurate weed species and density map appears to be the critical limiting component of implementing VRA technology for weed management. Other researchers have suggested using remote sensing or on-the-go-sensing as sources of information for making weed maps. I believe it will need to be a combination of layers of information (historical knowledge, remotely sensed images late in season or escapes, maps obtained during combine harvesting, etc) to build a probability of occurrence map of weeds.

SPRAY TABLE DEMONSTRATION SHOWING PATTERNS, DROPLET SIZE CHARACTERISTICS, AND DRIFT POTENTIAL FOR COMMON NOZZLE TYPES.

Robert E. Wolf*, Kansas State University, Manhattan and Robert N. Klein, University of Nebraska, North Platte.

Over the last several years there has been an increased emphasis by nozzle manufacturers to engineer nozzles that will effectively reduce the volume of driftable fines found in spray droplet spectrums. Concern has been expressed that this increased emphasis in designing nozzles to minimize drift is compromising field efficacy for some herbicide products. More information about how to use the latest nozzle technologies to apply crop protection products is paramount for achieving optimum control of undesired pests while minimizing drift. This live demonstration will utilize a special designed spray table to show various characteristics of the nozzle types critical for the application of crop protection products. Special lighting, a strobe light, a fan to create wind to show drift tendencies, and other side-by-side comparisons will help the audience visualize the differences in the nozzle types being demonstrated.

EDUCATION AND REGULATORY SECTION

ANALYSIS OF UNREPLICATED EXPERIMENTS. Stephen Machado and Steven E. Petrie

Replication of treatments is a fundamental concept of statistical analysis. It is safe to say that all agricultural scientists are aware of the need to replicate experimental treatments to calculate an estimate of the experimental error variance. Without replication, it is difficult to assess the underlying error against which treatment effects should be judged. Therefore, whenever possible, experimental treatments should be replicated. Nonetheless, there are a great many situations in which replication is excessively impractical, prohibitively expensive, or simply impossible. Examples of unreplicated experiments include long term experiments initiated before our current understanding of statistics, various ecological and watershed studies, large field-scale research trials, demonstration plots, geological research, biomedical research, and demographic studies. In other cases, mistakes in the conduct of an experiment through treatment application may reduce or eliminate replication. Much of the world relies on data generated in non-replicated experiments; most "real world" situations cannot be replicated. There have been many developments in statistics that permit researchers to analyze these types of unreplicated studies and to collect important information that cannot be gleaned in any other way. Against this backdrop, it is rather puzzling that many agricultural scientists are uncomfortable with these methods and consider data from unreplicated experiments to be "unscientific" and therefore not acceptable for publication. Our heavy reliance on analysis of variance (ANOVA) has limited our ability to work with and interpret the data from experiments that fall outside this norm. Reviewers and editors reject information from unreplicated experiments yet there is a sea of information in literature illustrating the various techniques that can be used to analyze unreplicated experiments. After a lot of frustration with reviewers and editors who were rejecting my papers, we organized a symposium for researchers conducting studies with unreplicated treatments and editors and reviewers who are asked to review these types of studies. The objectives of this symposium were to discuss and illustrate some of the statistical methods that permit valid comparisons to be made in studies with unreplicated treatments and to create a springboard for further discussions on this topic. The symposium was a success; five reference papers on how to analyze unreplicated studies were published in Crop Science Journal and this in turn led to acceptance and publication of our unreplicated data.

META ANALYSIS OF ON-FARM TRIALS WITH LIMITED OR NO REPLICATION.
William J. Price*[1], Bahman Shafii[1, 2], Joan Campbell[2], and Traci Rauch[2]. [1] Statistical Programs. [2] Department of Plant, Soil, and Entomological Sciences. College of Agricultural and Life Sciences, University of Idaho, Moscow, Idaho 83844-2337.

On-farm trials are commonly used in agricultural research. They allow controlled treatment effects to be investigated in situ and have the additional advantage of involving cooperators and producers in research efforts. Such trials are typically carried out over multiple locations and/or years, thereby providing a broad range of environments for treatment assessment. In many cases, however, on-farm trials are either non-replicated, e.g. demonstration plots, or are summarized as mean responses in a series of annual or technical reports. While traditional analyses of these data using ANOVA or regression models may have some utility, these methods must incorporate the multiple environments as replication. Any information relating specific treatment effects for a given environment, that is information regarding the treatment-by-environment interaction, will be lost. Exploratory and diagnostic techniques for examining similar environmental interactions have been developed in the field of plant breeding. This talk will demonstrate these methods as applied to the treatment-by-environment interactions that may occur with on-farm trials. Examples and interpretations will be given using Idaho Weed Control Report summaries of trials conducted over multiple years and locations.

KNOTWEED SYMPOSIUM

THE GENETICS OF INVASIVE KNOTWEED SPECIES IN EUROPE. John Bailey*, University of Leicester, UK.

The introduction of a male-sterile clone of *Fallopia japonica* var. *japonica* to the West has had a number of important consequences, not the least being the addition of a tenacious and conspicuous addition to our various Floras. Leaving its numerous predators and diseases behind in the East, it has been a stunning success in its adventive range, and is recognized as a serious problem in North West, Central and Eastern Europe, the United States and Canada. A clonal plant would seem to be at a disadvantage as a successful invader, given its total lack of genetic diversity. The existence of hundreds of hectares of male-sterile *F. japonica* spread across several continents in its adventive range can be viewed as a vast unintentional breeding experiment. Anything that can possibly pollinate it will have done so. These hybrids with various related and not so related species are then able to backcross with *F. japonica*, providing the genetic diversity so conspicuously lacking in the mother. Whilst such viable hybrid seed may be produced in considerable amounts throughout its adventive range, it does not meet with conditions suitable for overwintering and establishment in large parts of its new range. The talk will deal with the history of its introduction, some of the reasons for its success, breeding behaviour, the taxonomy and nomenclature of the group, recognition of the hybrids and a comparison of the genetic and cytological diversity of the introduced plants and the native

plants in Japan. A point I am always keen to make, is that in this group of high polyploids where individuals may have different mixtures and proportions of the *sachalinensis* and *japonica* genomes at different ploidy levels, the value of a molecular approach, in the absence of basic morphological and cytological data is severely limited. This talk brings together historical, taxonomical, morphological, cytological and molecular approaches in an attempt to unravel the knotweed story. Particular emphasis will be placed on the differences between the European and American experience of the plant.

INVASION DYNAMICS AND ECOLOGY OF KNOTWEEDS IN CENTRAL EUROPE: A HYBRID SUPERIOR TO PARENTAL SPECIES. Petr Pysek*, Academy of Sciences at Pruhonice, Prague, Czech Republic.

Three *Fallopia* species occur in Central Europe, including two parental taxa, *Fallopia japonica* var. *japonica* and *F. sachalinensis*, which cross and produce a hybrid *F.* × *bohemica*. Their distribution in the Czech Republic is well known which made it possible to reconstruct the history of their invasion and compare the dynamics of spread in the last 50 years among the three taxa. The two parental species were first recorded at the beginning of the 20th century, while the hybrid as late as in 1950. Since this first record in the wild, the hybrid exhibits twice the rate of invasion of its parents, measured as the number of occupied localities. The reasons for this remarkable invasion success were explored in a series of experiments, comparing the regeneration ability and competitiveness of the three taxa. It appears that higher regeneration ability of the hybrid, compared to both parents, contributes to its invasiveness at the landscape level, and so does the fact that it outcompetes parental species in controlled pot experiments. Within the hybrid *F.* × *bohemica*, hybrids genetically intermediate between the parents regenerate better than those closely related to parents, which indicates ongoing evolution of new invasive genotypes. Novel hybrid invasive genotypes may be produced by rare sexual reproduction, fixed by clonal growth, and present a previously unknown threat to native vegetation.

VEGETATIVE REGENERATION BY JAPANESE KNOTWEED. John H. Brock, Department of Applied Biological Sciences, Arizona State University Polytechnic, Mesa, AZ.

Japanese knotweed (*Fallopia japonica* syn. *Polygonum japonica*.) and its closely related conegers are tall, rapidly growing alien perennial plants forming dense stands. The majority of this plant's dispersal is related to the rhizome system. The regenerative potential of the rhizomes has been recognized for many years. In the early 1990's its potential to reproduce by from stems was documented. Buds are formed in the autumn near the base of the plant and in nodes of the rhizomes. Over-time, large basal crowns and perennial rhizomes are formed. As little as 10 mm length or 0.7 g fresh weight of a rhizome can produce new shoot growth. Rhizome segments commonly have over 70 % regeneration success. Fresh stems can produce new shoots from the nodes, with more activity from basal cuttings than upper stem parts. The most successful greenhouse stem regeneration of Japanese knotweed was from segments placed in water. Stem cuttings in water had approximately 60 % regeneration. Shoots began to emerge by about 6 days and by 21 days adventitious roots were formed. Hybrid genotypes of Japanese

knotweed have been found to have greater success in rhizome regeneration compared to the parental species. Rhizome regeneration by Japanese knotweed makes moving soil contaminated with this invasive species a common dispersal method. Japanese knotweed is often an invader of riparian habitats. Live stems separated from the parent plant during high flow events, can be spread along water courses, further enhancing its ability to invade new sites.

CURRENT STATUS OF HERBICIDES FOR CONTROLLING INVASIVE KNOTWEEDS IN THE UNITED STATES. Timothy W. Miller*, Washington State University, Mount Vernon.

The knotweeds are some of the most difficult to control of all the noxious weeds. In particular, it is the very large invasive knotweeds, those species usually growing to five or more feet tall and whose jointed, hollow stems are up to two inches in diameter, that cause the greatest concern. At least four species are recognized by the botanists to occur in the US: Japanese (*Polygonum cuspidatum*), giant or Sakhalin (*P. sachalinense*), Himalayan (*P. polystachyum*), and Bohemian (*P.* x *bohemicum*, a hybrid of Japanese and giant). Herbicidal control research has centered on three herbicides: glyphosate, imazapyr, and triclopyr. Imazapyr is the most active herbicide at equivalent doses of active ingredients, causing symptoms and providing foliar control at 0.5% foliar-applied solutions. Current recommendations for imazapyr range from doses of 0.75 to 1.5% applied to foliage. Glyphosate also can provide excellent results, with recommendations ranging from 3.5% to 8%. Glyphosate mixed with imazapyr can provide superior results at rates of 2.5 to 3% glyphosate plus 0.5% imazapyr. Triclopyr has also shown good activity on the knotweeds, quickly producing epinastic symptoms. Rates from 1.5 to 2.5% applied to foliage are considered adequate for triclopyr, although control can be improved by mixing with glyphosate or imazapyr. Injection of glyphosate at a rate of 5 ml per knotweed stem is also registered for use in the United States. These applications have provided excellent control of knotweed crowns in the Pacific Northwest. There do not appear to be major differences in herbicide susceptibility among these species, although the hybrid Bohemian knotweed seems to be the most tolerant to herbicide applications. Results from herbicide wiped on the stems have been inconsistent. All these herbicide applications have the potential to injure non-target vegetation, including glyphosate injection.

PROJECT 1: WEEDS OF RANGE AND FOREST

Chairperson: Cynthia S. Brown, Colorado State University

Topic: Restoration for Weed Control and Weed Control for Restoration

The purpose of the discussion was to address invasive plant and weed issues in the context of ecosystem and plant community restoration. Four speakers with experience in restoration ecology gave presentations before opening the session to discussion with 49 attendees. Cynthia Brown provided background into restoration including definitions of terms and how weeds and restoration have appeared in the literature of the respective disciplines. She outlined restoration-related terms in the context of re-establishing different levels of structure and function of a system. Vic Claassen discussed the critical role that ecosystem processes play for restoration of native species, interactions between native and invasive plants, and the influence of soil treatments or amendments on plant communities. Val Anderson presented valuable information about selecting species for restoration of upland sites, especially where downy brome is a problem. He emphasized the importance of capturing a site by planting aggressive perennials such as crested wheatgrass, then assisting succession by diversifying the community through seeding native species. Mark Stannard discussed practical approaches to restoration including acquiring appropriate plant materials, site preparation, drill seeding and other methods of seed distribution.

The discussion revealed great interest in a wide range of issues related to restoration and invasive plants and weeds. Our experienced panel deftly fielded questions about dealing with soil salinity, rodent predation of seeds, how to get restoration training, choosing between natives and non-natives, the availability of native species seed, the importance of introducing mycorrhizae, the use of polyacrylamide for soil stabilization, the use of nurse crops in rangeland settings, and how altered climate may affect restoration planning and success.

Lars Baker will take the reins as Chair with Chair-Elect Michael Moechnig. They will develop a topic for the Project 1 Discussion at the 2008 annual meeting.

PROJECT 2: WEEDS OF HORTICULTURAL CROPS

Chairperson: Rich Affeldt

Topic 1: What are Bioherbicides?

The Horticulture Section discussed the utility and development of bioherbicides. The discussion began by defining what biopesticides are. According to the EPA, biopesticides are certain types of pesticides derived from such natural materials as animals, plants, bacteria, and certain minerals. For example, canola oil and baking soda have pesticidal applications and are considered biopesticides. Sandra McDonald indicated that the EPA definition for biopesticides, "include naturally occurring substances that control pests (biochemical pesticides), microorganisms that control pests (microbial pesticides), and pesticidal substances produced by plants containing added genetic material (Plant-Incorporated Protectants) or PIPs." There seemed to be some discrepancy between biopesticides and biological control agents, however it was indicated that human toxicity determines whether a substance will be regulated as a pesticide or not. Synthetic versions of natural materials should probably not be considered biopesticides (e.g. glufosinate and mesotrione).

Topic 2: Examples and Applications of Bioherbicides

Several bioherbicide products have been marketed in recent history. Some of the products discussed were Devine, Collego, Cinch, and acetic acid. Most bioherbicide products have had little market success

compared to synthetic herbicides. Some of the reasons for product failure in the market that were discussed are listed below.

1. Too specific, may control only one weed
2. Not specific enough (e.g. acetic acid)
3. Difficult to produce
4. Poor shelf life
5. Business model is lacking, may totally eradicate a weed
6. Regulatory difficulties
7. Stability issues and quality control

Topic 3: Research and Development of Bioherbicides

By-products of biofuel production like yellow mustard (*Sinapis alba*) meal and distillers grains are an active area of research for weed control because of the availability of these materials. Currently yellow mustard meal is going through the registration process with EPA. The meal itself rather than the active ingredients will be registered and the process will establish a range for the amount of active ingredients contained in the meal. Biofuel by-products probably fit best in an organic system; however biofuel feedstocks will likely be GMO (Roundup Ready or BT), which is currently not allowed in organic production.

The final point in the discussion was raised by Bob McReynolds asking about how researchers could get environmental groups to sponsor development of pest management strategies that are acceptable to them. It was agreed that there is probably a huge opportunity for cooperation between environmental/sustainable groups and this society.

Don Thill received a phone call during the discussion notifying him that he just became a grandfather. Congratulations Don!

Joel Felix was elected to serve as chair-elect for Project 2 in 2008.

2008 Chair
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PROJECT 3: WEEDS IN AGRONOMIC CROPS REPORT

Chairperson: Roger Gast

Topic: *Challenges of Fallow Weed Control Now and in the Future*

The Weeds of Agronomic discussion session was held on Wednesday, March 14th. Appoximately 30-40 people were in attendance over the course of the session.

To lead off the discussion Joe Yenish (WSU) provided a presentation titled “Chemical Fallow in Eastern Washington”. He indicated that in Eastern Washington more consistent wheat yields were attained when growers utilized a fallow period in their rotation in comparison to growers who did not. Typical weed control measures in the fallow system included multiple glyphosate applications (2-4 applications per year) applied alone or in tank mix with growth regulator herbicides. Questions about the validity of a

residual component in the herbicide program are currently a topic of debate in the region. Joe's data, however, has indicated that several residual herbicides applied in fallow did not affect the grain yield of the subsequent wheat crop. Weed species that appear to be on the rise in the PNW include mayweed chamomile, prickly lettuce, rattail fescue, and downy brome. Joe also discussed "Weed Seeker" technology in the PNW. He indicated that it does have potential, but some issues need to be resolved.

At the conclusion of Joe's presentation, a general discussion session was held. A major portion of the discussion, focused on the implementation of a periodic tillage operation in a predominately no-till system. For example, one tillage operation conducted every 3-4 years. Opinions varied on the results of such a program. Some indicated that tillage would stimulate downy brome and other weeds to germinate, which would allow the grower to control these weeds prior to planting wheat. Others indicated that periodic tillage in a no-tillage system would set the system back several years and would lead to increased erosion and would decrease water infiltration rates. Most people agreed that today's herbicides are not adequate and new tools need to be developed to maintain the system. However, new herbicides are only a short term solution. Crop rotation or altering the wheat-fallow system in other ways is more likely to result in the long term success of wheat production in the West.

Ian Burke, Washington State University, was named to serve as chair-elect for project 3 in 2008.

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Project 4: Teaching and Technology Transfer
Chairperson: Scott Steinmaus

Topic: The continuing fervor over transgenic crops

The Teaching and Technology Transfer session was held on the morning of Thursday, March 15, 2007. From 9:15 to 9:45 am, two submitted oral presentations were given as part of the program (Papers 151 and 152).

The discussion session opened with Scott Steinmaus, Associate Professor in the Biological Sciences Department at California Polytechnic State University in San Luis Obispo, CA. He reflected on his own experiences of interacting with environmental and activist groups opposed specifically to GMO crops. Across the state of California, individual counties have pro- or con-legislation or resolutions in place against or for the planting and availability of GMO crops, respectively. Scott served on a task force in San Luis Obispo County in order to provide scientifically-based information on the health implications of

GMO foods and crops. Once again, there were challenges in interacting with activists where such scientific information was insufficient and where we as scientists were not always capable of responding to their statements.

Martin Lemon, representative from Monsanto Co. located in Arizona initiated a presentation on "communicating your message effectively" with respect to interacting with people in high pressure situations. His own experiences started with use of herbicides, in general, for production of food, and now involve explaining the benefits in the production and use of GMO crops. Martin's key point of advice was to "not take comments personally" but reflect on the facts.

The discussion was opened up to share personal experiences with respect to interacting with environmentalists and activists, and it was highlighted that we do a poor job of communicating science to the general public as well.

From a sociological point of view, Craig MacMillan, Ph.D. Candidate in Sociology at Washington State University, Pullman, presented many ideas. One was about artificially-created boundaries between groups, so that with the GMO issues, for example, there are "those people and my people" or "activists vs. scientists". Perhaps we need to consider "inclusion" and use terms such as stakeholders, where everyone has opinions, perspectives on the same issue and this may bridge those artificial boundaries that were established.

Forums often generate an antagonistic interaction, rather than a place for open dialogue on issues of common concern. Thus, set up discussions and forums where people have respect for each other on a common issue of concern, rather than set it with sides of right and wrong. Yes, differences do exist but so do commonalities. For example, everyone would like to kill weeds and grow crops, it is just that some people do not want to use herbicides…. While others feel that is an appropriate tool.

We also want to recognize that sometimes facts and scientific proof do not matter. Often we can not change the way a person feels or what they believe in. Those feelings or believes are not wrong even though there may be no facts to back it up. It is often easier to get someone afraid, to make them aware of risks, rather than convincing them to be comfortable with the unknown and knowing the benefits.

Is fear a stronger factor than safety or a better future? We are always defensive about approaches to managing weeds in our discipline; is there as way we can be more proactive? Again, our challenge is how to communicate better with the general public, those food-buying consumers, to share what we know as the benefits of different technologies for everyone.

Clearly, there is a need for leadership, and to lead as a community and in the community. How do we accomplish this? Maybe start with one-on-one interactions "over coffee". In an interaction, ask "help me to understand your concerns" on this topic, so that we can respect other opinions until proven otherwise. This provides time for self-reflection and thus we can all move to greater understanding.

Depending on the audience one might interact with, this influences the approach to sharing information – scientists like facts, general public may need more background information, and we need to think about and question their perceptions and misconceptions.

Overall, a lively discussion with lots of unanswered questions about our ability to share these concerns with our stakeholders!

Guests:
Martin Lemon, Monsanto Company, Arizona, Martin.d.lemon@monsanto.com

Craig Macmillan, Ph.D. Candidate, Sociology Department, Washington State University, Pullman, WA craigmacmillan@worldnet.att.net

Chair 2007:
Scott Steinmaus, Associate Professor, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA 93407, ssteinma@calpoly.edu

Chair 2008:
J. Anita Dille, Associate Professor, Department of Agronomy, Kansas State University, Manhattan, KS 66506, dieleman@ksu.edu

Chair 2009:
Anil Shrestha, IPM Weed Ecologist, University of California Statewide IPM Program, Kearney Agricultural Center, Parlier, CA 93648, anil@uckac.edu

Project 5: Weeds of Wetlands and Wildlands Session
Chair: Mike Edwards, Dupont

Definition of riparian: zone between aquatic→(riparian)→upland that sits just above ground water from river or waterway but not under water.
Values of riparian vegetation (Federally identified in devising definition and policy)

1. bank stabilization
2. fish habitat
3. wildlife habitat
4. food chain support
5. thermal cover
6. flood control

Discussion that all of these are not required as a definition of riparian but that these are benefits of having vegetated riparian habitat.

Unhealthy riparian zone indicators (Agriculture and Agi-food Canada):

1. weeds: native impacts, flow reduction, sedimentation
2. lack of shade trees: temperature typically goes up and O2 levels go down concomitantly
3. lack of sapling trees: so no recruits, caused by over grazing
4. trampling from grazing
5. lack of woody debris:

   Some discussion of when you might want bare ground, when that (bare ground) is the native condition. One size doesn't fit all when listing these indicators and the implications of what to do about them.

TOPICS FOR DISCUSSION:
What are the areas required for research? Identify the areas where research has been completed and areas where work is most needed. A completed research project on a weed species in riparian would be defined as knowing:

a. Weed biology, interaction with other species, genetics (molecular aspects of relatedness and invasivity), origin (native range)
b. Control methods: physical, chemical, biological, integrated
c. Ecological impacts: weed ecology, ecological impacts,
d. Revegetation issues: native condition or management goals are known
e. Expected successional process: will other invaders move in upon removal, will natives take hold

f. Economic impacts: cost if no control, cost of control, using weed vegetation as biofuels and will crops used for biofuels become weeds

Species identified as particularily invasive in riparian habitats:

1. tamarisk
2. perennial pepperweed
3. Russian olive
4. Leafy spurge
5. Canada thistle
6. Arundo
7. Phragmites

Other species suggested: Purple loosestrife, Japanese knotweed (much discussion to put this very near the top of list, especially in some locations), Himalayan blackberry, smooth brome, teasel, yellow toadflax, tansy, capeivy

PRESENTATION

Robert Wilson, Univ. NE. Salt cedar and Russian olive along Platte River corridor.
River width has narrowed drastically and trees now line river relative to 1800's.
aerial hyperspectral survey of river to map tamarisk (2% of area surveyed right along river bank uses 18,000 A ft of water), Russian olive (1.1% of area uses 17,000 A ft of water), musk and Canada thistle (2%), reed canary grass. 25,000 A ft of water would be saved if these species were removed and replaced with grass
Some discussion of what the water use would be if native cottonwood were left behind. Agreement that this is a complex issue that would have to be discussed among stakeholders on a case by case basis and that the more trees you left behind or replanted the less that water savings.

RESEARCH AREAS COVERED BY SPECIES

TAMARISK

AREAS COMPLETED: Are there areas of research that HAVE been completed: perhaps survey, detection but still room for improvement,

AREAS NEEDED: integrated management consequences what are the interactions of chemical and mechanical methods, when tamarisk is removed what might move in afterward?→ this issue must be part of a management plan (i.e. the restoration portion of the plan). Another major part of a plan (probably first step) must be to identify management goals.

JAPANESE KNOTWEED

AREAS COMPLETED: aerial surveys just begun, hybridization work has been done which has found that it may become more aggressive, physical control makes it worse, biocontrol and herbicide control research has been active, some revegetation efforts being done but not research

AREAS NEEDED: integrated methods, especially being able to get funding to research use of herbicides around water, getting around the socio-political issues, research on successional changes (e.g. other invaders move in following removal) needs work

PURPLE LOOSESTRIFE

AREAS COMPLETED: control methods such as biocontrol and their successes are currently being researched, educational efforts to get the word out about the invasivity of loosetrifes to people who may sell or plant it.

AREAS NEEDED: more on control

US Forest Service and The Nature Conservancy have databases of research projects currently being done on weeds.

Future needs may include elevation aspects of weed invasion perhaps as climate change might affect them.

Vice chair: Scott Steinmaus, Cal Poly San Luis Obispo
Jim Harbour, Dupont, elected chair for 2009

Session attendees e-mail list:
ssteinma@calpoly.edu; george.beck@colostate.edu; vfpeterson@dow.com; rwilson1@unl.edu; jeffery.m.tichota@monsanto.com; kknaphus@cascade.co.mt.us ; bbsleugh@dow.com; cows19@comcast.net; sasha.shaw@metrokc.gov; akniss@uwyo.edu; chad.prosser@nps.gov; rod.lym@ndsu.edu; cody.gray@cerexagri.com; motookap001@hawaii.rr.com; jon.s.claus@usa.dupont.com; james.d.harbour@usa.dupont.com; ardithLN@WAKEROBINLLC.com; lwanderson@ucdavis.edu; fsbts5@UAF.edu; deneke.darrell@ces.sdstate.edu; michael.t.edwards@usa.dupont.com

Project 6: Basic Sciences Section

Twenty people in attendance
Speaker: William (Bill) Price
Statistician, Statistical Programs, College of Agriculture and Life Sciences, University of Idaho, Moscow, Idaho
Topic: Considerations for Weed Seed Germination/Emergence Modeling

1. Germination is often described by indices (rate of germination etc.) – usually these are incomplete so modeling may be a better method to describe weed seed germination
2. For modeling, the more data points the better
3. Multiple replications are necessary
4. Not necessary to have data points evenly spaced, more important to capture the points where most of the germination occurs.
5. Experimental unit is Petri dish not individual seeds
6. It is good to have 30 or more seeds per Petri dish
7. Types of models that can be fit- sigmoidal, normal (probit), logistic, modified logistic, Gompertz (ideal for situations where there is quick burst in germination), Exponential, Weibull
8. The most common is the logistic model, for non-symmetric data use Gompertz
9. For estimation- the old method was linear and non-linear regression the new suggested method is generalized nonlinear regression in SAS using PROC NLMIXED

Discussion:
Why model?

1. For best timing of herbicide application
2. For deciding on planting schedules
3. For identification of seed bank depletion methods
4. For assessing herbicide residual effects
5. Seed bank ecology

Parameters and other considerations for germination studies?

1. Soil temperature
2. Soil moisture
3. Light quality

4. Tillage/seed depth
5. Soil type
6. Air temperature
7. Seed age
8. Maternal effects
9. Dormancy

Factors affecting germination?

1. Seed dormancy is a major factor influencing seedling emergence

Documentation on PROC NLMIXED is available on SAS
For paper on methodology of germination studies, contact William Price, Univ. of Idaho

Papers:
Five papers were presented with 15-20 people attending

Business section:
17 People attending

1. Participants were in strong agreement that WSWS should not dissolve the 'Basic Sciences' section
2. Publicity of the programs is necessary and discussion topics should be made available on the web before hand
3. The market niche needs to be found for the topics
4. Maintaining the Basic Sciences section gives some papers a relevant section that would otherwise be difficult to fit in other sections
5. Change the name of the section to 'Weed Biology and Ecology'?
6. During the call for papers – suggest what type of papers will be included in this section. This should be done for all other sections too so that people will be less inclined to present their paper in a session where it marginally fits but may be better attended.
7. New chair-elect – Randall (Randy) Currie, Southwest Research-Extension Center, Kansas State University. Email: rscurrie@ksu.edu. He will not be able to attend the 2008 WSWS meeting so Cheryl Wilen (Univ. California, cawilen@ucdavis) volunteered to take notes at the meeting in Anaheim. Chair for 2008 meeting is Lynn Fandrich (Colorado State Univ., fandricl@lamar.colostate.edu). Thanks to Anil Shrestha for taking notes during the session.
8. Topics suggestions for 2008 and after – modeling competition effects, gene flow, turfgrass issues

Attendees who signed in:

Name	Affiliation	Email
Bill Price	U ID	bprice@uidaho.edu
Zhining Ou	NMSU	
Anil Shrestha	U CA	anil@uckac.edu
Randall Currie	KSU	rscurrie@ksu.edu
Eric Hanson	Am. Somoa Comm. Coll.	e.hanson@ascc.as
Dan Henningsen	U ID	hennings@uidaho.edu
Mike Quinn	OSU	michael.quinn2@ oregonstate.edu
Bill Cobb	Cobb Consulting	wtcobb42@aol.com
Cheryl Fiore	NMSU	cfiore@nmsu.edu
Tim Harrington	USFS PNW Res. Sta.	tharrington@fs.fed.us
Elena Sánchez	OSU	
Carol Mallory-Smith	OSU	carol.mallory-smith@oregonstate.edu
Cheryl Wilen	U CA	cawilen@ucdavis.edu
Jill Schroeder	NMSU	jischroe@nmsu.edu

WSWS SUMMER BOARD MEETING
July 28-29, 2006
Hilton Portland & Executive Tower
Plaza Suite
Portland, Oregon

Friday, July 28

The meeting was called to order by Kassim Al-Khatib and introductions were made.

Present at the meeting: Kassim Al-Khatib, Dirk Baker, Phil Banks, Rick Boydston, Janet Clark, Ron Crockett, Joe DiTomaso, Pamela Hutchinson, Angela Kazmierczak, Jeff Koscelny, Carol Mallory-Smith, Vanelle Peterson, Jill Schroeder, Kai Umeda, and Joe Yenish.

BUSINESS MANAGER REPORT – Phil Banks
Office or Committee Name: Business Manager
Officer or Chairperson Name: Phil Banks
Date of Preparation: 7/12/2006
Committee Activities during the Year: Following the annual meeting in Reno, NV, Wanda Graves transferred all business records to my office. The transition went smoothly and I have communicated with Wanda often when questions have come up. WSWS members that did not attend the annual meeting were contacted by e-mail or letter to remind them to renew their membership. Approximately 25 of the 150 contacted have renewed. Our accountant filed our taxes in June (our tax year ends March 31). The membership list has been updated and reconciled with that on the web site. The April newsletter was printed and sent to the membership. As of the date of this report, the Proceedings have not been received for shipment. This has posed a few problems with subscription services that have standing orders for the Research Progress Report and the Proceedings. No members have called to complain.
All bills have been paid and the current financial status of WSWS is attached as well as the final Financial Report submitted by Wanda (April 1, 2005-March 31, 2006). I have also put together an estimated budget for the 2006-2007 operating year which is also attached. Weeds of the West is being reprinted and will draw the balance of our cash bank deposits to a low level, but it is hopeful that additional income from sales of Weeds of the West will prevent the need to transfer funds from our RBC investments to cover anticipated operating expenses.
I have reviewed the wording in the Constitution and the Operating Guide and it is my opinion that no changes are necessary to address the current contractual agreement between WSWS and Marathon Consulting.
As agreed in our contract, I will provide an orientation session at the Portland meeting for new members to WSWS followed by an orientation session for newly elected Board members. I will coordinate this with Program Chair Ron Crockett. Proposed time for this is Tuesday morning, prior to the Poster Session.

Recommendations for Board Action: At the Reno meeting, the Board approved the shipment of two pallets of Weeds of the West to the WSWS Business Office to be sold over the website and shipped to buyers. Attached is a proposal to cover the additional costs of providing this service and additional services to WSWS in regards to selling products through our website.

Budget Needs: None that are not already budgeted.

Suggestions for the Future: Because of the increasing importance of the WSWS web site Editor to the economic future of WSWS, I suggest that the web site Editor be given a non-voting position on the Board similar to the Business Manager.

Suggested Changes in Operating Guide: None.
Name of Person Preparing This Report: Phil Banks

Phil said that the transition from Wanda to his company went smoothly and all financial matters are now housed at his location. Re-new membership letters were sent out to people who did not come to the 2006 meeting and approximately 25 sent the reduced dues fee to Phil. An updated mailing and membership list has been posted on the WSWS website. The Newsletter was sent in June. Phil did not think that the Constitution language needs to be changed as to how it refers to the business manager. Kai Umeda said the only concern about the language was because Wanda was a contract employee and now the contract has been made to a "company." Phil reminded the Board that the WSWS paid for all Wanda's expenses needed to do the job since she was an employee, but that in his case, WSWS does not pay for the infrastructure costs.

Phil will be conducting a PowerPoint presentation orientation session at the 2007 WSWS meeting for new members and separately for new Board members and will coordinate this orientation with Ron Crockett. Kassim asked how new members will know about the orientation and Phil said it will be stated in the program and if people who have not pre-registered will be notified at the registration desk. The orientation will be given sometime during the first day in between the Poster session and start of the General meeting session. Phil felt that the day before wouldn't work because many people would not be there yet.

Phil suggested that the web site manager should be added to the Board as a non-voting member since we often discuss topics which would be appropriate for posting in the web site but the manager does not always attend the entire Board meetings. As a result, the Board doesn't have the chance to get detailed info from the website manager and give feedback at those meetings. Phil asked if the Board would discuss this issue before this meeting ended. Some discussion followed anyway, and Kai said that anyone can attend a Board meeting, so the website manager may not have to become a Board member and the Constitution may not have to be amended. Kai said that verbage could be added to Article IV (Operating), to "encourage" the website manager to attend Board meetings. Phil said that the current website manager, Tony, might need an official Board member "title" to be able to justify to his employers attendance at Board meetings. The website manager's travel to the annual meeting is paid by the Society. Vanelle suggested that we request the website manager's attendance at the early Board meeting before the annual WSWS meeting, too. Board members mentioned that the Jointed Goatgrass meetings held at the same time as the early Board meeting were a conflict to the website manager's attendance at the early Board meeting in the past. Kassim suggested that the Board may have to change the Constitution to make the website manager a non-voting Board member. Phil asked to move the discussion to the New Business point on the agenda tomorrow.

Phil told the Board that his goal as Business manager is to make the Budget and everything related to the Budget as transparent as possible to the Board so as we work, we have a clear understanding as to the Society's finances. Phil told us that he could not prepare an annual Budget to show sat this meeting, but on his own he can give us estimates on the Operation costs of the Society, Obligations, and income from registration and dues.

Phil asked that mention of Allen Marketing be deleted because they didn't help much and the people he dealt with on a successful basis have left or are leaving the company. Allen Marketing is not charging us for Site Selection since they didn't help.

Posting and deficit related to the meeting and obligations does not count income form Weeds of the West, the Noxious Weed short courses, and misc. publications.

Phil said that attendance at the 2006 Reno meeting was 300 paying full registration costs and reminded us that students only pay $25. Proceeds from full-registration was approximately $45,000, and from student fees was $4600-5200. Proceedings will be mailed late July-early September and all is set up to buy online at the WSWS website.

Phil gets a notification when an order has been placed and paid through PayPal, then he ships the order. Vanelle brought up the idea of electronic newsletters and Phil said the goal is give the option to the members. Postage should decrease, but he can't estimate how much the mailing numbers would change from the 525 newsletters sent this year until the member list was updated but thinks that the number is smaller. Phil mentioned the fact that postage is still increasing and that his estimate of cost to mail proceedings is included in this budget estimate.

Carol told the Board that the annual meeting food expenses = $12,000, including all paid for by sponsors. Phil said the biggest expense is the Awards luncheon which cost approximately $7,000 at the 2006 Reno meeting.

The Board discussed paying the Board grad student travel cost which Phil said is included in the travel amount in the estimated budget. Mention was made of the free room for every 50 nights paid. Approval was made at the last Board meeting to increase room stipend for grad students attending, and it is in the Operating guide that major professors are required to send stipend request letters to the Business manager, however, no requests were received last year. Wanda told Phil that request numbers have been variable. Kassim said the only year he requested a student stipend was for the last Hawaii meeting

Phil did not include the one-time award of $2500 for Tony, the website manager, in this estimated budget. Phil said that Tony told him he doesn't expect to get paid every year.

Western Society of Weed Science Financial Report
April 1, 2005 through March 31, 2006
Year-End Report

CAPITAL

2004-2005 Balance Forward	$244,523.34
Current Income	94,444.34
	$338,967.68

DISTRIBUTION OF CAPITAL

RBC Dain Rauscher Funds	$175,149.55
Money Market (Newark)	130,853.05
Checking (Newark)	32,965.08
	$338,967.68

WSWS Financial Report – April 1, 2005 through March 31, 2006

INCOME

Registration & Membership Dues	$ 45,203.60
Proceedings	4,540.35
Research Progress Reports	3,358.35
Noxious Weed Control Short Course	23,953.10
Weeds of the West	70,000.00
Hotel Credit for Earned Comp Room Nights-Annual Mtg	1,296.26
Bio Control of Invasive Weeds book	3,852.46
Bank & Investment Interest	9,837.59
2006 Sustaining Membership Dues	4,600.00
	$ 166,641.71

EXPENSES

Office Supplies & Equipment	779.16
Postage, Box Rental, Mailing Permits, Shipping	1,764.90
Telephone, Internet	921.44
Website (Host Fees)	363.00
PayPal Service Charge (NWSC)	397.50
PayPal Service Charge (registrations, publications)	843.65
Franchise Tax Board Filing Fee	10.00
Tax Accountant	325.00
Liability Insurance	521.00
Worker's Compensation Insurance	344.34
Federal Employee Taxes	3,201.20
State Development Employee Taxes	621.36
CAST Membership Dues (2006)	603.00
CAST Representative Travel	290.83
WSSA Representative Travel	700.80
WSSA Director of Science Policy	7,300.00
Noxious Weed Control Short Course	17,260.73
Site Selection Contract Services (Allen Press)	1,500.00

Printing - Newsletters	1,619.15
2006 Programs	772.43
2006 Research Progress Reports	2,288.00
2005 Proceedings	2,571.00
Refund – Registration Fees	340.00
Student Awards/Plaques & Room Subsidy	1,051.19
Research Progress Report & Proceedings Editor Travel	747.18
Business Manager Salary (Net)	12,740.94
Annual Meeting Speaker's Expense	1,119.75
Executive Board & Committee Meetings	2,690.91
Annual Meeting Awards Luncheon & Award Plaques	6,436.24
Audio Visual – Annual Meeting	2,072.67

Net Worth Report
(Includes unrealized gains)
As of 7/11/06

Account	Balance
ASSETS	
Cash and Bank Accounts	
Checking	10,361.71
Money Market	66,428.42
TOTAL Cash and Bank Accounts	70,790.13
Other Assets	
Asset-Money due	80,598.00
TOTAL Other Assets	80,598.00
Investments	
RBC Dain Rauscher Account # 1101-5709	141,070.89
RBC Dain Rausher Account 1101-5709-9272	44,723.07
TOTAL Investments	185,793.09
TOTAL ASSETS	**343,182.09**
LIABILITIES	
Other Liabilities	
Liability-Payments soon due.	94,105.00
TOTAL Other Liabilities	94,105.00
TOTAL LIABILITIES	**94,105.00**
OVERALL TOTAL	**249,077.09**

Weeds of West Assets
Asset Page 1
7/11/2006

Date	Num	Transaction	Decrease	C	Increase	Balance
7/11/2006		Opening Balance cat: [Asset]				0.00
7/11/2006	WOW	University Of Wyoming cat: Weeds Of The West memo: 3282 unpaid copies sold @ $ 14 each			45,948.00	45,948.00
7/11/2006	WOW	University Of Wyoming cat: Weeds Of The West memo: 2475 inventory unsold @ $ 14 each			34,650.00	80,598.00

Unpaid Liabilities
Liability Page 1
7/11/2006

Date	Num	Transaction	Decrease	C	Increase	Balance
7/1/2006	WOW	Color World Printers cat: Weeds Of The West memo: Due 8/15/06 Second/final payment for 12000 books			64,480.00	-64,480.00
7/11/2006	DSP	WSSA cat: Director Of Science Policy memo: Due Late August, 2006 annual payment			15,000.00	-79,480.00
7/11/2006	BUS/M...	Marathon-Agricultural & Environmental Co... cat: Service Contract memo: 3rd & 4th Quarter '06 + 1st Quarter '07	14,625.00			-94,105.00

Estimated Budget for 2006-2007

Western Society of Weed Science: Budget for 2006-2007 (April 1, 2006-March 31, 2007)

	Estimate
Income (annual meeting)	
Registrations and dues	$52,000.00
Proceedings	$4,500.00
Research Progress Rep	$3,400.00
	$59,900.00
Expenses	
Postage	$2,000.00
Website	$270.00
Accountant	$363.00
Insurance	$530.00
CAST dues	$600.00
WSSA Dir. Sci. Policy	$15,000.00
Allen Marketing site selec.	$1,500.00
Printing (all)	$7,172.00
Student awards	$1,000.00
Travel	$2,750.00
Annual meeting	$15,000.00
Business manager	$19,500.00
	$65,685.00
	($5,785.00)

Budget does not include Weeds of the West, Noxious Weed Shortcourse, Bio Control of Invasive
Weeds book, or non-recurring items.

Phil told the Board that Wanda put together quarterly financial reports during the tax year (April 1 to March 31) and then created a final report after tax-year ending. Phil said that Wanda did not include some costs in her reports but Phil has decided to included this type of information e.g. Other assets = money due for Weeds of the West inventory sold but not paid for yet. The reasoning for this is that the University of Wyoming sells bulk quantity to wholesalers, etc. and since those sales aren't immediate, we don't receive the money at the time the Society is notified of the sale. In fact, when payment for 1,000 books is received, then UWY sends a check for $14,000 and multiple payments may be included in one check.

Currently, no commitment has been received from UWY for a new Weeds of the West printing. WSWS has paid ½ of the printing costs up front to the Publisher and Phil says we shouldn't pay the other ½ until he gets the books. Phil paid the first ½ because he got the printing invoice right after the March meeting, so he paid right away thinking the books would come post haste. He didn't find out until recently that the books wouldn't come until August/September. Phil said we'll make more profit from this printing than in

the past. Phil gets forwarded calls from people who see Wanda's phone number in the old Weeds of the West edition and could have sold 55 or so books over the phone. However, orders of 10 or more need to go to UWY as agreed.

Phil would like better budget reporting between UWY and the Society, so he will work towards getting a monthly accounting from them. A bookseller out of Barnes and Noble with an unsold inventory of 2400 books called Phil who was surprised at that call. Phil has kept track of those types of calls and will fill those orders with the new printing which states the new business manager's phone number.

Once we have the 12,000 newly printed books in hand, then unpaid liability will come off the net worth inclusion and the books will be listed as asset, instead. Bottom line overall net worth will end up relatively high at approximately $400,000 but it is not actual dollars.

The Society has unpaid liabilities to Director of Science policies. We'll probably get a bill in August, but they are flexible as to when they get paid. The Service Contract still has to be paid quarterly. The goal is to not transfer funds from investments, which has been done in the past. Phil said that he is flexible as to his payment w/in the ¼ .

Phil said that the cash flow will increase near the meeting time. Last year, meeting registration was opened in October and many more than expected registered early to pay before the end of the calendar year.

The Society made money with investments but may have quarters with value down as the stock market fluctuates.

Phil told the Board that if members use Quicken he can send the raw Budget data to them otherwise he'll print out an Adobe file imaged into the computer.

Proposal for Selling of Educational Materials by WSWS
Phil went over the following:
Proposals for the selling of educational materials from direct orders made to WSWS Headquarters or for orders submitted over the WSWS website.

There are several things to consider in this proposal and each will be enumerated below. The proposal can be approved or disapproved in total or item by item. These are all incentive based proposals with the goal of increasing overall revenue to WSWS while meeting the basic objectives of the Society.

1. The WSWS Board has approved the selling and shipping of Weeds of the West directly through the WSWS headquarters either by orders placed to the website or to the WSWS office. The Website Editor has agreed to program the website to accept orders and for payment to be made through our PayPal account. Additional programming time and monitoring by the Website Editor and the shipping of the books by the Business Manager can be covered on a cost per unit basis. **The proposal is to pay Marathon-Agricultural & Environmental Consulting, Inc. $ 2.50/book sold and the Website Editor $ 1.00/book sold (over the website only).** We currently can ship the books for approximately $ 4.00/book (single book orders). Therefore, we would charge a total of $ 26.50 per book plus the shipping and handling charge of $ 7.50 per book.

Board discussion: *Joe asked if UWY forwarded us orders less than 10 and Phil said no, but perhaps we could negotiate and that he wants to make sales as seamless as possible for the customer. Joe thought that we should take advantage of the fact that UWY feels that selling individual orders is a hardship, but agreed that the process needs to be seamless. Phil said that he will look into this idea seriously. Kassim*

wanted to know if this idea was part of the discussion Janet had last year with Tom Whitson. Tom told her that they didn't sell many small orders and that they hadn't pursued that market, they just deal with those types of orders as they come in, so Janet felt that there'd be no problem getting the okay from UWY for the Society to sell orders of <10 books. Board members suggested that maybe we could at least set up the website to click on one button if the order was for <10, so that the order comes to us, but orders of 10 or greater would it go to UWY.

Phone forwarding from Wanda's number to Phil's ends in December and phone company said we could not get and extension but have to renew the number for 1 month, then cancel again, and get forwarding service again.

Additional educational items can be advertised and sold over the website. Most logical are the Research Progress Report and the Proceedings.

Board discussion: *Phil says he doesn't know how UWY gets by with charging only $5 per book and Joe mentioned that the special book rate mailing costs are $2.50 for a book bigger than Weeds of the West. Phil told the Board that someone from Germany requested Proceedings from a number of years and that request such as this one would be easier through the website than direct requests to the Business manager. The Board's general consensus also was that this task would be simplified through the website. Phil suggested that we raise the book price when the order is placed by a non-member. Carol asked about issuing Proceedings on CDs rather than printing hard copies. Kassim said that this suggestion was made in the past and that members expressed concerns, but that we need to consider the idea again. Apparently, most societies give the Proceedings on CD already.*

2. Orders for these items are already placed to WSWS Headquarters by a number of libraries and library book service companies. This would allow for the items to be more widely advertised. The cost for these items would be raised to $ 25.00 per book plus shipping ($ 2.50 per book) when ordered over the website or directly to WSWS Headquarters. The price would remain $ 20.00 per book for those attending the annual meeting. **The proposal is to pay Marathon-Agricultural & Environmental Consulting, Inc. a handling fee of $ 2.50 per book sold to non-members and the Website Editor $ 1.00/book sold over the WSWS website.**

Board discussion: *Tony told Phil that said this proposal will be fine since UWY lists $5 for shipping and handling and Phil says it is never less than $5. Dirk brought up the ideas that checking accounts through PayPal cost PayPal less than if an item is paid w/ credit card but Phil says the cost is same to the Society no matter the payment type. Joe wanted to know if we will have a marketing plan. Phil said that he will explore trading mailing lists w/ other Societies of interest, and that he already has had 2 requests for our mailing list. Phil wanted to know if a policy existed and told the Board that Wanda gave our mailing lists to other Societies but did not charge those Societies. Phil charged $50 each for the two requests her received but felt that we could trade w/ other societies rather than charging. Weeds of the West has been available for such a long time that a lot of current customers are past customers wanting a new book or more in addition to what they already have. Marathon's phone number is on the inside cover for direct orders <10. Kassim mentioned that even though each book costs the Society slightly less than $12, we get $14 back from the sale price of $26.50. A majority of WSWS investments are in Weeds of the West ans Kassim said that w/o the book sales, our registration fees would have to be over $200 i.e. registration fees have been "subsidized" by the book. We don't sell as many books nearly as fast as UWY especially since we sell only 9 at the most at one time*

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3. WSWS can contract with publishers and editors of other educational materials for them to be advertised and sold through our website and PayPal account. The Business Manager will negotiate an agreement with each supplier that monetarily benefits WSWS. After a contract has been signed by the WSWS President and the supplier, the Website Editor will post the item for sale on the WSWS website. **The proposal is to pay Marathon-Agricultural & Environmental Consulting, Inc. a $ 2.50 per item handling charge for those items shipped directly from WSWS Headquarters and the Website Editor $ 1.00 per item ordered from the WSWS Website.** There are many potential suppliers that are interested in working with us if this proposal is approved.
4.

Board discussion. *Phil told the Board that this process is common e.g he sells educational videos. We could sell WSSA XID. Other societies have agreements to sell items from other Societies. Any type of material could be sold through the website. Each sale agreement would have to be an individual contracted deal and the WSWS President would have to sign the agreement/contract. Phil said that most importantly, we should allow him to go out and solicit this type of business. The Board would have to approve or we'd have to vote to allow the President to approve and sign each agreement. Phil told the Board that of course we would only put things for sale on our web site according to our Vision. As far as Merchant Accounts – other societies have this capability but that we use PayPal instead.*

The WSWS Website Editor spends considerable time each year in updating the WSWS Website, coordinating with the Business Manager, Program Chair and others on various issues, and overseeing the submission of titles and abstracts for the annual meeting. A $ 2500.00 honorarium was given to the Website Editor last year in recognition of this effort. **The Website Editor and the Business Manager propose that the Website Editor receive a $ 1.00 fee for each transaction made through the website. This would include payments through PayPal not included in the proposals 1, 2, and 3 above, but would include title and abstract submissions.** (Tony does spend a good amount of time on this task) Based on past history, this would total approximately $ 500/year plus the additional sales from proposals 1, 2 and 3 above, if accepted.

Board discussion: Phil told the Board that he can easily track all the PayPal transactions. *Vanelle asked him about what the dollar return would if members could submit a Title then, submit an abstract later and Phil said that the total cost would be $2. She was concerned that any submission cost Tony time so every transaction should be paid for with $1 Phil reiterated that the payment comes from the registration fees. Phil mentioned again that Tony was very appreciative of the one-time $2500 the Society had given to him.*

MOTION: *Janet moved we approve 1-4 of the* Proposal for Selling of Educational Materials by WSWS *and Joe seconded the motion.* **Discussion ensued.** *Vanelle said she'd like to try at least No. 4 and not approve Cart Blanche. Other Board members felt that through this process, we would never equal the onetime $2500 given to Tony and that if we only ended up giving him a $100 or so, then we might want to give him anther 1-time payment. Kassim suggested we try the Proposal process for 1 year and then reassess the proposal next year informally.* **The motion passed unanimously.**

IMMEDIATE PAST PRESIDENT'S REPORT – Phil Banks
Date of Preparation: July 11, 2006
Committee Activities during the Year: Following the 2006 meeting in Reno, I prepared letters of thanks to all graduate students that participated in the student paper/poster contest, all committee chairs, and to out going officers. I assisted the site-selection committee as a follow-up to decisions made during the annual meeting. I will be hosting the annual Retiree and Member Reception at the upcoming annual

meeting. Those retiring soon should contact me with specific information to allow for recognition at the reception.
Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Name of Person Preparing This Report: Phil Banks

PROGRAM COMMITTEE REPORT – Ron Crockett
Officer or Chairperson Name: Ron P. Crockett
Date of Preparation: 17 July 2006
Committee Activities during the Year: The committee was active in the development of the 2006 program in Reno, the 59th Annual meeting of the WSWS. Results of a good program was the increase in attendance (up over 16% from the previous meeting (339 in 2006 vs. 290 in 2005)). The 2006 meeting had 114 oral presentations and 79 posters.
Excellent discussion groups were held in a number of sessions following the individual presentations. Thanks to all who presented posters or oral presentations, asked questions, engaged discussions, or otherwise actively participated, especially in supporting the student night-out dinners. The Committee encouraged the development on a major symposium for the Portland meeting drawing in local experts and interested parties. Topic initially discussed: Japanese knotweed control.
Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members: Ron P. Crockett, Joseph Yanish, and Joseph Ditomaso
Name of Person Preparing This Report: Ron P. Crockett

RESEARCH COMMITTEE REPORT - Joe DiTomaso
Date of Preparation: 7/14/06
Committee Activities during the Year: Research project chairs and chair-elects have been contacted on two occasions and the list with their contact information is included below. I have requested from all chairs whether they intend to hold a symposium during the March meeting in Portland. Cini Brown and Linda Wilson, Weeds of Range and Forest, would like to hold a symposium on restoration and invasive plants in upland systems. They are considering a half day symposium with invited speakers, then discussion during their project discussion time. They have not requested funding at this time and have not got back to me with more details.

A Knotweed symposium is being organized for 1.5 days that will begin on the morning of the last day of the WSWS conference and continue until noon the following day. This is being organized by a committee consisting of Rita Beard, Vanelle Peterson, Tim Miller, Tim Prather, Janet Clark, John Brock, Celestine Duncan, and myself. See information below. The total cost to conduct the symposium will be about $16,600. Budget is attached as an excel file.

Chairs and chair-elects will be contacted in August and in October to encourage development of discussion section topics. Additional contacts will be made as needed to complete the research section program

Recommendations for Board Action:
Board may have to approve of a budget to cover the cost for invited speakers from Europe to attend Knotweed symposium. This will be further discussed at the summer Board meeting.

Budget Needs: Budget for Symposium included at an excel attachment.
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members: Rick Boydston
Name of Person Preparing This Report: Joe DiTomaso

Joe DiTomaso reported on the proposed Japanese knotweed symposium and handed out the following hard copy.

Proposal for a Knotweed Symposium
2007 WSWS Annual Meeting in Portland, OR

Riparian areas contain great diversity of both plant and animal species. Many riparian areas are becoming monotypic stands of knotweeds, species that grow to 2 to 5 m with hollow stems up to 3 cm in diameter and extensive rhizome that reach to 28 m. At least four species are recognized by the botanists to occur in the US: Japanese (*Polygonum cuspidatum*), giant or Sakhalin (*P. sachalinense*), Himalayan (*P. polystachyum*), and Bohemian (*P.* x *bohemicum*, a hybrid of Japanese and giant). Other common names include Japanese bamboo, Mexican bamboo, false bamboo, and fleece flower. Latin names for this genus have also varied over the years, with *Reynoutria* and *Fallopia* currently recognized in other nations; all are native to eastern Asia.

Listing of several salmon runs as threatened or endangered under the US Endangered Species Act has resulted in a need for evaluation of factors impacting salmonid habitat, including impacts of riparian weeds such as the knotweeds Healthy salmon populations depend on riparian functions and processes, and invasive plants can modify food and nutrient sources for fish, alter stream structure, complexity, and flow rates, and potentially increase water temperatures and decrease dissolved oxygen content.

These knotweeds are very aggressive and capable of forming dense stands that inhibit growth of other vegetation and prevent regeneration of native plants. They are considered a significant threat to riparian habitats since they can survive severe floods and rapidly colonize scoured shores and islands. Invasive knotweed species spread primarily along river banks, but also grow in wetlands, waste places, along roadways, and in other disturbed areas. Adequate control of these knotweed species is a prerequisite for successful re-vegetation of salmon-bearing streams in the western US and Canada with native woody species.

We propose to schedule the symposium for Thursday morning, March 15. This time slot would include speakers from the UK and other international/national invasive knotweed researchers. The symposium would then continue beyond the WSWS timeline of Thursday noon, to include sessions through Thursday afternoon (March 15) and Friday morning (March 16). (NOTE: the knotweed committee has scheduled those two sessions with the Downtown Portland Hilton.) Patterned after the knapweed symposium (2001 meeting), the Thursday session would begin at 9:15, running until noon.

<u>March 15, Thursday Morning Session</u>

9:15 Welcome and Symposium Overview. Tim Miller (?)
9:20 The Genetics of Invasive Knotweed Species. John Bailey, University of Leicester, UK
10:10 Ecology of Japanese and Other Knotweeds in Europe. Petr Pysek, Czech Academy of Sciences at Pruhonice, Prague, Czech Republic.
11:00 Vegetative Reproductive Abilities of Invasive Knotweeds. John Brock, Arizona State University.
11:30 Current Status of Herbicides for Controlling Invasive Knotweeds. Tim Miller, Washington State University.

<u>March 15, Thursday Afternoon Session</u>

1:30 through 5:00 with a break from 3:00 to 3:30. These talks will be a combination of volunteered and invited talks, 15 minutes each. The focus will be on A reception will follow this session for a two or three hours—no host bar and buffet appetizers.

March 16, Friday Morning Session

Other Potential Speakers (from Vancouver's planning committee and others we know about)

1. Genetics of Japanese knotweed.

Jennifer Forman, described sexual reproduction of *P. cuspidatum* and germination/survival/ establishment of seeds in the field, University of Massachusetts—Boston, 2003.

2. Taxonomy of Japanese knotweed.

Peter Zika, described hybrid (*P. bohemicum*) in North America, University of Washington, 2003. After J. Chrteck and A. Chrtkov (Czech., 1983).

Kelly Hodgson, chromosomal work with invasive knotweeds in OR and WA, Oregon State University, Corvallis.

3. Ecology/biology of Japanese knotweed.

Kristin Sewak, riparian area plant species richness; aerial true color and hyperspectral IR imagery, and dispersal of seeds and rhizome fragments, Natural Biodiversity Conservation Strategy, Johnstown, PA

Lauren Urgenson, studies on knotweed colony species richness and perhaps some aquatic invertebrate work regarding knotweed debris in streams, University of Washington.

4. Impacts of knotweeds.

Rebecca Brown, Academy of Natural Sciences. *Effects of hydrologic alteration on* **Polygonum cuspidatum** *invasion in riparian ecosystems.*

Jeff Braatne, UI. *Effects of exotic plant litter on streams*. (Tim P. is asking to see if he has a student still working on this project).

5. Management programs for Japanese knotweed.

Marshall Udo, Knotweed Control Coordinator, Washington State Department of Agriculture.

Jonathan Soll, Sandy River, OR, The Nature Conservancy.

Melisa Holman, Skagit River, WA, The Nature Conservancy.

Joanne Steinhart, Delaware River Invasive Plant Partnership (DRIPP),

The Nature Conservancy.

Jennifer Hanink, NY state DEP.

6. Biological control of Japanese knotweed (?)

Dick Shaw, Leading the biocontrol effort at CABI UK Centre

7. Medicinal uses of Japanese knotweed (?)

The plant has been used for the treatment of suppurative dermatitis, gonorrhoea, favus, athlete's foot, and hyperlipemia in Chinese and Japanese traditional medicine, has antibacterial and antifungal action (Yoshiyuki Kimura, 1983, Japan).

Harold Coble, NCSU, has become interested in growing giant knotweed for producing an organic fungicide (according to the Milsana Bioprotectant Concentrate label, it is a 5% extract of *Reynoutria sachalinensis*, marketed by First Choice, manufactured for Western Farm Service, Inc.).

Estimated/Preliminary Knotweed Symposium Budget

Invited Speakers								
Name	Location	Days	Air Travel	Air Travel Average	Hotel Room	Meals	Incidentals	Total
		Assumption 03/11-03/17				Assumption: Federal per diem $50/day		
John Bailey	London	7	2500 United 1000 - 1200 cheap tickets	$1,500.00	$600.00	$300.00	$100.00	$2,500.00
Petr Pysek	Prague	7	1200 Czech air to 2400 United (Lufthansa) Lufthansa web site 1200	$1,500.00	$600.00	$300.00	$100.00	$2,500.00
							Subtotal	$5,000.00
Meeting Rooms								
3/15 Meeting Room (Set up for 220)		with WSWS						$0.00
3/15 Reception Room		no room charge						$0.00
3/16 Meeting Room		500						$500.00
							Subtotal	$500.00

Banquet Services

		menu	per/person	cost	service charge	total		
3/15 Coffee Break		13 gallons coffee/tea 250 water soda 27 dozen pastries		2,130.00	469.00	2,599.00		$2,599.00
3/15 Reception		cost will be between 15 and 20 per person using 200 some will not show	20.00	4,000.00	880.00	4,800.00		$4,800.00
3/16 Coffee Break		see above, except for 200		1828.00	402.00	2,230.00		$2,230.00
							Subtotal	$9,629.00
Total								$15,129.00
		Unspent dollars from Knapweed Symposium (2001)						$5,000.00
		Income from registration fees, $35 per person (200 people planning)					$7,000.00	
		Income from registration fees, $50 per person (200 people planning)					$10,000.00	$10,000.00
	Hilton Hotel Portland = 503-226-1611							
	Susan Hemberry							

Board discussion: *Janet suggested that we ask for sponsorships. For the last symposium, Phil said money is in our account but has not been listed for a while.*

Phil suggested that we try to conduct a symposium every year and try to break even so that the symposiums could be sustainable. Since we would be adding an extra meeting room for the upcoming symposium post hotel negotiations at $1000 cost, in the future, symposium costs would be cheaper if decided upon during the regular negotiation.

Vanelle wanted to make sure we understood that if WSWS members wanted to come to the Thursday afternoon symposium session – they would not be charged, but if they wanted to attend the full symposium, then they would have to pay. Kassim was concerned the $50/day individual day cost was not enough and others reassured them that it was okay, that we could get more people in even for one day than if we charged the whole symposium price no matter the attendance length, and that the one-day attendees would be exposed to the WSWS. Tim said that he wanted to keep one-day cost down and that a past similar-type symposia drew 250 people.
Discussion ensued about planning to do this every year and planning to include the symposia room in the hotel contract. He suggested that we could always scale down if we ended up not holding a symposium in a given year, That way, we wouldn't have to fight to add rooms etc. if we got a symposium going and hadn't included the room cost in the contract.

Phil says that he could handle registration through Marathon including name tags, one registration desk for symposia and WSWS together, etc. Ron suggested that we tap into gov't e.g. US ARMY Corp, BLM, Forest Service, etc. as a natural outreach. We could then get their leadership here for our general session and recognize them because for their attendance and tell them that we don't see attendance by their type of group often enough.

Bob Wolf spray symposia. (re-submitted proposal, hard copy given to the Board)
This was submitted for the 2006 meeting but was not approved so Ron asked if there would be an interest in this symposium for any upcoming meetings. Phil said that this symposium was not included because of the time element.

Agronomic Advancements Symposium (submitted by Jeff Tichota)
Description by Ron: ½ to 1 day symposium associated w/ a WSWS meeting day or post-meeting. Ron told that Board that there may be room for another 2007 symposium substantially different than the Knotweed symposium. Phil asked how this would be different than the Resistance Symposium held in Vancouver. Jeff's evaluation-feedback was that people were interested in more info about seed.

Board discussion: *Kassim felt that the drift symposium one would be of interest because drift is a problem in this location and probably was elsewhere, too. Ron asked for a Board decision and Phil said we definitely needed to make a decision on the Knapweed symposium.*

MOTION: *Vanelle moved to approve holding the Knotweed symposium in conjunction with the 2007 WSWS following the proposal outline given at this meeting and Janet seconded the motion which* **passed unanimously**.

Board discussion: *The Board agreed that decision about the other proposed symposium is left to Ron when he puts program together since these symposia would be held during the WSWS meeting and would probably require an extra meeting room.*

The Board discussed their misgivings on getting too far away from Weeds at our Weed meeting with topics such as GMO's. Some Board members pointed out how we need exposure to non-weeds people and vice versus but that we still don't want to get away from a Western U.S. and weed emphasis.

RESEARCH SECTION REPORTS
Secretary's NOTE: All section chairs sent reports to Joe DiTomaso and he passed them along to the Board at this time.
Kassim reminded us that there were concerns by WSWS members about what a discussion section really entails and Joe said that he has and will remind section chairs about appropriate discussion section protocol.

PROJECT 1: WEEDS OF RANGE AND FOREST REPORT
Chairperson: Matt Rinella

Topic: The Value of Prevention in Large-Scale Weed Control
The Weeds of Range and Forest Section discussed the value of weed prevention as it relates to the value of large-scale weed control at the 2006 meetings. Many participants expressed their belief that weed prevention efforts deserve more attention. We also discussed the value of monitoring a small number of new weed patches (instead of treating all new patches) in order to determine if particular species are invasive in particular habitats. Many participants think this kind of monitoring is far too risky, while others believe the knowledge gained outweighs the risks. Dr Cynthia Brown from Colorado State University was chosen to be the section chair for the 2007 meetings. The section's discussion topic will be restoring weed-infested rangelands and forests. There was talk of developing a special workshop devoted to the topic of restoration.

Linda Wilson was elected to serve as chair-elect for Project 1 in 2007.

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PROJECT 2: WEEDS OF HORTICULTURAL CROPS
Chair person: Pat Clay
Topic 1: Herbicide Resistant Weeds.
Chair and moderator Pat Clay initiated a discussion of herbicide resistant weeds, by presenting his observations from Arizona regarding resistance development and grower and crop consultant perceptions of resistant weeds. Dale Shaner explained that herbicide resistance is not easy to define because of varying degrees of resistance. From a grower's standpoint, weeds that require more than a 1X rate of herbicide to control are resistant. From an analytical standpoint, weeds that require a 3 to 4X rate of

herbicide to control are resistant. Growers and consultants are not concerned with the difference between resistance and tolerance. Sandra McDonald indicated that the lack of a consistent message on what weeds are called resistant complicates labeling and confuses regulatory people.

Topic 2: The Potential for Developing Herbicide Resistance in Horticultural Crops.
Pat Clay also asked, to what extent do horticultural crop managers need to be concerned about herbicide resistant weeds? The majority of the discussion outlined below developed from this question.

- Diversity in rotation is the greatest asset in resistance prevention.
    - Some perennial horticultural crops lend themselves to developing resistant weeds. Examples given were from simazine use in Christmas tress, glyphosate use in filberts, *Poa annua* in grass seed production, and goosegrass in turf.
    - In much of the western United States, horticultural crops are often not rotated with agronomic crops because of specialized equipment and farm size.
- The availability of a variety of management practices, such as cultivation and hand hoeing, are important in resistance prevention. However, several trends could diminish the use of these practices and lead to more resistant weeds.
    - An increase in no-till, which leads to an increased dependence on herbicides.
    - Increasing costs for hand-labor, this also leads to an increased dependence on herbicides.
- Specialty crops grown on a small number of acres present different circumstances for resistance to develop than large scale agronomic crops.
    - Based on gene frequency, specialty crops should have a lower probability for developing resistant weed populations.
    - The ability to rotate herbicide mode of action can prevent resistance. However, specialty crops often have few things registered, which can contribute to population shifts and resistant weeds.
- Proper herbicide rates and application timings are equally important in horticultural crop as in agronomic crops to prevent resistance.
- Historically, as resistance problem develop, management practices are modified. An example given was the use of chain drags along irrigation canals.
    - An overwhelming amount of resistant weeds will probably force management practices to utilize more tillage.
- Adopting stewardship practices for resistance management is not an easy sell to growers in terms of their return on investment. It appears that for most operations it is more cost effective in the short-term to let resistance develop. Don Morishita indicated that over the course of his career in Idaho resistance management has become much more important to growers.
    - Including herbicide group number (for the mode of action) on the label could simplify resistance management decisions by growers and crop consultants.

Topic 3: Detection and verification of herbicide resistance.
Detection of and response to herbicide resistant weeds is often handled on a case by case basis. There is no special money available for this effort. In most states, detection of herbicide resistant weeds is accomplished through Extension with support from commodity groups. It was noted that this approach can overestimate the amount of resistant weeds in a region. Identifying resistant populations is important because if effects section 18 registrations. Identifying mechanisms of resistance is often helpful in developing resistance management practices and has furthered our understanding of plant physiology.

2007 Chair:
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PROJECT 3: WEEDS IN AGRONOMIC CROPS REPORT
Chairperson: Edward Davis
Topic: Sustainability of No-till and Conventional Tillage Farming Systems

The Weeds of Agronomic Crops discussion session was held on Wednesday, March 15th. Approximately 40 – 60 people were in attendance over the course of the session.

To lead off the discussion Joe Yenish (WSU) provided a presentation titled "Weed Control in a Direct Seed System". Joe discussed advantages and disadvantages of no-till systems and its impacts on weed populations and herbicide use. He mentioned that no-till systems tend to lead to more perennial weeds and shifts in annual species, requiring different weed control tactics. These shifts also lead to more reliance on post herbicides as apposed to soil residual herbicides.

At the conclusion of Joe's presentation a general discussion session was held. Much of the discussion included participants sharing their no-till experiences across the various western geographies and cropping systems. There was some debate on the reasons for slower no-till adoption rate in the U.S. compared to Canada. Many agreed that downside yield risk and conversion costs were significant impediments for U.S. farmers to switch to no-till systems in small grain/row crop systems. Annual rainfall and levels of crop residue produced were also sited as key considerations in adoption rate. It is more difficult to successfully implement no-till systems in higher moisture areas with associated higher crop residues. There was also discussion on the relative success of various no-till equipment brand and types. The "Cross-Slot" drill was brought up being particularly useful in dealing with heavy residues but availability of parts is an issue. Discussion on weed control practices indicated that no-till systems rely heavily on postemergence products, especially glyphosate. Soil residual products are utilized to much lesser extent.

The discussion was excellent among the attendees resulting in a good exchange of ideas to bring back to their respective areas.

Steve King, Montana State University was named to serve as chair-elect for project 3 in 2007.

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Project 4: TEACHING AND TECHNOLOGY TRANSFER
Chairperson: Ralph Whitesides
Topic: Ethics in Agriculture

The annual meeting of the Western Society of Weed Science **Project 4: Teaching and Technology Transfer** convened at 1:30 PM in the Ponderosa "A" Conference Room of John Ascuaga's Nugget Hotel in Reno, Nevada on March 15, 2006. The topic for the discussion session (scheduled from 1:30 – 3:30 PM) was "Ethics in Agriculture." Ralph E. Whitesides, Extension Weed Specialist at Utah State University was the Chair and Moderator of the Session.

During the discussion session there were two presentations.

Ralph Whitesides provided an overview of "Agricultural Ethics" as outlined in the Council for Agricultural Science and Technology (CAST) issue paper number 29 published in February 2005. The issue paper and the presentation discussed a definition of ethics, how ethics relates to agriculture, and then explored three prominent ethical theories. The theories discussed included:

1. Rights theory
2. Utilitarian theory
3. Virtue theory

After introducing some theories related to ethics, nine ethical issues related to agriculture were proposed. They were:

1. Farm Structure
2. Animal Ethics
3. Food Safety
4. Environmental Impacts
5. International Trade
6. Food Security
7. Agricultural Biotechnology
8. Research Ethics
9. Trust in Science

After the list of ethical issues in agriculture was outlined, there was a presentation about the need for land-grant universities to take the lead and teach ethics because these institutions provide the human, technological, and informational input into the food system. Concluding remarks stated that our responsibility as scientists is to make every effort to understand and contribute to the resolution of ethical issues. After all, the word "ethics" means "way of life."

Robert L. Zimdahl, Colorado State University was the next presenter. Dr. Zimdahl has just published a new book titled "Agriculture's Ethical Horizon" and he was able to outline some of the chapter headings in the new book. After his brief introduction of the book, Bob talked about the ethical considerations of simply being good at production. He asked the question, "Is it good enough to be good at production?" The presentation that followed included discussion about:

- Different cultures have different moral codes and thus apparently different ethics.
- Ethics is a debate about what ought to be done.
- Most scientists use scientific value to judge ethics, however, we should judge based on the power of our reasoning and not on the facts.
- Ethical debates should be won on the basis of reason, not on the basis of data.
- It is essential to be true to your science and maintain an impartial and unbiased attitude.
- Is it ethical to take money for research work from major companies? If science is done well is it unethical? If you take money to conduct work does it move your work in a specific way?
- Is organic farming ethically better for the environment? Is the present system sustainable? If we backed away from the system in use today would society be willing to pay the cost?
- Is it ethical to till the soil instead of using pesticides if it causes more erosion?
- It appears that food on the table isn't the issue any longer, now it is the quality of the food on the table.
- Are we trying to guide agriculture from the bottom up?
- In modern society most of us are mostly utilitarian, we are looking for a net increase in happiness versus unhappiness.
- For many actions the consequences are the same but the intent is different. We should be intent on discovering why we act the way that we do and asking ourselves the question "Is somebody else doing the thinking? If so, who?"
- Ethically we should try to answer all of the questions.
- There is little money for research in production agriculture but plenty of funds to support biotechnology. If the money is used to conduct basic research is it ethical to use the funds to conduct any other work that you want to evaluate?
- GMO foods came about and it appears that if the cost goes up to produce that is fine.
- Why not label the food? It seems easiest to label food (similar to Kosher Food) and let society pay the price for non-GMO or organic foods.
- In a democratic society you should have the right to choose the kind of food you would like to consume. Why not label the food and let the people choose?
- "Sustainability" is the key to the entire discussion on food production.
- Ultimately, agricultural professionals should be able to adopt the same motto as the medical profession – Do no harm.

After the presentations by Drs. Zimdahl and Whitesides the audience was encouraged to participate in discussion about issues related to ethics and agriculture. Many of the topics that had been discussed came up for comment and debate.

The discussion session concluded at 3:30 PM.

During the course of the discussion session for Project 4: Teaching and Technology Transfer there were 27 people present (9 women and 18 men).
2007 Chair for Project 4 will be:

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2008 Chair for Project 4 will be:

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After the conclusion of the discussion session, Project 4 reconvened from 3:45 -5:15 PM for the presentation of 6 oral papers. Project 4: Teaching and Technology Transfer adjourned at 5:20 PM.

PROJECT 5: WEEDS OF WETLANDS AND WILDLANDS
Chair: Stephen F. Enloe, University of Wyoming, sfenloe@uwyo.edu
Topic: Is current research on IWM in riparian areas meeting the needs of land managers or are we missing the boat?

Discussion Leaders: Stephen Enloe, University of Wyoming, Laramie, WY
Lars Baker, Fremont County Weed and Pest, Lander, WY
Tim Damato, Boulder County Weed and Pest, Boulder, CO

Participants: Approximately 40 with several flowing in from other sessions during the discussion.

A brief discussion was held concerning the overlap with the Project 1 paper session. It was recognized that many participants really wanted to attend both sessions. A proposal to merge the discussion sections for Projects 1 and 5 was discussed but the consensus was that this was not a good direction for the future. No clear solution emerged from the discussion regarding the overlap.

Lars Baker initiated discussion with a presentation on his thirty plus years of experience managing weeds on the county level in Wyoming. Lars pointed out his difficulties in attempting to extrapolate small plot research findings to large scale use. He also discussed how agronomic crop trials focus on controlling all species except the target crop that is being grown, while the rangeland focus is directly opposite – how to control a single or limited number of species allowing the remaining diverse species to grow. Lars pointed out several areas of research that he felt were very important to large scale weed management. These included larger-scale herbicide off-site movement and degradation studies, perennial weed biology and control with late fall treatments, tolerance of native plants to weed management, non-agronomic planting techniques for perennial grasses, and more integrative grazing management studies. Lars also expressed the frustration of too much applied research being locked up in scientific language which is not well understood by most land managers.

Tim Damato then presented a perspective on weed management for public "open spaces" from Boulder County, Colorado. Tolerance of native species to different herbicides was a key problem he faces in implementing weed management. Suggestions were made to develop a database of native species tolerance to herbicides used on range and wildlands and made web accessible. Planting methods for rugged areas was also a concern as much of the areas managed are equipment limited. Tim also discussed plant restoration issues when prairie dogs are present as they are a significant problem to successful restoration. Research ideas included screening species for tolerance to prairie dog herbivory.

Discussion followed that entailed restoration in high saline riparian areas (both natural and induced by saltcedar and other invasives). A general consensus was that rapidly restoring a diverse community following saltcedar control in often impossible. Planting monocultures of the most salt tolerant grasses such as alkali sacaton and inland saltgrass were discussed. The issue of episodic recruitment and restoration was also discussed in terms of being a serious limiting factor to success. Invasion of saltcedar across upland landscapes via stockponds was also presented as a major vector of saltcedar dispersal.
The issue of successfully establishing diverse plant communities repeatedly arose throughout the discussion. High failure rates were common when late seral species were immediately planted. However, policies that dictate immediate success and short term funding often force this strategy.

The session finished with a lengthy discussion on the apparent frequent disconnect between weed management decisions made simply based on policy and those made based upon science. It was made abundantly clear that Weed Scientists need to serve more as science advocates in order to help direct policy towards better weed management. Stakeholder input to granting agencies and more involvement in NIWAW was proposed as ways to do so. A web-based alert system to better inform the weed science community on upcoming legislation and measures was also proposed. Comments were made by Phil Westra who related the success of the National JGG initiative and Team Leafy Spurge Initiative to getting the right stakeholder groups involved. This allowed a better backing to push for more funding.

Finally, an October 2006 Saltcedar meeting in Fort Collins, CO was announced. (See http://www.tamarisk.colostate.edu/ for details). Overall, the discussion was very lively, with considerable input from most of the room.

Chair –elect: Mike Edwards, Dupont, michaeltedwards@usa.dupont.com
Chair –elect for 2007: Scott Steinmaus , ssteinma@calpoly.edu

PROJECT 6: BASIC SCIENCES
Chairperson: Bill Dyer 2006
Topic: Gold mine closure and reclamation: Water, weeds, and acid.
Led by Prof. Glenn Miller, University of Nevada, Reno

Basic Sciences Project 6 met Tuesday afternoon, March 14 with an attendance of approximately 8 people.

Glenn Miller led an interesting discussion on the current status of gold mine technology and reclamation in Nevada. The discussion provided an excellent opportunity for the few participants to expand their knowledge beyond traditional weed issues earn more about this extractive technology and its significant environmental and ecological impacts from an internationally recognized expert.

Gold Mining: The Technology
The state of Nevada provides 82% of the gold mined in the United States. Most mines are of the 'open pit' design, in which overburden is removed and the gold-containing ore is crushed and transferred to leach fields. These large piles of crushed rock are then sprinkled with cyanide, which leaches through the

ore and solubilizes gold and other heavy metals. The leachate is collected, the gold precipitated, and the remaining water with dissolved metals is discarded.

Environmental Considerations

Open pit mining is by design a very destructive process and reclamation was not a priority or even a consideration until recent years. Many of the current environmental problems associated with mining were exacerbated in the late 1970's when the price of gold plummeted, several smaller mining companies went bankrupt, and abandoned mines.

Most open pit mines extend well below the groundwater table, requiring constant pumping to allow further excavation. For example, the large Gold Quarry mine pumps 70,000 gallons of groundwater per minute from the pit, a rate of extraction that most predict will have serious long-term impacts on water wells, springs, and surface waters. Mine closure results in the filling of open pits with groundwater and the creation of 'pit lakes.' Water quality of these lakes depends largely on the local mineral and heavy metal constituents, and can range from good to very poor. Pit walls are often at 40º or greater, resulting in a high probability of instability and failure after mine closure.

In addition to solubilized gold, leachate from leach fields contains a number of other heavy metals including mercury, arsenic, lead, chromium, and selenium. Of these, mercury is the focus of most environmental concern, since it is volatilized during the roasting or extraction processes and is contained in dust that often blows offsite. Mercury emissions from Nevada gold mining operations are the suspected source of contamination in Idaho rivers and the Great Salt Lake in Utah.

The pH of leachate from gold-containing ore is usually at or below pH 3.0. This profoundly acidic water with dissolved heavy metals is one of the major contaminants from gold mines and is the focus for remediation concerns. Even after the pits are closed, rainfall events through leach fields release significant quantities of highly acidic leachate that must be contained or remediated.

Reclamation

Reclamation of open pit mines is a relatively recent phenomenon. After closure, 'artistic bulldozing' of leach heaps is often conducted in an attempt to simulate natural topography. Efforts are usually made to landscape using removed topsoil or at least soil from a silt-containing lower soil horizon. Revegetation models vary widely and are often based more on availability of seed than on restoration priorities. Plant species such as barley and alfalfa are sometimes planted along with perennial grass and legume mixes, in an attempt to establish some ground cover. Companies have learned that irrigation and fertilization are not desirable even in the year of establishment, since most planted species will die when these inputs are removed. Weed invasion during revegetation is usually not considered to be a problem, since the top priority is to get any plant species established on these sites. Reclamation standards usually require revegetation that is of equivalent quality to the surrounding unaffected habitat. Dr. Miller's informal survey showed that successful revegetation is more often the exception than the rule, and many supposedly reclaimed sites remain barren and highly erodable.

Even if revegetation of leach heaps is successfully accomplished, the continuous discharge of highly acidic leachate must be monitored 'in perpetuity.'

Project 6: Officers For 2007

Chairperson: Cheryl Wilen
County of San Diego MS 0-18
5555 Overland Ave., Suite 4101
San Diego, CA 92123

Chairperson-elect: Lynn Fandrich
Dept of Bioagricultural Sciences and Pest Management
Colorado State University
Ft. Collins, CO 80523

EDUCATION AND REGULATORY SECTION REPORT – Joseph Yenish
Office or Committee Name: Education and Regulatory
Officer or Chairperson Name: Joseph Yenish
Date of Preparation: July 20, 2006
Committee Activities during the Year: Planning for the 2007 Education and Regulatory section is beginning. I have visited with outgoing chair, Tim Miller, and others about potential topics. I have not contact Mike Edwards at the time of submitting this report. The most accepted topic to date is conducting and publishing non-replicated research. A well attended workshop was given on this topic at the Tri-Society Meetings in Salt Lake City, UT in November of 2005. The title of that session was *Analysis of Unreplicated Experiments* and was sponsored by *Non-Traditional Experimental Design*.

Examples of presentation titles from that session include:
1. New and Traditional Methods for the Analysis of Unreplicated Experiments.
2. Spatial Analysis of Unreplicated Experiments
3. A Method for Analyzing Unreplicated Agricultural Experiments
4. The Many Faces of Replication
5. Better Design and Analysis for Long Term Experiments

It is expected that 2.5 to 3 hours is adequate to introduce and discuss the concept.

Recommendations for Board Action: None at this time

Budget Needs: I may need to request travel funds for speakers from Oregon State University, University of Washington, Washington State University or other organizations to discuss the topic. Invited speakers will likely be statisticians.
Current Committee Members: Joe Yenish, Mike Edwards, Tim Miller
Name of Person Preparing This Report: Joseph Yenish

MEMBER AT-LARGE REPORT – Janet Clark, Jeff Koscelny
The report was verbal. Janet is involved in knotweed symposium development and Jeff is involved in student liaison discussions. An idea was suggested: How to sell more Weeds of the West: Jeff felt that FFA instructors have a copy of the book and discussed ideas for tapping into that audience. Angela supported the idea. Jeff said that Monsanto has a list of all FFA chapters. Vanelle said that Dow might have a connection too and she could help Jeff with the contacts. Corporate sponsors might want to buy books to give to the FFA groups. Jeff said he will pursue the idea. Kassim encouraged all to pursue selling in the classroom because schools get discounts.

CAST REPORT – Rod Lym (given by Kassim Al-Khatib)
Kassim sits on CAST Board of Directors Kassim reminded us that Rod's term comes up this fall. Phil Stahlman agreed to be the new rep and George Beck said he'd do it in the future.
Office or Committee Name: CAST
Officer or Chairperson Name: Rod Lym, CAST representative for WSWS
Date of Preparation: July 2006
1. CAST held the Spring Board meeting in Washington DC from 19- 21 April. For the first time since I have been on the board, the CAST board of directors met with representatives from our stakeholders and asked them to give their views on both what CAST has done well and what changes are needed in the

future to strengthen the organization. Seven stakeholders gave brief overviews, and then they and other stakeholders met with workgroups that most closely represented their interests. Some of the stakeholders included: Dr. Martin Massengale, President Emeritus, Director of the Center for Grassland Studies and Foundation, and Distinguished Professor at the University of Nebraska, Dr. Gary Weber, Executive Director of Regulatory Affairs, National Cattlemen□s Beef Association, Dr. Mike Taylor, Professor at the University of Maryland□s School of Medicine, Dr. Jay Vroom, President of CropLife America, Dr. Sean Darragh, Executive Vice President of Food and Agriculture, Biotechnology Industry Organization Dr. Ferd Hoefner, Policy Director, Sustainable Agriculture Coalition, and Mr. Mark Halverson, Democratic Staff Director and Chief Counsel, Senate Committee on Agriculture, Nutrition and Forestry and Agricultural Staffer for Senator Tom Harkin (D-Iowa). I believe this is a very good program to help CAST keep in touch with stakeholders and their ideas and needs as well as keep the stakeholders abreast of projects CAST has in place.

2. CAST added the American Bar Association, Section of Environment, Energy, and Natural Resources - Agricultural Management Committee as a new society member in April. This is the third new society to join CAST in the last year.

3. The board voted to discontinue the publication of *NewsCAST* after the current Spring-Summer 2006 issue. This was done in order to save money. News of interest to members will be added to the weekly CAST Friday Notes e-mail. Publication of the hard copy annual report will continue. I did not think it was a good idea to stop a publishing a newsletter because I believe individual members need to get something in-hand for their dues. However, I was one of only two or three who voted against stopping the publication.

Kassim hilited this point and encouraged Board members to promote this with their colleges since it is a very good deal.

4. The CAST board approved a policy to grant a 1-year free membership to graduate students who attend Colleges of Agriculture that are members of CAST at the $2500 and higher level. A letter was sent in June to various colleges and departments within colleges (as appropriate) **asking them to join CAST and explaining the resulting benefits to graduate students.**

5. New CAST publications approved at the Spring meeting included a Commentary which will cover the topic of "Convergence of Agriculture and Energy"and an Issue Paper on "Energy, Water, People, and the Future." The goal is to release the Commentary at a Tri-Societies Symposium on biofuels in Fall 2006 and the Issue Paper within a year.Came out of discussion w/ Stakeholder

6. At the Spring board meeting we were told that CAST lost over 500 individual members in the last year. This was very surprising and unusual, but on further evaluation it seemed to be more of a problem with e-mail versus regular mail. The membership director had sent three notices that it was time to pay dues to the individual members by e-mail and a fourth by regular mail. Many, including me, never got the e-mail notices, likely due to e-mail filters and only received the hard copy mailing. Once the hard copy was received, most people renewed their membership.

7. Secretary of Agriculture Mike Johanns came to a breakfast meeting with the CAST board and gave us an update of the current issues he is dealing with from mad cow disease to avian flu, to the import and export of various commodities and pesticide regulations. He cited several CAST publications as very timely and useful in presenting the science of Agriculture to decision makers in Washington DC. Kassim said this was well attended and excellent

8. Two CAST publications were released in June 2006. The first was "*Acrylamide in Food*" which provides a systematic, detailed analysis of this industrial chemical that has recently been reported to be formed in certain foods, and its potential impact on human health. The second was "*Using Risk Analysis to Inform Microbial Food Safety Decisions*" which addresses the following topics: risk assessment, risk management, and risk communication; what microbial risk assessment can and cannot deliver; past, current, and future uses of risk analysis; and the roles, benefits, and perspectives of risk analysis. All

current members received a hard-copy of these issue papers which are also available on the CAST web site.
9. The annual Fall board meeting will be held 4 - 6 October in St. Louis and will be my last as representative of the WSWS.

Carol had a comment – obviously renewal by email did not work. She feels that the hard copy is better and the electronic is not going to work. Kassim said that due to the serious finance challenges they had to go back to the electronic. Carol asked Kassim to bring her comments as a CAST member back to CAST

Recommendations for Board Action: none given
Budget Needs: WSWS pays the travel costs not covered by CAST
Suggestions for the Future: none given
Name of Person Preparing This Report: Rod Lym

CONSTITUTION AND OPERATING PROCEDURES REPORT – Kai Umeda
Kai says this committee has never had a budget before and they appreciate having one now.
Office or Committee Name: Constitution and Operations Guide Representative
Officer or Chairperson Name: Kai Umeda
Date of Preparation: July 15, 2006
Committee Activities during the Year:

Since March 2006:

- received operating guide revision suggestions from:
    - Finance committee for 2-year financial reserve in budget;
    - CAST representative for reporting activities;
    - Local Arrangements committee;
    - proposed Student Liaison position to the board.
- received suggestions for operating procedure for conducting WSWS business via email.
- consider incorporation of business manager responsibilities

Recommendations for Board Action:

- discuss operating guide revision suggestions:
    - proposed Student Liaison position to the board;
    - consider operating procedure for conducting WSWS business via email;

Board Discussion. *Phil supported this revision strongly and mentioned that even a member of the Board besides the President can use this procedure to bring something p between Board meetings. Kai passed out a procedure outline hard copy stating a 7-day time limit by Constitution. Vanelle asked if this could be lengthened because people such as her who travel may not see the emails son enough. Phil says extension is okay and the Board generally agreed that the 7 days = 7 business days. There was discussion on how the WSWS Secretary needs to include email type business in Board meeting minutes – should votes only go to President but then the president sends the outcome of vote as soon as possible. Some Board members thought that each member's vote should be emailed to all not jus the President. Jeff suggested that maybe if we see in the e-mail Subject Line that a Board Action is required it would help Board members respond to the need. Kai emphasized following Robert's Rule of Order even via email.*

    - consider incorporation of business manager responsibilities;
    - 2-year financial reserve in budget. Hold off discussion until tomorrow

Budget Needs: none
Suggestions for the Future: N/A
Suggested Changes in Operating Guide: Make appropriate changes after approval by board
Current Committee Members:
Name of Person Preparing This Report: Kai Umeda

MOTION: *After this report was given, Phil moved to make the change in the operating guide as suggested in the report. Jeff seconded and there was no discussion before the motion was* **approved unanimously**.

WSSA REPRESENTATIVE REPORT – Vanelle Peterson
Vanelle says the San Antonio WSSA board meeting was excellent w/ a facilitator and that she has a hard copy of the final copy of the work for that day – 19 PPT slides.
She hilited the PPT slide points.

Office or Committee Name: WSSA Representative
Officer or Chairperson Name: Vanelle Peterson
Date of Preparation: July 19, 2006
Committee Activities during the Year: Attended the summer WSSA Board meeting in San Antonio, TX on July 15-16. On Saturday, the WSSA board had a Strategic Plan working session that was very informative and productive. They are working on developing details around 6 Strategic Objectives. Decision was made to maintain registration fees for 2007 at the same rate structure for members and to drop the student registration fee to $75 no matter when the student registers (same as spouse registration). There will be a $50 fee for an invasive symposium and a $150 fee for a workshop on statistics. The cost for the tour is yet to be determined so the fee for that has not been set. Membership fees are to remain the same as 2006. The board voted to use OASIS meeting planner for the 2007 meeting. There is a possibility that under the WSSA contract that regional societies may be able to use it for a reduced fee. The board voted to eliminate the CD since the OASIS system can archive the abstracts and they will also be placed on the WSSA web site.

The board voted to approve the publication of a new journal on invasive plant science and management pending approval of a business plan. A timeline for developing the journal was planned. The board wants to review the business plan to be developed by the new journal committee and the director of publications by November 1, 2006. The committee was commended for doing a thorough job of surveying members and potential new members for information about the need and sustainability of a new journal on invasives.
Approx 800 responded to a WSSA survey and almost 50% weed non WSSA members and 91% majority supported having the new journals. 300 said they would contribute somehow as submission, editor, reviewer.

Vanelle told the WSWS Board that it appears that we will have 3 journals. E-journal was discussed. Jill says to remember that our Allen Marketing contact is coming to an end. Jill says the San Antonio meeting location is excellent and has much room. Kassim had asked about regional societies were represented at WSSA Board meetings – is it the WSSA rep or the past president. This issue was not resolved, however, and WSWS was the only society to respond with ideas.

Vanelle asked if her travel expenses were covered by WSWS and she said if Dow didn't cover than she would like to submit a request for funds. Phil said that the request would be okay. Dirk asked when new journal submissions would start and Vanelle said that the targeted first publication date of Feb 2008 1st was overly optimistic but that the WSSA Board was supportive of that date. Vanelle told us that she had to leave the WSSA Board meeting ¾ day early due to the need to be at the Aquatic Plant Management Society meeting on Monday, July 17th

Recommendations for Board Action: none was given
Budget Needs: Travel to WSSA summer meeting paid by WSWS?
Suggestions for the Future: None

Suggested Changes in Operating Guide: None
Current Committee Members: Vanelle Peterson
Name of Person Preparing This Report: Vanelle Peterson

BENEFITS OF SHARED LEADERSHIP WORKSHOP TO WSWS MEMBERS REPORT - Janet Clark
Janet, Jesse and Tim went to the 4-day Montana Workshop. Janet thanked the Board for sending them and said that it was an excellent workshop.

Report: Shared Leadership Workshop, June 13-17, 2006, at Emigrant, Montana
CAST's "Cultivating Leadership for a Changing Agriculture" program
Implemented by the Institute for Conservation Leadership
Attending: Tim Miller, Jesse Richardson, Janet Clark
Background:

- WSWS sent a team to this workshop in 2004.
- As a result, they conducted a WSWS membership survey, analyzed results, and with the BOD developed three priorities:
    1. Annual Meeting – maintain core of the meeting, expand content to provide value to a diverse audience.
    2. Mentoring/Leadership Development – encourage broad representation in WSWS, including on committees and BOD.
    3. Broaden Membership – include "nontraditional" individuals and form alliances with compatible organizations.
        - Appoint ad hoc Membership Development committee
        - Get Dir Sci Policy to communicate with fed/state agencies
        - Promote WSWS annual meeting with Short Course attendees
        - Explore joint meeting with compatible organizations

Janet mentioned at this point that they wanted to continue from where this workshop left off especially focusing on broadening membership.

What we did at the 2006 workshop:

- Explored styles of leadership – to understand our personal styles, to analyze our organizations, to understand the strengths and weaknesses of all leadership styles, and to see <u>difference as a resource</u>.
- Benchmarked our organizations – to analyze strengths and weaknesses
- Discussed organizational dynamics and practiced active listening – to understand spoken and unspoken communication
- Brainstormed "strategies for change" – to develop action plans to implement in our own organizations
- Our conclusions:
    - WSWS annual meeting is still a top priority and is effective, viable, has lots of energy. This is WSWS's great strength.
    - Mentoring/Leadership – Sending this team was a result of the previous team's work. Has other work been done? Is this still a priority?
    - Can do more follow-up to Broaden Membership (*see Action Plan below*).
    - In terms of undertaking activities to increase attendance at annual meeting:
        - **Barriers:** More work (all volunteers), more time, more expense, limited $$ resources of target audience, presentations are often academic/technical

- **Resources:** Robust WSWS budget, committees (PR, program), membership networks and connections, WSWS legitimacy as an organization, great website, active discussion sessions

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WSWS Action Plan 2006

GOAL: Broaden WSWS membership base to foster broader education about vegetation management in the West. In 2006, efforts will focus on Extension agents, state and federal agency resource staff, county weed districts staff, and NGOs in the Northwest.

ACTION:

1. Sponsor a one-day single-species symposium in conjunction with the WSWS annual meeting each year.
    a. The symposium will focus on a species of regional importance. In 2006, the Portland, OR, symposium will focus on knotweed.
    b. An ad hoc committee including reps from the area of the WSWS meeting will be appointed each year to coordinate this event.
    c. Content to include research reports as well as practical management reports and case studies to draw more weed practitioners from the area.
2. Increase PR/marketing/advertising about the WSWS annual meeting.
    a. Energize the WSWS Public Relations Committee. Great outreach strategies are listed in the WSWS Operating Guidelines.
    b. The PR committee reports to the Education and Regulatory Chair (that's Joe Yenish in 2006).
    c. The WSWS **Executive Director** Janet changed this to **Business Manager** at the Board Meeting. and website coordinator should be closely involved in this effort.
3. Follow up with the Membership Development Ad Hoc Committee.
    a. Phil Stahlman, chair (+13 members)
    b. Committee reports to the Research Chair (that's Joe DiTomaso in 2006)
    c. Purpose: To broaden membership? Do they have a defined task?
4. BOD take the benchmarking survey
    a. Purpose: To foster discussion about organizational issues
    b. Benchmarks grouped into 7 categories – can do some or all: Vision & Mission, Board/Leadership Group, Communication & Outreach, Activities of the Group, Fundraising & Resources, Volunteers & Members, Financial Management
    c. Survey results in a list of organizational strengths and challenges, which may help prioritize future activities.
    d. Does the BOD think this is important? Does it duplicate the work of the previous team? Do we need a mission/values statement?

WSWS Objectives

- To foster and encourage education and research in weed science.
- To foster cooperation among state, federal and private agencies in matters of weed science.
- To aid and support commercial, private and public agencies in the solution of weed problems.
- To support legislation governing weed control programs and weed research and education programs.
- To support the Weed Science Society of America and foster state and regional organizations and agencies interested in weed control.

Apparently at one time WSWS was looking at developing a mission statement-value statement and figured it wasn't needed because we already have really clear objectives. Janet says that it's good we approved the Knotweed symposium because that is an action item they brought back from this conference.

Tim Miller told the Board that they discussed whether or not to send members in the future and they thought not, unless there was something that came up where we needed help. Tim thought the meeting could have been shorter w/o some of the exercises and that the best thing about the workshop was getting together and focusing on WSWS needs.

Kai mentioned Lisa Boggs had conducted a Membership committee meeting and that good suggestions came out at the meeting but no minutes were issued. Phil agreed. Tim emphasized that wherever WSWS meetings are held, we should have an emphasis on local weeds of interest to attract local attendance. Vanelle reminded the Board that part of the intention is to get people to symposia and DURING the symposia, have a planned promotion for WSWS membership. Carol said that somebody needs to make sure this e announcement is made to the groups of interest.

Tim felt that if the 2007 Knotweed symposium goes over well, then the Board can decide if this is an annual activity or not at the end or the Portland meeting at the WSWS Portland meeting. Jill said that in relation to what WSSA is doing for nursery invasives, WSWS should follow suit and get symposia announcements out ASAP so people can plan as far ahead as necessary. Board members felt that in two weeks or so, Tony could post symposia information on the website plus make payment/registration available ASAP.

A Benchmarking exercise was discussed and Vanelle stated that we need to keep operating as we have been and that we don't necessarily need this exercise. Kassim brought up the idea of using consulting services we get free, but Vanelle would like to see that service used on membership development such as how the Knotweed symposium could be used to increase membership – NOT on a benchmarking exercise. Kassim asked if we need an action, and the general consensus was that we are okay if we keep operating as we have been.

LOCAL ARRANGEMENTS COMMITTEE REPORT – Carol Mallory-Smith, Bob Parker, and Tim Miller.
Carol told the Board that everything is going well with the hotel – they are easy to work with and responsive. Phil said he also has had good relations with the hotel, that there is plenty of meeting room space and the hotel is willing to work with us but want to hold us to the contract terms. We have more rooms on block than last year but we exceeded our requirement last year by 85-90 rooms. Tim says that Program/session chairs need to bring AV and that notices for this need should be made well in advance of the 2007 meeting. Kassim said all presentation will be on a Master computer and since all chairs will bring computers, we would have back-up from the main computer when other computers crashed.

BOARD DISCUSSION TO CHANGE THE WSWS OPERATING GUIDE – Business Manager wording:
Previously discussed and decided that a change was not necessary.

BOARD DISCUSSION ON ELECTRONIC VOTING: Was discussed and approved.

BOARD DISCUSSION ON COOPERATION WITH WSSA AND OTHER REGIONAL SOCIETIES/MEETINGS:

Kassim headed discussion – and asked if we are we coordinating with other societies on publications, and so that meeting locations are not in the same locale in the same year, or if we could have joint meetings.

Kassim says we can do this in simplistic a way to make sure all know where future meetings will be held, and that the WSWS is ahead of everyone since we have decided upon locale out to 2009. WSSA and other societies decide 2 years in advance.

Janet asked if WSSA is producing anything more than the XID and Herbicide Handbook. Kassim said WSSA wanted to know if we needed to have an ad hoc Publication Committee w/ reps from every society. Kassim said the general consensus was just to have simple coordination – probably from each President. Janet said that the WSSA rep should be the one on this committee. Overlap would be XID and the Southern program, but no coordinating has been done. Phil says he heard that a "Weeds of the South" might be published. Kassim didn't think that formal was needed at the WSSA Board meeting.

Kassim wants to make sure we coordinate on the website issue. WSSA hired a new website manager – Tony was on the hiring committee and told Kassim that the WSSA website is being re-designed. Carol says there's a WSSA breakfast meeting of Presidents and Vice Presidents and maybe the coordination ideas could be brought up then.

Website coordination discussion – Janet asked if we should advertise products from other societies. Phil says that we should charge if we sell their products. Tony publishes notices of related events. General consensus is that we have a link to other sites and that the link would be adequate.

Jill made comments about collaboration – what we need to think about as organizations is how we coordinate and compliment each other is rather than competing. We can strengthen the discipline of Weed Science much better if we compliment each other.

Carol reminded us that we are happy with things now but as in the past, we may not be in the future e.g. website needed work so we changed by getting Tony – maybe we might want one giant website for weeds and all the regions would be part of that one site. Since Oasis is a business and not an individual, there are advantages to this way. Jill says we are stronger working together than working separately e.g. we all support the Director of Science Policies. Kassim reminded us that we need to be budget-minded and be careful as changes occur.

MOTION: *Phil moved to adjourn for the day. The motion was seconded and* **unanimously approved**.

The meeting was followed by a hotel Tour by interested Board members

Saturday, July 29

FINANCE COMMITTEE REPORT -Janet Clark
Office or Committee Name: Finance Committee
Officer or Chairperson Name: Jesse M. Richardson
Date of Preparation: July 14, 2006
Committee Activities during the Year: The Finance Committee met at the annual WSWS meeting in March to audit the Treasurer's records and accounting books. It is the Finance Committee's opinion that both the Treasurer and the Investment Advisor are operating according to the WSWS Investment Policy Guidelines and Objectives.

As of June 30, 2006 the RBC Dain Rauscher mutual funds and fixed asset account balances were $185,794 posting a net gain of 3.89%, since Dec. 31, 2005. Current asset allocation is 70% stocks and 30% bonds, which is only slightly out of line with the society's target allocation of 65% stocks and 35% bonds. The funds seem to be holding up well, in spite of some unrest in the markets.

As of July 7, 2006, the money market savings account (Newark) had a balance of $66,414.77 and the checking account (Newark) $9893.48.

By increasing the registration for our annual meeting to $150 per person, our income for registration and membership dues went from $22,951.00 in 2005 to $45,203.60 in 2006.

We made a payment of $64,480.00 for reprinting 12,000 copies of Weeds of the West. This payment covered half of the reprinting costs. The second half payment will be made in mid-August when the books are shipped.

The committee met in Sparks, NV during the 2006 annual meeting. The committee will meet again in Portland, OR in March, 2007.

Recommendations for Board Action: suggested change in operating guide (below)
Budget Needs: none
Suggestions for the Future: none

Suggested Changes in Operating Guide: During our committee meeting in Sparks, we discussed the idea of introducing verbiage to the operating guide that would insure a financial cushion to the society: "The WSWS should maintain a financial reserve equal to two years of operating costs of the society. This will be based upon the average of the two previous years. The operating costs of the society will be calculated by adding the expenses incurred for the business manager salary, WSSA Director of Science Policy, CAST membership dues, and expenses for running the annual meeting."

Current Committee Members: Phil Munger, Dallas Peterson, Jesse Richardson
Name of Person Preparing This Report: Jesse M. Richardson

Board discussion on the recommended operating guide language change: *Phil supported this action. Others said that this is common in other societies and a good idea in case something catastrophic happens to prevent mass numbers of members from attending a meeting, such as snow storm, etc. Motion to change as suggested was made by Vanelle, seconded by Phi and unanimously approved.*

NOMINATIONS COMMITTEE REPORT - Bob Parker (Phil Banks)
Phil Munger's name has been added to this committee since the electronic report was sent to the Board.
Office or Committee Name: Nominations Committee
Officer or Chairperson Name: Bob Parker
Date of Preparation: July 13, 2006
Committee Activities during the Year:

Nominees
President Elect :
Dan Ball – Oregon State University
Drew Lyon – University of Nebraska
Chair Elect-Research Section:
Kirk Howatt – North Dakota Sate University
Steve Seefeldt – USDA/ARS (Alaska)
Chair Elect-Education and Regulatory
Bill Cobb - Cobb Consulting
Have a phone call in to other candidate as of 7/10/06

No Secretary nominees were selected this year because it is now a two-year appointment
Recommendations for Board Action:
Budget Needs: None were given
Suggestions for the Future: Consider travel expenses for those executive board members that are self employed to attend the summer meeting. One of the nominees this year was hesitant about accepting the nomination due to his out of pocket costs.

Suggested Changes in Operating Guide: none
Current Committee Members:
Bob Parker, Vint Hicks, Jeff Koscelny, Phil Banks (Past President)
Name of Person Preparing This Report: Bob Parker

MOTION: *Phil moved to accept suggestions by the Nomination committee, Jeff seconded and the motion* **passed unanimously**.

Board discussion *followed this report about people declining officer nomination because of costs of coming to all board meetings. A self-employed person had reservation of nomination this time because of costs especially coming to the summer meeting extra from the annual meeting. Emergency funds maybe should be available. How do they know that these funds are available though? Phil says that these funds should be available to everyone on the Board. Joe suggested a set amount be made available, such as $2000, and if many apply then they will be asked if they can partially pay. If no one applies then it would not be used during that year. Vanelle says we should be able to have some faith that the leadership of this foundation wouldn't abuse the system and trust that people would only apply for it if they need the travel funding. Joe suggests mentioning the fact that we can make these funds available if someone says they couldn't serve because of travel/hotel costs for summer meetings. Ron suggested a Matching program so we could underwrite some funding but not pay for the total amount. the question was asked - What about people who have to take annual leave - is that the matching? Jeff suggested a conference call. Vanelle says that if the person requesting funds is the President, then a conference call would not work.*

Tim asked industry rep Board members if their company knew funds were available, would the member would be required to get funds from the society before asking for funds from their own company? Kassim directed the discussion back to setting up contingency funds for travel to the Summer Board meeting. Kai suggested that Phil take a look at the budget to see if this could be worked in so we'd still be financially fit but remain on the conservative side. Funds for per diem, air travel only were suggested. Phil said that we already are projecting a $4 to 5K deficit and even though we double our income from registration, we have been losing. We will be "compensated" by income from the Weeds of the West sales. Now that we've raised out registration fees, we should be breaking even basically. Joe says we should reassess this after we know how the budget works this year. Carol says we still maybe are missing those we don't know who would serve, but decide they can't because of travel fund deficiencies, especially those who retire and who would still volunteer their time.

Kassim said that the general concern from the Board on this matter can tabled until the next meeting in March after the website may generate some funding and we have a better idea of our fund situation. We could maybe establish a $2K fund or some other agreed upon level. Rick asked if there was some amount above our declared minimum we have to keep and Phil says that the IRS could come in and tell us we aren't spending so we aren't a non-profit agency. Janet says that in order to diversify and broaden we may need to make it more possible for people to participate in the Board. Kassim said that next spring we could have a proposal from Phil about how we could afford paying travel costs for Board members. Vanelle suggested that the Membership committee - Phil Stahlman should be drawn in to the discussion to see if people are not joining because of funds. Tim said that the Nomination committee should be included also and all agreed.

Jeff asked about the operating guide language changes suggested by Kai in the past for the nominations process: making a shift from paper ballots to totally electronic. Phil told the Board that out of the 500 members on the revised membership list, 50 (10%) say they want paper or even if they have email, they don't want their email address in our database. Jeff says that this means more than Board voting, that it

would be awards, etc. Tony needs lead time before October voting starts. Phil says he can still send paper ballots.

Kai says we should bring it up to the general membership that all Society voting will be electronic next year. Others said we did that at the last meeting. Dirk told us that the Breakfast meeting minutes said we told the members we would still go with paper and then most likely change the operating guide to electronic in 2007. Phil says it won't make difference this year because the newsletter will still be mailed and ballot goes w/ newsletter.

SITE SELECTION REPORT- Mike Edwards (Kassim Al-Khatib)
Office or Committee Name: Site Selection Committee – 2009 meeting site
Officer or Chairperson Name: Michael Edwards
Date of Preparation: February 23, 2006; July 7, 2006 (revised)
Committee Activities during the Year: Worked with Allen Marketing to screen hotels in Denver, CO, Colorado Springs, CO , Albuquerque, NM and Fairbanks, AK

See attached hotel list for hotels that will meet our requirements

Recommendations for Board Action:
1. Decide on specific town for the 2009 meeting – Denver, Colorado Springs and Albuquerque all have facilities that meet our needs.

2. Have straw pole at business meeting for possible Alaska meeting in 2010 – Phil suggested a hands raised that would not attend.
- Airfare Denver – Fairbanks $800-900
- Airfare Seattle – Fairbanks $600-700
- Airfare San Francisco – Fairbanks $800-900

Month	Avg. High	Avg. Low	Avg. Precip.	Rec. High	Rec. Low
March	26.0 F	1.0 F	0.34 in	57.0 (03/21/1998)	-41.0 F (03/28/1971)

Fairbanks ruled out by Membership and Board at this time.

3. Complete Site selection for specific hotel by Summer Board meeting – Albuquerque chosen
First choice - Embassy Suites
Second choice - Hyatt
Third choice - Hilton

Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None

Current Committee Members:
a. "'Traci Rauch'" trauch@uidaho.edu (past chair)
b. "Michael T Edwards" michael.t.edwards@usa.dupont.com (current chair)
c. "David Vitolo " david.vitolo@syngenta.com

Name of Person Preparing This Report: Michael Edwards

Phil told the Board that the Embassy Suites offer had expired but the hotel says they would honor the bid. He visited the Embassy Suites and says there is more room than what we need and it has convenient proximity to many places walking distance so a shuttle service is not needed. The rooms are suites and are quite large w/ a sitting area, etc. There re 260 rooms total and we require 200 rooms preferably all in one area so meeting rooms are close to sleeping rooms.

Discussion ensued about approving Embassy Suites for 2009 but with 1 meeting room for every 40 room nights instead of 50. There were questions about symposia every year so can we carry our hotel contract into a Friday. We could guarantee we'd raise the number of rooms on Thursday.
MOTION: *Vanelle moved we accept, Joe D seconded and the motion* **passed unanimously**.

The Board was asked for suggestions for the 2010 meeting to give to the site-selection committee. Hawaii, Boise, Salt Lake City. and Spokane were mentioned. Joe Y asked if Fairbanks could be considered again and others said it was a clear vote at the 2006 Breakfast meeting that many would definitely not go to Fairbanks.

Secretary's Note: the following is information from and about the various hotels suitable for a WSWS meeting.
EMBASSY SUITES
1000 WOODWARD PLACE N.E.
ALBUQUERQUE, NM 87102

Dear Ms. Carr:

Greetings from Albuquerque and the beautiful "Land of Enchantment!" We are so excited at the prospect of hosting the Western Society of Weed Science. The **Embassy Suites Hotel and Spa** is the newest full service downtown hotel with 261 spacious suites and 30,000 square feet of flexible meeting space. This beautiful new addition to the Albuquerque market will ensure a successful event, because we guarantee that you and your attendees will receive the best in customer service and quality of product. Please allow me to tell you a little about what awaits you and your guest at our property…

Location, Location, Location!
Conveniently located overlooking downtown Albuquerque, the **Embassy Suites Hotel and Spa** is easily accessible for your guests. We are only three miles from the Albuquerque International Airport and for those guests who drive they will have over five hundred complimentary parking spaces to choose from. With a wide variety of shops, bars, a movie theatre, and restaurants located in our area, each guest will have entertainment options every evening. We are also within a mile of the Albuquerque Convention Center.

The Suite Life!
At **Embassy Suites Hotel and Spa** each of your guests will enjoy the luxury of a two-room suite with the conveniences of an in-room refrigerator, microwave oven, coffee maker, iron/ironing board, and hair dryer. For those guests who will be conducting work at your conference each of our suites offer a large worktable in the living room, a desk in the bedroom, and two telephones with voice mail and each line having dataport capabilities. An Ethernet line will be accessible in each suite for high speed Internet exchange. If your guests need more working options, our 24-hour business center is also available, equipped with computer, fax machine, photocopier, telephone, and lots of working space.

Good Morning!
After receiving a complimentary issue of USA Today, each of your guests can start the day off right by taking advantage of a full cooked-to-order breakfast in the inviting atmosphere of our naturally lit nine-story atrium. Surrounded by lush exotic plants and flowers, a natural waterfall and babbling brook winding throughout, let us treat you and your guest to whatever your appetite desires.

Relax!
Every evening, your guests can also enjoy a complimentary reception featuring alcoholic and non-alcoholic beverages and hors d'oeuvres in the same relaxing atrium. Since every suite is visible from the atrium, it provides the perfect spot for your guests to catch up to the rest of the group before heading out for a night on the town. Before the day is over, each of your guests can take advantage of our full service day spa, indoor pool, whirlpool, or 24-hour fitness room.

Convene!
Let us take care of your every event need. With 30,000 sq. ft. of designated meeting space, our in-house audio/visual department, seasoned banquet staff and attention to detail; your meeting will proceed with ease. We are happy to offer all of your meeting space complimentary, provided you spend a minimum of $16,000.00 in food and beverage.

The **Embassy Suites Hotel and Spa** would be honored to be part of the Western Society of Weed Science. We do have your preferred dates of March 7 - 13, 2009 available. We can offer the following room block:

	Saturday 03/07/09	Sunday 03/08/09	Monday 03/09/09	Tuesday 03/10/09	Wednesday 03/11/09	Thursday 03/12/09
Total Suites	20	50	185	200	185	30

Special Rates for **Western Society of Weed Science**:

Single Occupancy: $129.00 *Double Occupancy: $129.00*

Rate above includes a full cooked-to-order breakfast & a complimentary reception featuring alcoholic and non-alcoholic beverages and light snacks.

These rates are exclusive of state and local taxes, which currently total 12.75%. Applicable tax rates at the time of the function will be charged.

Complimentary Accommodations:

- **We are pleased to provide one suite for every fifty utilized per night.**
- **Group rate includes a complimentary cooked-to-order breakfast and Manager's reception, daily.**
- **Complimentary parking, refrigerators in each suite and a 24-hour business center.**

The above rates and space are for proposal purposes only and are not being held at this time. This offer is good through May 31, 2006. Please let us know if you would like us to place the space on a tentative hold and confirm the above arrangements. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,
Jessica Williams
Sales Manager
jessica.williams@jqh.com
505-245-7100

	Guaranteed room rate (taxes)	Adequate Space for
Albuquerque, NM		
Hyatt Regency Albuquerque	**$134/s $159/d (12.75%)**	**395 rooms**
Marriott Albuquerque http://marriott.com/property/meetingsandevents/floorplans/abqnm?WT_Ref=mi_left	**$149.00 (12.75%)**	**Yes**
Colorado Springs, CO		
DoubleTree	**$78/s $88/d (9.4%) $10/prsn**	**can accommo 200+**
Antlers http://www.antlers.com/groups-meetings.htm	**$119/s-d $129/t-q (9.4%)**	**292 rooms**
Denver, CO		
Hyatt Regency Denver Tech Center	**$159.00 (14.85%)**	**Yes**
OMNI Interloken	**$112/s-d (9.85%)**	**Yes**
Westin - Wesminister-Boulder	**$149 s/d (12.6%)**	**Yes**

EDUCATION (AD HOC) DISTANCE EDUCATION REPORT - Tracy Sterling (Joe Yenish)
Office or Committee Name: Education (ad hoc) Committee – Distance Education Sub-Group
Officer or Chairperson Name: Tracy Sterling
Date of Preparation : July 7, 2006
Committee Activities during the Year: The Education subgroup for Distance Education has met its long-term goal of developing web-based Weed Science educational materials for multiple type learners. Many lessons have been developed (see WSWS web site). Ten of these lessons have been published in the peer-reviewed, on-line journal, *Journal of Natural Resources and Life Science Education* (JNRLSE). Two additional lessons are being written (Cellular Absorption of Herbicides; Herbicides Blocking Fatty Acid Metabolism). The funding provided by WSWS was used to set up the WSWS website as a sibling site to the http://plantandsoil.unl.edu website and showcase those lessons specific to Weed Science.

Using these materials, Bill Dyer, Scott Nissen, and Tracy Sterling are partnering to offer an MOA course via Distance Education from Montana State University

(http://eu.montana.edu/credit/courses/PSPP546.htm; web page attached). This 14-week course, PSPP 546 Herbicide Physiology, is at the Graduate level and will be offered in Fall 2006. The course was advertised in recent WSWS newsletters and there have been more than five inquiries from potential students (as of July 5, 2006).

Recommendations for Board Action: none given
Budget Needs: The remainder of the original $5000 from WSWS was used to edit animations as per JNRLSE recommendations with a final invoice of $1286.93. The balance remaining ($188.07) will be absorbed by WSWS to close out the account.

Suggestions for the Future: Continue to seek funding to create additional lessons and animations relevant to Weed Science. 10 done and 2 more being developed.

Suggested Changes in Operating Guide: none
Current Committee Members:

Tracy Sterling, Chair, Distance Education
Carol Mallory-Smith, Distance Education
Scott Nissen, Distance Education
Bill Dyer, Distance Education
Kassim Al-Khatib, Distance Education

Name of Person Preparing This Report: Tracy Sterling

Kassim said that since this ad hoc committee is not asking for funds, let's keep the committee and see how the online class goes. Vanelle asked Janet if the Center is still giving online courses – land managers 6 wk course n the winter; Janet said that self study modules have been more useful so they will be spending more time with this venue rather than facilitating course using instructors and more resources. Vanelle asked if instructors were WSWS members and Janet thought that most, if not all were. Janet said that they haven't hooked up with the University because it gets too complicated. Instructors from other Univ. say that if credits given are only given by the home university, then they have a hard time justifying teaching to their university administration. Joe D says why not have this curricula available so faculty could use this as an online text book and pay a fee to use and it incorporate it into their class curricula. Phil suggests that Joe Y contact the committee and make sure there's some type of statement that the course was developed using a grant from WSWS and include a link to our website.
http://eu.montana.edu/credit/courses/PSPP546.htm

PSPP 546-01: Herbicide Physiology
Online
September 5 – December 8, 2006
3 graduate credits
Tuition: $675
Instructors: Professors, William Dyer, Montana State University; Tracy Sterling, New Mexico State University; and Scott Nissen, Colorado State University

Register Online

Course Description: Herbicide Physiology is a new online graduate level course that will cover topics in herbicide classification, herbicide mode of action, and resistance mechanisms. In addition to providing basic information about herbicide physiology and plant responses, students will be challenged with applied problems that may be encountered in field situations. Students will thus learn to hone their diagnostic and problem-solving skills that will be required in a number of employment opportunities.

Instructors: Professors, William Dyer, Montana State University; Tracy Sterling, New Mexico State University; and Scott Nissen, Colorado State University

Cost: Tuition is $675. This should be paid to the Office of Continuing Education at Montana State University at the time of registration.

Credit: 3 graduate credits

Prerequisites: Upper division courses in biochemistry (BCHM 340 General Biochemistry or equivalent) and plant physiology (PS 450 Plant Physiology or equivalent), or consent of the instructors. Contact Dr. William Dyer at wdyer@montana.edu for more information.

Time Commitment: 9 to 12 hours per week over 14 weeks. If you are unfamiliar with this field of study and/or with telecommunications, this course may require more of your time.

Target Audience: Students from Weed Science, Plant Physiology, Plant Biology, Land Reclamation, Ecology, Range Science, Agronomy, Integrated Pest Management, and Conservation Biology will be served by this course. The course is designed for students without traditional access to this course material, and is not designed to replace existing, on-campus courses at other institutions.

Course Materials: This course has no textbook as all readings and activities take place online.

For more information: Contact Dr. William Dyer at wdyer@montana.edu

Note: This course will be delivered using WebCT. WebCT is an online course delivery tool. You will receive more information about how to login closer to the course start date.

PUBLICATION COMMITTEE REPORT - Ron Crockett
Office or Committee Name: Publication Committee
Officer or Chairperson Name: Ron P. Crockett
Date of Preparation: 17 July 2006
Committee Activities during the Year: Discussions were held during the year at scheduled board meetings. A major topic of interest is the re-print of 12,000 copies of the "Weeds of the West" book. A payment of $60,000 will be due in 2007. Tom Whitson and his committee have been very helpful along with the discussions and dialog of the Publication committee members to determine the opportunities and risks this decision will have.
Webmaster: Tony White has been active in his work on the Website, as our webmaster. His work on the credit card payment option for meeting registrations has been a huge success. In addition, Tony is streamlining the online and title/abstract submission process easier for members to use. Tony is also working on an "Event Calendar" for members to use to post upcoming events of interest to the WSWS.
Newsletter: Pat Clay has suggested that an 'electronic version only' of the newsletter be made available to the membership with instructions on the meeting registration forms, pending committee approval, and support of the board.
Research Progress Report: Traci Rauch and Joan Campbell are working on streamlining the "Call for Research Progress Reports". They are proposing to clarify the direction for the submissions of Research Progress Reports. The call for the Research progress Reports will be posted online in the September Newsletter. WSWS members are encouraged to submit reports in the newsletter and on the WSWS website.

Recommendations for Board Action: A recommendation has come forward from Tony White to establish a tighter deadline for printing and distributing the meeting proceedings in a more timely manner. Tony has forwarded ideas and willingness to aid in fixing the delays.

Budget Needs: Support the Publication Committee's decision to move forward in support of the payments of the 'Weeds of the West' book

Suggestions for the Future: None
Suggested Changes in Operating Guide: None

Kai told the Board that he got suggestion from the Proceedings manager to move the deadline ahead about 2 weeks for people getting items to them. Communication between web master and proceedings editor was then discussed. Phil suggested that we definitely still need a Proceedings editor to oversee the whole system but to not pile all the responsibilities of compilation onto the editor too. The website editor and business manager could eliminate shipping charges to and from printer. Vanelle suggested that the Business manager and publication chair work together to help coordinate web master and proceeding editor tasks
Phil said that he will help Pat remind the members to give him Newsletter input. there was a discussion on having a CD for the proceedings, etc. Vanelle suggested we hear the capabilities of Oasis first.

STUDENT PAPER CONTEST REPORT - Jeff Koscelny
Office or Committee Name: Student Paper contest
Officer or Chairperson Name: Stephen Enloe
Date of Preparation: July 10, 2006
Committee Activities during the Year:
The committee has been in transition this year as Mark Renz has departed NMSU for greener pastures at the University of Wisconsin. The committee has found two new members (Brad Ramsdale, Fresno state University) and Lisa Boggs (Western Oklahoma State University). The chair for 2006-2007 will be Brad Ramsdale. Jim Harbour (Dupont) had initially agreed but never confirmed so it was decided to ask Lisa instead.

Once again, I would like to thank the judges for there hard work in Reno: Mark Renz, Mary Corp, Linda Wilson, Sandra McDonald, Jim Harbour, Joe Yensih, Curtis Thompson, Oleg Daugovish, Brad Ramsdale, Lisa Boggs, Cini Brown, Steve King, Pam Hutchinson, and Lynn Fandrich.

In the call for judges this year for the 2006 meeting, I received several replies from folks who are tired of being judges. They mentioned that they had already been judges several times before. It might be worthwhile to examine the list of judges for the last five years to attempt to prevent burnout and get more members involved in judging.

Recommendations for Board Action: None currently
Budget Needs: The budget should remain the same as in previous years with regards to student monetary awards and plaque costs.

Suggestions for the Future: When announcing the winners at the Thursday morning business meeting, a method for eliminating dead silence while the winners walked to the podium was used. This entailed announcing the name of the winner, allowing applause from the audience, and then reading the paper or poster title while the winner walked to the podium. I received several positive comments on this method.

Suggested Changes in Operating Guide: No suggestions for current actions. The changes made two years ago seem to be working well. No criticisms have reached me on the current format.

Current Committee Members:
Brad Ramsdale (new, chair 2006-2007), Stephen Enloe (chair 2005-2006), Lisa Boggs (new)
Name of Person Preparing This Report: Stephen Enloe

Tony updated the lists on the web site. Phil suggested to Ron that the contest talks be scheduled and arranged in rooms very convenient to each other so judges can get to papers on time. Moderators need to keep sessions on time. Two contest papers and 1 non-contest paper in-between helps judges. Ron should send a copy to Brad to show how the papers are organized so Brad can make suggestions for needed changes. Brad needs to put a call for volunteers in the newsletter, and review the list of past judges to prevent burnout, etc.

STUDENT LIAISON REPORT - Dirk Baker, Angela Kazmierczak
Dirk opened that WSSA has a student organization and that two students from each region were required at the WSSA student meeting.
Office or Committee Name: Student Liaison
Officer or Chairperson Name: Dirk Baker, Angela Kazmierczak
Date of Preparation: May – June 2006
Committee Activities during the Year: With the help of Kai Umeda and Jeff Koscelny, we have drafted a proposal for the formalization of the student liaison positions and their duties as follows:

Proposed duties

- Student President and Vice-president shall represent students of WSWS to the Board of Directors at Annual meetings
- Student President shall represent students of WSWS to the Board of Directors at Summer meetings
- Student President and Vice-president shall represent WSWS students to WSSA GSO at WSSA annual meetings
- Student President and Vice-president organize and Student President shall preside over WSWS annual student meeting (during Wednesday morning student breakfast)

Other Possible duties

- Organize mixer at annual meeting for prospective employers and graduate advisors with students? This would probably be easiest to arrange as a luncheon.
- Help coordinate Student Night Out activities at annual meetings?
- Provide assistance to program section chairs including coordination of lighting during sessions, logistics, etc.

Student Representative Qualifications:

- Must be a full-time graduate or undergraduate student for full duration of term
- One-year terms, but may be re-elected once. (Overlap would be nice, but few students will be able to commit to more than one year. We don't wish to exclude those that would like to participate, but are thus limited.)

Recommendations for Board Action: We ask for comments and suggestions for finalizing this proposal.

Budget Needs: None.

Dirk reminded us that the Board approved a one-time travel assist for Summer 2006 meeting and would like to make this an annual assist plus assist w/ travel costs to WSSA if needed. Dirk used President and Vice President because that's the WSSA language. Dirk suggested a "mixer" at the annual meeting possibly piggy-backed onto the Monday evening reception by having a table to meet and greet, plus have positions-desired/positions available posted.

Suggestions for the Future: Submit final proposal to the membership at the 2007 Annual Meeting for a vote to add the student liaison as a non-voting member of the WSWS Board to the WSWS constitution. How to arrange the travel assistance especially summer meeting for one student rep each year.
Suggested Changes in Operating Guide:
Current Committee Members:
Dirk Baker, Angela Kazmierczak, Kai Umeda, Jeff Koscelny
Name of Person Preparing This Report: Dirk Baker

Kassim asked if it would be possible to coordinate a training meeting with students. Phil said it would not fit well but he could come to the Student Breakfast and give mostly the same info.
Dirk mentioned that undergrad support would be very good because their participation is valuable. Phil said that at the initiation of the WSSA grad group, the WSWS grad student presence was less than from other regions. Dirk says that it would be most helpful to have travel funds to the WSWS summer meeting and also help but not totally fund costs to WSSAs. Vanelle wondered about getting WSSA registration fees reduced, etc. Dirk reminded us that advisors usually pay so funds would not always be needed. Jill said the student representation operating guide language was approved by the WSSA Board and it will be put before the members for vote. Jill said that there were opportunities available for students to work at the registration desk etc and reduce costs – this will be advertised widely as a first come first serve basis.

The term is not automatic 2-yr so that it is not restricted.
*Phil suggested the student committee send the WSSA operating guide wording to the WSWS Board prior to spring meeting so the Board could approve/disapprove and then it could go before the general members. Kai said the rest of the committee could help hammer out the details. Dirk says he will ask consensus of all grad students. Vanelle suggest changing wording to include part-time students as reps. The funding question will be discussed at the Spring meeting. Phil will determine how this funding could fit into the budget. P*hil thought that we could have a big bulletin board to post position needed/available.

DIRECTOR OF SCIENCE POLICY REPORT - Lee Van Wychen (Janet Clark)
DSP Priority Topics
A. 2007 Farm Bill- There is a possibility that the 2002 Farm Bill may be extended indefinitely and not re-authorized next year. Most people feel the 2002 Farm Bill is as good as it gets for agriculture. Many factors at play including WTO results and politics.

Several different proposals exist to reorganize/restructure federal ag research. The USDA Research, Education and Economics task force recommended establishing a National Institute for Food and Agriculture (NIFA) at the USDA which would supplement ongoing research. On May 10, Sen. Talent (R-MO) was joined by cosponsors Harkin (D-IA), Bond (R-MO) and Lugar (R-IN) in introducing the NIFA Act of 2006 (S. 2782). S. 2782 builds on legislation introduced at the beginning of this congress (S. 767) by Sen. Bond, which would have established a NIFA at NSF.

The other proposal is similar to NIFA and being promoted by NASULGC and certain state extension directors. The proposal is called: Creating Research, Extension, and Teaching Excellence for the 21st Century (CREATE-21), but I have not seen legislative language as of yet despite the plan to have a bill introduced this spring.

Some ag research coalitions support NIFA and others are cautiously following the developments, which is the WSSA's position at this point. Stakeholder buy-in will be the key especially from USDA ARS and CSREES. USDA Under Secretary Buchanan supports the NIFA proposal. It is safe to say there will be no action on S. 2782 this Congress beyond a possible hearing and informal debate among stakeholders. The bill's sponsors and supporters view introduction of the legislation as laying the groundwork for consideration during next year's anticipated reauthorization of the farm bill.

B. Weed Science Federal Job Series

How do we proceed after the Office of Personnel Management (OPM) rejected the proposal for a Weed Science job series? It may be impossible to secure a federal job series called "weed science". There are several factors for this, but if you look at the newest federal job series, created, they are in the technology sector like "Information Technology Specialist". OPM has been working to "simplify" jobs to cater to the "re-toolable generalist" approach. According to Delfosse, USDA-ARS National Program Leader for Weed Science, OPM rejected every one of the specializations that USDA proposed. OPM wants the GS-401 General Natural Resources and Biological Sciences job series used for any of the specialties that didn't receive a separate Series during the development of the new standard. OPM also changed the 400 series occupational group name from "Natural Sciences Group" to "Natural Resources Management and Biological Sciences Group." They made this change to reflect broad agency recognition of astronomy, chemistry, physics, and other biological work as scientific in nature. The words, "natural resources management," in the name reflect the rangeland and forest management occupational content. "Natural resources management" is first in the name because that work characterizes the majority of the positions in the group (including weed science). OPM put the words, "Biological Sciences" in the name because of the biology, microbiology, genetics, and other biological science occupational content. According to Delfosse, we cannot appeal OPM's decision because their report is the final decision in a project that began in 1997 to develop a Job Family Position Classification Standard (JFS) for professional work in the Biological Sciences Group, 0400. The new GS-400 classification standard can be viewed at: http://www.opm.gov/fedclass/gs0400p.pdf . This 99 page document describes OPM's decisions in detail, but unfortunately lacks any mention of why they rejected "weed science".

Janet told the Board that Lee is working w/ agencies to make sure the weed science language is integrated into whatever job series is set up.

A recent **keyword search** on www.firstgov.gov for federal jobs in the 400 series returned the following number of job openings: weeds- 31, entomology – 87, plant pathology- 30, agronomy- 68, botany- 112, forestry- 372, rangeland- 70, ecology- 163, Natural resource management- 464. The only federal job series that states "weed management" as part of its basic principles is "agronomy". Weed management is not mentioned as a basic principle in rangeland management, ecology, botany, horticulture, forestry, wildlife refuge management, range technician, plant physiology, plant protection technician, or biological science technician. I believe that we can work on changing this and have had or have scheduled several meetings with agency personnel, particularly management focused agencies like the Forest Service and Bureau of Land Management to discuss how we can define the knowledge, skills, and abilities necessary in our discipline. At the 2006 WSSA Summer Board meeting on July 16, they agreed with this assessment and feel that I should work with federal agencies to provide them with the language for the knowledge, skills, and abilities (KSAs) required for weed science-related jobs.

C. EPA Interaction

How do we proceed with terrestrial weed science fellowship/faculty sabbatic at EPA? Funding remains the biggest sticking point as the regional weed science societies have indicated they are not capable/unwilling to support such a position and I have concerns about cannibalizing industry funds for other weed science activities. There may be funds available through USDA CSREES to support such a position. I agreed to outline a position description and lead an exploratory committee composed of John Jachetta, Don Stubbs, Kurt Getsinger, Jen Vollmer, and Janis McFarland. Ideally, this position/ relationship with EPA would be maintained over the long-term with monthly visits of 4-5 days per visit. A 6-month sabbatic position would still work, but the net impact would not be as great. EPA would be expected to provide office space and equipment. Four main duties/responsibilities of a faculty sabbatic/long-term fellowship for a terrestrial weed scientist with experience in invasive plant management at EPA should be: 1) Interact with key regulatory personnel on a weekly basis and make the expertise of the WSSA known and readily available; 2) Identify and report to the WSSA a list of research

and data needed by EPA that is difficult to obtain or does not exist; 3) Serve as a key contact for EPA employees and develop a directory of WSSA members with expertise in relevant invasive plant management areas; and 4) Facilitate the interaction of EPA personnel and WSSA members.

How can WSSA develop expert panels on herbicide families for re-registration? John Jachetta has reported that EPA is very interested in working with WSSA members in this area and recommended setting up meetings with Debbie Edwards, SRRD and Rick Keglin, BEAD. The first group of re-registrations only have a few herbicides among them, but this would give us time to fine-tune our work with EPA in this endeavor.

D. Weed Research Funding

The House passed their FY2007 Agriculture Appropriations Bill on May 24. The Senate has passed their version out of committee, but has not passed it on the floor. The House budget for weed research related programs was quite favorable compared to the Administration's budget proposal and given the extremely tight budgetary conditions. A detailed account of the weed research budget items can be found in the summer newsletter, but the highlights include an $8.8 million increase in the NRI program, 3% increases in the Hatch and McIntire-Stennis Formula fund programs, the first increase for them since FY1999, an increase in Smith Lever Act funds, and a $108,000 increase over FY2006 for the IR-4 program. Through our membership in Co-FARM and National-CFAR, we have submitted letters of support for agriculture research funding in both chambers on the Hill.

President Bush's budget proposed a new USDA program for invasive species that included $9.9 million for competitive grants to private groups for eradication and control of invasive species through the use of new and innovative methodologies. Unfortunately, neither the House or Senate Agriculture Appropriators included this line item in their budgets nor did they include the $15 million appropriation authorized in the 2004 Noxious Weed Control and Eradication Act.

The WSSA needs to constantly remind its members to communicate the advances in our science, especially from publicly funded research. Our federal agencies need to show that their grant and formula money is being used in a cost-effective, results orientated manner. USDA NRI Program Leader for Weeds, Michael Bowers, will submit another article for the newsletter in September that highlights upcoming agency priorities in weed science research. WSSA members need to start exploring more weed science funding opportunities within the Department of Interior. Growing public awareness of invasive plants will only create the need for more "non-traditional" weed research. Invasive weed impacts on wildlife habitat is a potentially large research need. All state Fish and Wildlife agencies now have to have a wildlife management plan and they have a lot of money to do this. How can weed science benefit them?

E. NIWAW

The WSSA Board wants to insure that they continue to manage and maintain control over NIWAW. We received another grant for $15,000 from the National Fish and Wildlife Foundation that I applied for last fall. This will help support Nelroy Jackson's work in organizing NIWAW. I want to personally thank Nelroy for his amazing efforts in managing NIWAW. This event keeps growing by 10-20% in attendance each year. The National and Regional Weed Science Societies need to continue to support and build upon this important effort for our discipline.

Nelroy has compiled a report for the WSSA Board detailing a breakdown of the finances for NIWAW 7. Through successful management, diligent fundraising and smart travel arrangements, we were able to end with a small surplus that will be carried over for use in NIWAW 8. Nelroy and I have already reported on the success of the attendance (175 registrants) as well as agency and congressional visits. NIWAW 7 participants visited about 125 Congressional offices during the week where they educated Congressional members and staff about the major issues facing invasive plant science and management on both the local and national front. Our success is due to efforts and contributions of many, many people in multiple areas. Unfortunately, our two national positions - funding of the Noxious Weed Control and Eradication Act of

2004 (PL108-412) and passage of National Aquatic Invasive Species Act have not been accomplished in Congress this year, so we must redouble our efforts and convince weed scientists across the country that their action and involvement is required for success.
Planning for NIWAW8 (February 25 to March 2, 2007) is well underway.

F. The Washington Liaison Committee (WLC) has agreed to change its name to the Science Policy Committee (SPC).

At the WSSA Board Meeting in February, several Board members expressed interest in having the WLC change their name due to the confusion with the Liaison Committee, E1, which has 20+ different subcommittees. Rich Bonanno coordinated the vote and SPC was the overwhelming choice.

II. Other DSP Activites

Salt Cedar and Russian Olive Control Demonstration Act, H.R. 2720.

I have met with several House and Senate staff regarding this bill. The House passed H.R. 2720 in May, but no action thus far in the Senate, although it has been reported out of committee. H.R. 2720 would authorize the appropriation of $20 million in FY2006 and $15 million for each of fiscal years 2007 through 2010. I can say that there was initial disagreement over which agency USDA or USDOI would administer the program. Those differences have been settled (USDOI will administer). If this bill doesn't get a vote on the Senate floor, we may see it as a line-item in an omnibus/ appropriations bill.

DSP invited to speak at SE-EPPC meeting in Raleigh, NC on May 23-25 on Invasive Weed Issues in the Eastern U.S. and NIWAW. Many thanks to Joe Neal for his help and hospitality during this event.

Organized "Economics of Invasive Weeds" Seminar on Capitol Hill and USDA

The WSSA along with the Council on Food, Agricultural and Resource Economics (C-FARE) co-hosted 2 one-hour briefings on Capitol Hill and USDA to highlight federally funded research for invasive weeds. The title of the seminar was "Researching Invasive Weeds: Tools for Policy Makers". Bruce Maxwell (WSSA) and Munisamy Gopinath (C-FARE) presented preliminary work from research funded by the USDA Economic Research Service (ERS) Program of Research on the Economics of Invasive Species Management (PREISM) program, and other federally funded competitive grants.

Organized an "Ecologically-based Battle Plan" for Invasive Weeds Seminar at EPA.

George Beck presented a seminar at EPA titled "Invasive Weeds: Thieves that Require an Ecologically-based Battle Plan." Nearly 30 EPA staff attended this hour long seminar that addressed a variety of rangeland weed management issues such as spray-drift buffers and endangered species. We need to discuss other possible topics.

Nominated 4 Members for ISAC

The WSSA nominated 4 members for the Invasive Specie Advisory Committee (ISAC). There was much interest among members. Nelroy Jackson and George Beck's 3 yr terms are up. The only other WSSA member on ISAC will be Jeff Schardt, APMS President. The 4 nominees are Jennifer Vollmer, Joe DiTomaso, Bruce Maxwell, and Tim Prather. Considerable effort was made to ensure that each nominee submitted a very thorough and extensive application package that included letters of application, CVs, and letters of recommendation from various local and state political leaders, Governors, and Congressmen. We should know the results of the nomination selection by October. The WSSA would be very fortunate to get all 4 nominees accepted.

Meeting with USDA Under Secretary Gale Buchanan, former SWSS President who was confirmed to replace Joe Jen as the USDA Under Secretary for Research, Education, and Economics (REE). The Under Secretary for REE has oversight over ARS, CSREES, the Economic Research Service (ERS), and the National Ag Statistics Service (NASS) among other programs. Rich Bonanno (who made the trip down from Boston just for this meeting) and I discussed two main issues with Gale: A federal job series for weed science and the future direction of formula funds (Hatch, McIntire-Stennis, Smith-Lever) for applied weed science research. Gale encouraged us to promote our discipline through all possible avenues. This includes listing our profession on our business cards and email signatures. Gale also suggested that we might want to change our name to reflect the changing nature of our discipline and I tend to agree with him. Finally, it would be wise for the National and Regional Weed Science Societies

to invite Gale to their annual meetings. The length of time for discussion/remarks from Gale would be up to the individual weed science societies, but I think Gale could provide some very insightful and worthy remarks.

Submitted comments to APHIS on PPQ Regulations. I worked with the Noxious and Invasive Weeds Committee to gather comments on how APHIS can improve their Plant Protection and Quarantine (PPQ) Regulations. Thanks to Jen Vollmer for her extensive remarks. Under the Plant Protection Act (PPA), states cannot enact more stringent regulations governing a pest or weed than the rules that APHIS has imposed. (When APHIS is silent, states may act.) The PPA provides that states may obtain an exemption from the Secretary of Agriculture if that state faces a particularly severe threat - but no state has yet been granted such an exemption.

Discussion about asking Lee to emphasize applied research funding by NRI. Joe D. said that many grants funded were applied. Research has to be mechanistic and with a very strong outreach, and is much more applied than 10 years ago. NRI will no longer restrict overhead and will go to NIH and NSF levels of 40+% indirect. Actual $$ for research will not go up and may go down.

SUSTAINING MEMBERS REPORT - Phil Banks
Office or Committee Name: Sustaining Membership
Officer or Chairperson Name: K. Neil Harker
Date of Preparation: July 20, 2006
Committee Activities during the Year: Jeff Tichota was added to the committee. The list of contacts for companies contacted in 2006 was forwarded to the committee chair K. Neil Harker from previous chair Lynn Fandrich. The committee will send letters to request sustaining member support in early September, 2006.

Current WSWS Sustaining Members are as follows:

2006 WSWS SUSTAINING MEMBERS
(via Wanda Graves as of 1/8/06)

Agriliance LLC	$400.00	09-26-05
AGSCO	$200.00	12-31-05
Arvesta	$400.00	12-31-05
BASF Corporation	$400.00	11-25-05
Bayer CropScience	$400.00	11-10-05
Bellspray Inc	$200.00	11-07-05
Dow AgroSciences	$400.00	12-31-05
Dupont Crop Protection	$400.00	10-11-05
Gowan Company	$400.00	10-11-05
Marathon-Agricultural & Environmental Consulting, Inc.	$200.00	09-26-05
Monsanto Company	$400.00	10-11-05
Syngenta Crop Protection, Inc.	$400.00	09-26-05
Wilbur-Ellis Company	$400.00	10-07-05

Kassim Al-Khatib suggested that the committee request the support of the following prospective sustaining member companies: Helena, Valent, and UAP. I will need to get names and E-Mail addresses (U.S.A.) for personnel associated with these companies. Helena and Valent do not operate in Canada.

Recommendations for Board Action: See below
Budget Needs: None

Suggestions for the Future:
Following are suggestions for Board consideration from Jeff Tichota re: Sustaining Members:
1. Only Sustaining Members can present in "Industry Update Session" (Valent recently presented)
2. Target specific companies that we want for new members and then find a "friend" of the WSWS in that company who will sponsor our petition for WSWS membership. It is all too easy for a field rep to pass along our membership notice and often it lands on the email of someone who is not a WSWS member and could care less about our organization.
3. Kassim could make case for adding Sustaining Members prior to start of Industry Update session to remind participants to work in their organization for a WSWS membership.
4. The $400 fee is not a large expense if we can get to the right person with a budget and who values our organization.
5. Our Industry continues to move to delivering weed and insect control in seed. As yet the WSWS as made no move to reach out and attract companies such as Pioneer -(DUPONT), DEKALB-(Monsanto) and Syngenta to present seed based information at our meeting. If we want to attract and maintain membership we need to offer value to our Sustaining Members.

Lynn suggested that we to try and include a partnership program or a "friends" program, perhaps at a reduced fee, to recognize collaborations with weed sci. at places like the Nature Conservatory.

There was also some discussion among the committee re making a better case for the $100 sustaining membership fee for States/Provinces, *i.e.* what do they get for their membership?

Suggested Changes in Operating Guide: None
Current Committee Members: Lynn Fandrich, K. Neil Harker, Jeff Tichota
Name of Person Preparing This Report: K. Neil Harker

Phil told the Board that the committee actively pursues members who used to be Sustaining members to ask them to be sustaining members again. Other seed companies could be approach to be separate from the chemical company component. Discussion ensued about limiting the What's New in Industry input to reps from sustaining member companies. Kassim asked for discussion on Partnership/"Friends" program. Phil says that maybe some of the state associations may go for this, such as the Arizona Veg. Mgt group. Vanelle asked about benefit for them and Jill says that she thought that language was already stated somewhere.

MOTION: *Vanelle moved we make "What's New in Industry" open only to sustaining member reps. Phil seconded and the motion* **passed unanimously.**

MEMBERSHIP DEVELOPMENT COMMITTEE REPORT - Joe DiTomaso
Office or Committee Name: Membership
Officer or Chairperson Name: Phil Stahlman
Date of Preparation: 14 July 2006
Committee Activities during the Year: None
Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members: Lisa Boggs, Vanelle Peterson, Jeff Koscelny, John Baker, Brenda Waters, Ralph Whitesides, Steve Fennimore, Randy Smith Dirk Baker, James Olivarez, Eric Coombs, Kai Umeda, Dudley Smith, Phil Banks, ad hoc
Name of Person Preparing This Report: Phil Stahlman

Joe D said he would contact Phil S to make sure the knotweed symposium people will help them figure out how to recruit the symposium attendees.

PUBLIC RELATIONS REPORT -JoeYenish
No items brought by committee and no budget is needed. There was discussion about Public Relation putting announcements about the knotweed symposium out but the organizing committee will take responsibility to advertise on website, etc.

AWARDS REPORT- Kassim Al-Khatib
Office or Committee Name: Awards
Officer or Chairperson Name: Don Morishita
Date of Preparation: July 11, 2006
Committee Activities during the Year: None up to this point, but we are planning to send an email to the membership via the WSWS listserv to encourage nomination of deserving members for the awards. We plan to do this in August, September, and October.
Recommendations for Board Action: None.
Budget Needs: None.
Suggestions for the Future: None at this time.
Suggested Changes in Operating Guide: None. Changes were made earlier this year for clarification.
Current Committee Members:
Ron Crockett, Roland Schirman, Don Morishita, chair
Name of Person Preparing This Report: Don Morishita

Kassim encouraged everyone to nominate for awards/work with Don. Kai made Clarification of awards available.

MOTION: *Phil moved we put the wording in the operating guide Ron seconded and the motion* **passed unanimously**.

Jeff said that Tony asked if there would be online awards submission. Kassim said we need to go to committee and ask if online would help get more nominations. Vanelle says link to chair so you can get form award details easily. Kassim will ask Tony to make it so.

LEGISLATIVE COMMITTEE REPORT - Vanelle Peterson
Office or Committee Name: Legislative Committee
Officer or Chairperson Name: Sandra McDonald
Date of Preparation: 7/10/2006
Committee Activities during the Year: Eric Lane has participated in a couple of conference calls with WSSA members and Lee Van Wychen. Most recently, Eric attended the national invasive species conference for the US Forest Service where the agency discussed creating a job series for invasive species staff running from GS-5 to GS-13. Given the timeliness of this discussion (coincided with ARS's announcement that it would not pursue a federal job series), Eric discussed it with Lee and recommended immediately following-up with USFS to see if they will work on it with WSSA assistance.

Eric has also been tracking federal legislation pertaining to tamarisk/Russian-olive and to National Park Service authority to work off NPS lands on invasive plants.

Recommendations for Board Action: None at this time but some phone calls from various WSWS and WSSA members may be necessary to advance legislation before the current legislative session ends.
Budget Needs: None at this time.
Suggestions for the Future: None at this time.

Suggested Changes in Operating Guide: None at this time.
Current Committee Members: Please add Greg Haubrich as a committee member.
Name of Person Preparing This Report: Eric Lane and Sandra McDonald

HERBICIDE RESISTANT PLANTS COMMITTEE REPORT - Jeff Koscelny
Office or Committee Name: Herbicide Resistant Plants Committee
Officer or Chairperson Name: Kirk Howatt
Date of Preparation: June 29, 2006
Committee Activities during the Year: No new activities to report.
Recommendations for Board Action: No request
Budget Needs: None
Suggestions for the Future: none given
Suggested Changes in Operating Guide: None
Current Committee Members:
Steve Seefeldt, Monte Anderson, Steve King, Craig Alford, Tom Beckett, and Kirk Howatt
Name of Person Preparing This Report: Kirk Howatt

FELLOW & HONORARY MEMBERS REPORT- Vanelle Peterson
We have 2 carryovers but she would like to have 3 total nominations in each sector so 1 more in each is needed. Kassim asked if we can change the deadline and consensus was that the committee can change the deadlines.

NOXIOUS WEED SHORT COURSE REPORT - Janet Clark
Janet told the Board members that 40 attendees, many form Nat'l Park Agencies, private conservation group e.g. Rocky Mt Elk, attended the last shortcourse,, and they liked it so much they want to send more to future sessions. The April 23-26 Chico Hot Springs session is already ½ full and notice has not even been sent out to waiting list. Celestine talks about WSWS at the sessions but there were questions from the Board about WSWS contact info be put into the short course book. Attendees are informed that the WSWS sponsors the short course. Phil said he would ask Celestine for a list of past attendees and he can send a notice out to those who are not currently members, for WSWS meetings and call for papers. They can pay through the web site but it might be business manager paying and not an actual attendee. Phil said a service contract was signed last year and it is a year to year contract and each party has to give 1 year notice to terminate

Office or Committee Name: Education committee (Noxious Weed Short Course)
Officer or Chairperson Name: Celestine Duncan
Date of Preparation (include year): 7/06
Committee Activities during the Year: The Noxious Weed Short Course sponsored by the WSWS was held at Chico Hot Springs Resort located in Pray, MT, April 24th through 27th, 2006, and is scheduled for April 23th through 26th, 2007. There were 42 people that attended in 2006 including employees of the USFS, BLM, National Park Service, Fish and Wildlife Service, Dept. of Transportation, private conservation groups, and County Weed Coordinators. The course continues to be highly recommended to weed managers within agencies.

Instructors include: Dr. Rod Lym, Dr. Steven Enloe, Dr. Steve Dewey, Dr. Jim Jacobs, and Celestine Duncan representing the Western Society of Weed Science. Gilbert Gale (USFS), Dr. Bret Olson (MSU), Gary Adams, USDA APHIS, Mary Mayer USDA, ARS, Melissa Brown, consultant, will also assist with the course.

Registration fees were increased from $450/person for the 2006 course to cover additional facility costs. Cost of the course will increase to $500 for 2007.

Recommendations for Board Action: continue course
Budget Needs: None- funded by registration. There will be an increase in registration fees for the 2007 course to cover cost of PayPal and increase in food/meeting room costs.

Suggestions for the Future: Continue the course
Suggested Changes in Operating Guide: none; continue to modify program based on student evaluations and needs.

Current Committee Members: Celestine Duncan with expert guidance/advice from Stephen Enloe, Rod Lym, and Steve Dewey!

Name of Person Preparing This Report: Celestine Duncan

POSTER REPORT - Ron Crockett
Office or Committee Name: Poster Committee
Officer or Chairperson Name: Linda Wilson
Date of Preparation: 17 July 2006
Committee Activities during the Year:
Period: March to July, 2006
Coordinated and managed poster setup and take down at the Reno meeting.

Coordinated WSWS easels and foam boards to return with Bob Parker to Prosser, WA, where he has agreed to store them and bring them to the Portland meeting in 2007.

Shipped WSSA easels back to Allen Press, in Lawrence, KS.

WSWS paid approximately $600 for shipment of WSSA easels and boards to and from 2006 Annual Meeting in Sparks (the cost should have been about $250 only for easels, we did not request boards). Rent for easels from WSSA was $150 ($5 each x 30 easels).

Appointed new poster committee member, David Belles.
Recommendations for Board Action: The number of posters presented is expected to average about 73. We recommended purchasing 30 easels (est. $46 ea.) or about $1400. We also need to replace 10 foam-core boards (est. $5 ea.)
Budget Needs: None at this time
Suggestions for the Future: None at this time.
Suggested Changes in Operating Guide: None at this time.
Current Committee Members:
Cheryl Fiore (2006
Linda Wilson, Chair (2007)
David Belles (2008)
Name of Person Preparing This Report: Linda Wilson

Board discussion*: 79 posters were presented last year. Bob Parker will bring poster boards, etc. to the Portland meeting. There was discussion about what to do in the future? There are 50 easels on hand and the hotel has 30 plus maybe more. we generally need about 73. A request was made to buy 30 easels at $46 each and replace 10 boards because they are in bad shape. Last year we paid $600 to borrow boards from WSSA and they sent poster boards we did not need, so that is why the shipment cost so much. Joe D. suggests buying instead of renting from WSSA because we will re-coop costs within a few years. Kai*

reminded us that if we buy more then that's more to transport voluntary. We had heard that boards would cost $75, so the discussion was that the $46 was a good price. We don't need them for this next meeting so Board consensus was not to buy the easels at this time. Kassim said he will recommend they buy poster board with no vote needed. Phil reminded us that we did discuss using slow inexpensive shipment to him for storing and then slow shipment to the next meeting site.

NECROLOGY REPORT - Pamela Hutchinson
Office or Committee Name: Necrology
Officer or Chairperson Name: Lisa Boggs
Date of Preparation: June 22, 2006
Committee Activities during the Year: Received obituary for Tom Muzik…printed in May WSWS newsletter.
Recommendations for Board Action: none given
Budget Needs: **Suggestions for the Future**: none given
Suggested Changes in Operating Guide: none given
Current Committee Members: Amber Vallotton (2007) Lisa Boggs (2008) Brad Hanson (2009)
Name of Person Preparing This Report: Lisa Boggs

OLD BUSINESS: none.

NEW BUSINESS:
Abstract submission software

Oasis discussion info from WSSA meeting/decisions was given. Jill and others saw an online demo and were told that over 100 societies use this software. It is supposed to be user friendly, and keeps your info archived for all weed societies so you don't have to repeat input even in a different year. An extensive keyword list can be developed. e.g. Weeds and Weed are recognized as the same. User perspective is that is transparent and easy to manage. A program manager would benefit for this software. You can key out all papers submitted in a session, and develop conflict searches, etc. which gives power for program developer. Can put in a skeleton program and fit all talks into a program print out. Another powerful feature beneficial to us – all authors have to send papers ahead of time – authors can upload online and the papers can be downloaded to a jump drive for the section chair. this process would avoid email size limits etc.. There are several different cost structures for 1, 3, or 5 year contracts and full technical support callscan be added to the contract so calls wouldn't go to the web master but to Oasis tech support. WSSA elected to contract for 2-3 years with the optional services including training and support. The cost for WSSA is $10,960/year which ends up being cost neutral compared to what we were paying Allen Press. The WSSA discussion was what would happen if 1000 abstracts were submitted, because the basic fee includes a per abstract cost. WSSA was told that if this happens, then the abstract fee would be reduced. A quote was given for all 6 member societies using the same arrangement as WSSA of $41987.61/yr. Download costs to all web manager would transfer to societies. Jill says this offer is being discussed and is not yet all clear. Jill told the Board that the system has a lot of features we don't currently have which would take a burden off of Tony. Jull advised that WSWS not to buy right away, but see how it works for WSSA first, then possibly buy next year. Carol added that the program chair would be helped by this program because the presentation submission would not go through until all fields are filled out correctly. Members can get on line and form their own personal meeting agenda for papers and posters and committee meetings to attend at the society meeting. WSSA will not print or make a CD this year because anyone can print any abstract from the web site. The Board discussed how WSWS might lose money with this feature because we wouldn't sell abstracts and procedures.

If all societies bought the services, it would cost $6k per society per year.

WSWS consensus was to wait until next year or if we find out sooner after WSSA negotiations are done that it is a great deal with no hidden costs, then maybe we can proceed to buy earlier.

Symposium ad hoc committee

Vanelle wants to add an ad hoc symposium committee to develop thinking about how to make symposia happen annually. There was discussion about how we should have a group of people to think at least 2 years in advance so planning by an ad hoc committee would ensure the symposia idea continues. The advance planning is especially needed since we will be putting the symposia meeting room into hotel contracts. A committee could work with the program chair as a subcommittee not chaired by the program chair. Phil suggested that we have the 3 current members always plus future location site local on the committee in order to help make the symposia topical for each locale.

Kassim said that he will form the ad hoc committee and the committee will come up with a plan according to the future meeting sites. Carol suggested that other topics besides invasive species be considered.

MOTION: *A motion to adjourn was made, seconded, and* **unanimously passed.**

Addendum to the 2006 Summer Meeting Minutes:
WSWS Board email business correspondence after the March 2006 annual meeting and before the 2006 summer Board meeting (not including attached reports and agendas).

March 28, 2006
Kassim Al-Khatib sent the list of WSWS officers (address, email and phone number) and committee members.

March 30, 2006
Kassim Al-Khatib sent a copy of the press release that Brian Olson and his committee developed about the March 14-16, 2006 59th annual WSWS meeting at the John Ascuaga's Nugget Hotel Reno, Nevada and thanked Brian and the committee for their efforts to release this on time. The release was dated March 31, 2006 and distributed to the media.

April 22, 2006
Kassim Al-Khatib sent an email with the following:
At the teleconference with the presidents of weed science regional societies and WSSA on April 17, several of the societies were interested in developing a wider cooperation and coordination between societies. There were two topics that were discussed:

1. Regional publications: Many of the regional societies are publishing and selling various books and CDs. How can we work together to help promote each other's publications and to minimize competition among us. Should we appoint a special committee made up of representatives of the publication committees of each of the societies to share information on publications that are being considered by each of the societies so we can plan for the future?

2. Meetings: One of the topics is to share with each other where each of our societies is planning to meet in the next 3-4 years, if possible, so that we don't meet in the same place. I think that this is something that can be handled easily by simple planning and cooperation. We do not overlap with other societies except WSSA, so for WSWS the coordination should be with WSSA but for WSSA they need to work with six regional societies.

The other issue that came about in the meeting is the possibility to have a joint meeting either between regional societies or between WSSA and the regional societies. Is this a good idea? If so, what would be the pros and cons of having joint meetings? If there is support for pursuing this topic further, then WSSA would propose appointing a special committee with representatives from each of the interested societies to look at the all the issues of joint meetings and to make a report to the regional societies and the WSSA. If there is little interest in pursuing this idea, then regional societies will drop this idea. This is a serious suggestion and I would like you to think about the interest of our membership, the financial consequence, and the special culture of WSWS.

Kassim said that he would like to have these two items on the agenda of our summer meeting but wanted to give you heads up for the Board to think about it.

April 22, 2006
Kassim Al-Khatib sent an email with the following:
The Society for Range Management is holding their 2009 meeting in Albuquerque, NM. The meeting is usually in mid- to late-February. I would like to know you opinion about if the timing and the location of their meeting two weeks before our meeting will affect us. Also I wonder if there would be an interest in looking at having a joined activity (or meeting!!!!) during that period. The annual meeting of the Society for Range Management usually presents more invasive plant information, and I think it might be an opportunity for some professional and societal collaboration.

In email replies, many Board members stated that changing the WSWS meeting dates to hold the meeting with SRM in Albuquerque is not advisable, especially since the SRM meeting often is scheduled for the same time or very close to the WSSA meeting which can make it difficult for weed scientists to decide to go to SRM or WSSA's. Having the WSWS meeting in conjunction with SRM would make the choice on meetings much harder for more weed scientists.

May 09, 2006
Kassim Al-Khatib sent an email about WSWS Sustaining Members in which he mentioned that WSWS has the support of several Sustaining Members. During 2005, there were 13 sustaining members including Agriliance, AGSCO, Arvesta, BASF, Bayer, Bell Spray (R&D Sprayers), Dow AgroSciences, DuPont, Gowan, Marathon Consulting, Monsanto, Syngenta, and Wilbur-Ellis. He said he would like to see an expansion in the list of our Sustaining Members and that there are several other companies that can be part of the list especially companies that benefit from our annual meeting. He gave an example of a company which gave a 20 minutes presentation in "What's New in Industry" while they are not a sustaining member. He asked if he could go to the Sustaining Membership committee with the suggestion to approach new companies or organizations to be sustaining members. He mentioned that the NCWSS successfully added 8 new members to their list last year. Kassim asked for the Board's input about if we need to put efforts in recruiting new sustaining members and who we should contact.

May 09, 2006
Joe DiTomaso suggested Target Specialty Products, Helena, and IAP. He said that he was not sure if they have members that attend WSWS, but they do attend the California meeting.

May 10, 2006
Vanelle suggested UAP and Helena. She said that any company giving a presentation at the industry update should be encouraged to be a sustaining member even at a lower rate if it is a smaller company, but some support to WSWS would be best.

June 12, 2006
Kassim Al-Khatib sent the following email:
The 3/13/06 WSWS Board meeting, 3/16/06 Breakfast Business meeting, and 3/16/06 Board meeting minutes were sent to the Board, reviewed, and approved via email by the Board then sent to Joan Campbell for publication on 6/26/06.

WSWS BOARD MEETING
March 12, 2007
Hilton Portland & Executive Tower Hotel
Portland Oregon
Broadway III

The meeting was called to order by Kassim Al-Khatib.

Present at the meeting: Kassim Al-Khatib, Dan Ball, Dirk Baker, Phil Banks, Janet Clark, Ron Crockett, Mike Edwards, Pamela Hutchinson, Nelroy Jackson, Angela Kazmierczak, Jeff Koscelny, Rod Lym, Carol Mallory-Smith, Vanelle Peterson, Phil Stahlman, Kai Umeda, Tony White, and Joe Yenish.

Phil Banks introduced Edward Morris from Marathon Ag who will be helping at the registration desk.

MOTION: *Carol moved and Janet seconded to approve the meeting agenda. Members asked to move the following items listed under Old Business to earlier in the meeting: 1) Discuss Business Manger proposal for managing society fund that is temporary deposited in money market account; 2) Discuss ways to expedite printing the WSWS annual meeting proceeding. A motion was made by Phil and seconded by Vanelle to move these items on the agenda. The agenda change and then the agenda approval was* **passed unanimously**.

APPROVAL OF MINUTES OF SUMMER BOARD MEETING – Pamela Hutchinson

Pam told the Board that the hard copy of the summer board meeting minutes given to them prior to this meeting had been amended with reports which had been previously omitted.

MOTION: *A motion was made and seconded to accept the summer board meeting minutes as amended and presented for this meeting, and the motion* **passed with unanimous approval**.

Kassim asked that Board business conducted via email since the summer meeting be added as an addendum to the summer meeting minutes for publication.

BUSINESS MANAGER'S REPORT – Phil Banks
Office or Committee Name: Business Manager
Officer or Chairperson Name: Phil Banks
Date of Preparation: 2/28/2007
Committee Activities during the Year: All bills have been paid and the current financial status of WSWS is attached. As of February 28, 2007 we have $324,170.89 in capital with an additional asset of

$191,682.00 in unsold Weeds of the West inventory. We posted a loss for the year due to reprinting 12,000 copies ($128,960.00) of Weeds of the West. Also attached is an estimated and actual budget for the 2006-2007 operating year and an estimated budget for 2007-2008. When Weeds of the West was reprinted we did not need to transfer funds from our RBC investments to cover this expense or other operating expenses. All Newsletters were printed and mailed on time. The ballot for the officer's election was printed and mailed on time. Sending the ballots in a separate mailing seemed to increase the returns substantially.

As agreed upon in our contract, I will provide an orientation session at the Portland meeting for new members to WSWS and an orientation session for newly elected Board members. The New Member Orientation will be Tuesday morning at 9:00 am and the New Officer Orientation will be on Wednesday morning at 9:00 am.

Additional duties handled by the Business Manager not currently included in the service contract were: 1. Served as Newsletter Editor for the January 2007 edition. If Pat Clay decides not to serve, a new Newsletter Editor needs to be found. 2. Provided editorial service to the President-Elect in putting the Portland meeting Program together.

Recommendations for Board Action:
Additional services that the Business Manager should handle include a formal working relationship with Site Selection and coordination of the abstracts before sending to the Proceedings Editor.

Budget Needs: The contract with Marathon-Agricultural & Environmental Consulting, Inc. to provide Business Management services will expire at the end of the 2008 meeting. The Board should decide how to proceed with either extending the contract or requesting new proposals. This should be done before or at the summer Board meeting.

Suggestions for the Future: Because of the increasing importance of the WSWS web site Editor to the economic future of WSWS, I suggest that the web site Editor be given a non-voting position on the Board similar to the Business Manager.
Suggested Changes in Operating Guide: None.
Name of Person Preparing This Report: Phil Banks

Western Society of Weed Science Financial Report
April 1, 2006 through February 28, 2007
Annual Meeting Report

CAPITAL

2005-2006 Balance Forward	$349,802.78
Current Income (2006-2007)	(25,622.89)
	$324,179.89

DISTRIBUTION OF CAPITAL

RBC Dain Rauscher Funds	$204,633.30
Money Market (Bank of the West)	65,070.68
Checking (Bank of the West)	54,475.91
	$324,179.89

Western Society of Weed Science: Budget for 2006-2007 (April 1, 2006-March 31)

	Estimate	Actual to date Feb. 28	Estimate 2007-08
Income (annual meeting)			
Registrations and dues	$52,000.00	$62,071.27*	$60,000.00
Proceedings	$4,500.00		
Research Progress Rep	$3,400.00		
	$59,900.00	**$62,071.27***	**$60,000.00**
Expenses			
Postage	$2,000.00	$2,156.86	$1,600.00
Website	$270.00	$270.00	$300.00
Accountant	$363.00	$363.00	$380.00
Insurance	$530.00	$530.00	$550.00
CAST dues	$600.00	$629.00	$629.00
WSSA Dir. Sci. Policy	$15,000.00	$15,000.00	$15,000.00
Allen Marketing site selection	$1,500.00	$0.00	$0.00
Printing (all)	$7,172.00	$4,861.19	$7,000.00
Student awards	$1,000.00	$0.00	$1,000.00
Travel	$2,750.00	$2,510.53	$3,000.00
Annual meeting	$15,000.00	$10,616.00	$15,000.00
Business manager	$19,500.00	$19,500.00	$19,500.00
	$65,685.00	**$56,442.80**	**$63,959.00**
	($5,785.00)	$5,628.80	($3,959.00)

* Includes RPR & Proceedings Income.
Budget does not include Weeds of the West, Noxious Weed Shortcourse, Bio Control of Invasive
Weeds book, or non-re-occurring items.

Board discussion: *Phil said it seems as if we spent a lot of money, however, we printed more Weeds of the West books. He took 2,000 books to Las Cruces to sell direct through his office for a $10/book profit instead of $2 profit when the sale goes through UWY. He has sold 110 books so far. The total cost to the buyer of $24 includes shipping and handling. Extension educators, etc. can get the books for $17 from UWY, a good discount. Other sales can be gotten from Master Gardeners and other sources.*

Phil told the Board that the number of ballots returned were 147 compared with 101 last year. He will be giving orientation sessions for new officers and new members.

Phil recommends that he should work more closely w/ the Site Selection committee e.g. finding out from board members cities of interest, getting RFP's to hotels, getting RFP's back and developing recommendations to the board once a site has been decided upon, negotiating the contract so there's a consistency for contracts from year to year since the committee changes somewhat over time. Phil said he also can help coordinate abstracts before they go to proceedings because he knows who has cancelled meeting registration, etc. more than anyone else on the Board.

Phil feels that the website manager is very important to the Society and the annual meeting and says that Tony is doing an excellent job. All the meeting registration and abstract activities are going though the website with 90% of money for meeting registrations going through PayPal via the website. Payment by check is still coming to Phil. He suggested that the Webmaster sit on the Board either as official or non-voting.

Phil told the Board that the budget is a "work in progress." He said they never actually had a budget to look at before prior meetings. Wanda did a great job in the past. Phil has started putting together a "meeting budget" not a total society budget i.e. no Weeds of the West, Noxious Weeds shortcourse, and the Bioinvasive Weeds book information is included. Phil says that WSWS is projected to lose slightly more than what we have for the first Qtr.

Phil feels that the estimated Expenses will not too far off from the actual. Annual meeting expenses will go up from his initial estimate because it doesn't include luncheon costs, etc.
So far, 346 people registered (+ 14 spouses), including all students and people going to the symposium only which = 51. There are 88 people going to both the meeting and the symposium including 9 students. Kassim asked if student travel t summer meeting was included in this budget and Phil said yes.

Kassim asked the Board if they thought the webmaster should be on Board. Vanelle said yes, but mentioned that we would have to change he constitution. Kai said we can take action today and put it out for vote to the members. Joe D asked if we would pay for the webmaster's travel and Phil said that since we pay travel for all editors, maybe we should for the webmaster, too. Kassim said we could discuss this topic further at the summer meting, but recommended that the Board should take action on this issue now. Vanelle reminded the Board that they have spoken about this as part of WSWS direction.

MOTION: *Vanelle moved that the webmaster be a non-voting member of Board, Janet seconded the motion and it was* **passed by a unanimous vote.**

PROGRAM COMMITTEE REPORT – Ron Crockett
Committee Name: Program Committee
Officer or Chairperson Name: Ron P. Crockett
Date of Preparation (include year): **Feb 17, 2007**
Committee Activities during the Year: A call for papers announcement was issued in the September newsletter with instructions for how to submit titles and abstracts on-line at the WSWS website. Deadline for title and summary submission was December 1, 2006 and deadline for submitting of the abstract and indexing information was February 1, 2007. Website Editor Tony White did an excellent job of setting-up the website and transmitted the titles to me in early December, 2006. Phil Banks was instrumental in getting the final program finished. I very much appreciated his support and willingness to edit, answer questions, and finish the program. The program was posted on the website in mid January, 2006. Programs were printed and distributed from the WSWS business office.

Two symposia proposals were submitted for consideration, and were placed in the program.

1. There was a proposal have a symposium on Invasive Knotweeds. The proposal was developed by Vanelle Petersen, John Brock , Celestine Duncan, and Tim Miller. The symposium will start on Thursday afternoon and continue on Friday morning..
2. "What a Weed Scientist Should Know about Application Technology, Now and in the Future". Bob Wolfe and Robert Klein

The final program contains 87 (changed to 99) volunteered papers, 60 volunteered posters, 3 invited presentations in the general session, and symposia on Japanese Knotweed, and Application Technology, plus the "What's New in Industry" session.

Project	Posters	Papers	Student poster contest	Student paper contest
1. Range & Forest	14	19	4	5
2. Horticultural Crops	6	11	-	2
3. Agronomic Crops	26	36	6	7
4. Teaching & Technology	2	2	-	-
5.Wetlands & Wildlands	6	8	2	-
6. Basic Sciences	6	5	3	-
7. Education & Regulatory	-	3	-	-
8. Knotweed Symposium	-	3	-	-
9. Application Technology Symposium	-	5	-	-

Discussion topics for each project are:
Project 1. Restoration for weed Control and Weed Control for Restoration
Project 2: The Development and Utilization of Bio-herbicides
Project 3: Challenges of Fallow weed Control now and in the future
Project 4: The Continuing Fervor over Transgenic Crops
Project 5: Status of Riparian Research
Project 6: Seed Germination modeling.

Recommendations for Board Action: None
Budget Needs: Maintain current support level for the General Session and Education & Regulatory speakers.
Current Committee Members: Joe DiTomaso-Research Section Chair
Joe Yenish -Education & Regulatory Chair
Name of Person Preparing This Report: Ron P. Crockett

Board discussion: *Ron mentioned we are having spray tech symposium, too: Bob Wolf and his spray table have been incorporated into the program. Kassim wants to know who is paying his costs. Bob shipped the spray table here and Ron says he didn't asked to be paid for those costs, so he assume Bob is bearing the shipping costs. Other Board members said that Bob has not mentioned costs to anyone recently.*

Kassim wanted to know if we have all the speakers for the general session. The representative from Forest Service is already here but the BLM person is not. Board members stated that the BLM has not been helpful in the past and give the impression that they have no "desire to participate." Phil made an addendum and is passing it around so we can make additions changes.

Thanks was given from Kassim to Ron (and Phil for extra work) for putting the program together, Kassim feels that Phil goes above and beyond the call of duty. Ron thanked Phil, too.

MOTION: *Vanelle made a motion and Kassim seconded to approve the meeting Program Report. The motion* **passed by a unanimous vote.**

RESEARCH SECTION REPORT – Joe DiTomaso

Board discussion: *Joe said that 24 of 90 talks have not been sent to him. He's burned all the ones he has received to CDs. Roger Gast had the most missing while some section chairs had only a few or none missing. Joe is meeting with the chairs today at 5:30 to walk around the meeting rooms to make sure all projectors, etc. are in place. Tim Miller brought extra and Joe brought a spare projector and a computer. Ron said 4 others are bringing extra projectors, so Joe said we'll have more than enough. Phil says that 2 people have cancelled there presentations and Joe was not aware of these cancellations. Joe says he didn't get the general meeting talks and said to send Knotweed symposium talks to Tim. Concern was expressed about passwords on meeting room computers.*

Office or Committee Name: Research Section Chair
Officer or Chairperson Name: Joe DiTomaso
Date of Preparation (include year): 13 February 2007
Committee Activities during the Year: Chairs and chairs-elect for 2006 research projects were contacted in July via email to verify contact information. The chairs and chair-elects were reminded of their responsibilities and asked to begin thinking about discussion section topics.

Chairs and chair-elects will be contacted in November to encourage development of discussion section topics. Additional contacts were made as needed to complete the research section program. The topics for each project are listed below.

Speakers who did not submit a PowerPoint file were contacted and requested to send a file to the chair. I then organized the files by section and provided them on a CD at the meeting to individual chairs.

Discussion Section Titles, 2007 meeting in Portland
Project 1 – Weeds of Range and Forest, Chair-Cynthia Brown, Title "Restoration for weed control and weed control for restoration"
Project 2 – Weeds of Horticultural Crops, Chair-Rich Affeldt, Title "Development and utilization of bioherbicides"
Project 3 – Weeds of Agronomic Crops, Chair-Roger Gast, Title "Challenges of fallow weed control now and in the future"
Project 4 – Teaching & Technology Transfer, Chair-Scott Steinmaus, Title "The continuing fervor over transgenic crops"
Project 5 – Wetlands & Wildland, Chair-Michael Edwards, Title "Status of riparian research"
Project 6 – Basic Sciences, Chair-Cheryl Wilen, Title "Seed germination modeling"

Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members:
Research Project Chairs and Chairs-Elect for the 2007 meeting in Portland

Project #	Title	Chair	Chair-Elect
1	Weeds of Range and Forest	Cynthia Brown Colorado State University Bioag Sciences & Pest Management Ft. Collins, CO 80523-1177 970.491.1949 csbrown@lamar.colostate.edu	Linda Wilson University of Idaho Ag. Sci. 312 Moscow, ID 83844 208-885-9489 lwilson@uidaho.edu

			May be replaced by Lars Baker
2	Weeds of Horticultural Crops	Rich Affeldt Oregon State University 107 Crop Science Bldg. Corvallis, OR 97331-3002 541.737.9108 rich.affeldt@oregonstate.edu	Tim Miller Washington State University 16650 State Route 536 Mt. Vernon, WA 98273 360.848.6138 twmiller@wsu.edu
3	Weeds of Agronomic Crops	Roger Gast Dow AgroSciences 9330 Zionsville Rd. Indianapolis, IN 46268 317.337.3004 regast@dow.com	Steve King Assistant Professor Montana State University Southern Agricultural Research Center 748 RR Hwy Huntley, MT 59037 Ph: 406.348.3400 Email: sking@montana.edu
4	Teaching & Technology Transfer	Scott Steinmaus Biological Sciences Department California Polytechnic State University San Luis Obispo, CA 93407 805.756.5142 ssteinma@calpoly.edu	Dr. J.A. "Anita" Dille Department of Agronomy – Weed Ecology 3701 Throckmorton Plant Sciences Center Kansas State University Manhattan, Kansas 66506-5501 785.532.7240 dieleman@ksu.edu
5	Wetlands & Wildlands	Michael Edwards DuPont Agricultural Products 14611 Pecos Street Broomfield, CO 80020 303.280.3830 michael.t.edwards@usa.dupont.com	Scott Steinmaus Biological Sciences Department California Polytechnic State University San Luis Obispo, CA 93407 805.756.5142 ssteinma@calpoly.edu
6	Basic Sciences	Cheryl Wilen University of California Coop. Extension UC Statewide IPM Program 5555 Overland Ave., Suite 4101 San Diego, CA 92123 858.694.2846 cawilen@ucdavis.edu	Lynn Fandrich Weed Research Lab Colorado State University Ft. Collins, CO 80523 970.491.5667 fandricl@lamar.colostate.edu

Name of Person Preparing This Report: Joe DiTomaso

MOTION: *Vanelle made a motion to accept the Research Section Report, Jeff seconded, and it* **passed unanimously.**

EDUCATION & REGULATORY SECTION REPORT – Joseph Yenish
Office or Committee Name: Education and Regulatory
Officer or Chairperson Name: Joseph Yenish
Date of Preparation:
Committee Activities during the Year: The committee corresponded electronically by email and telephone. The final topic of analyzing and publishing non replicated research studies was chosen as the central theme of the Education and Regulatory Section for the annual meeting. Invited speakers include William Price of the University of Idaho, Department of Statistics; Richard Aldredge of Washington State University, Department of Statistics; and Stephen Machado of Oregon State University, Department of Statistics, Department of Crop and Soil Sciences. The speakers represent two statisticians, Drs. Price and Aldredge, with experience in analysis of weed science research along with Dr. Machado, an agronomist with experiences and success in publishing non replicated field research. Specific titles include: Experiences in Conducting, Analyzing, and Publishing Nonreplicated Research. Stephan Machado
New and Used Approaches to A Meta-Analysis of on farm trials having limited or no replication. William Price. The session is expected to last 2 hours including discussion and suggestions of topics for the Education and Regulatory Section at the 2008 WSWS meeting.
Recommendations for Board Action: None
Budget Needs: $ 1,000 (standing budget, no additional funds requested). Funds will be used for partial travel expenses for invited speakers.
Suggestions for the Future: There are no suggestions for the future considerations at this time.
Suggested Changes in Operating Guide: None
Current Committee Members: Joseph Yenish, Michael Edwards, Timothy Miller
Name of Person Preparing This Report: Joseph Yenish

Statistician Dr. Price requested that his registration fee be waived and Pill approved. Rich Aldredge could not attend this meeting. Joe tried to get hold of others but was not successful. Joe told Bill Price and Steve Machado they could expand their time. Carol suggested making an announcement at the Thursday morning breakfast meeting about the change to make sure people know if Bill is moved up in the schedule in Rich's time slot.

IMMEDIATE PAST-PRESIDENT'S REPORT – Phil Banks

Office or Committee Name: Immediate Past President
Officer or Chairperson Name: Phil Banks
Date of Preparation (include year): February 23, 2007
Committee Activities during the Year: I will be hosting the annual Retiree and Members Reception at the annual meeting. Currently, only one member has expressed an interest in being recognized, Dudley Smith. The reception will take place at 6:00 to 8:00 pm in the Galleria North & South. Monsanto is sponsoring the event. I worked with the Sustaining Members committee chair, Neil Harker, in maintaining and recruiting new Sustaining Members. For 2007 we have 16 members compared to 13 for 2006. I also interacted with the Honorary Member and Fellows committee during their process.
Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Name of Person Preparing This Report: Phil Banks, Immediate Past President

Kassim wanted to know how to find out who is retiring. Phil suggested putting a notice in the newsletter and also sending out a memo in the fall.

MEMBER-AT-LARGE, PUBLIC SECTOR – Janet Clark

Office or Committee Name: At-Large
Officer or Chairperson Name: Janet Clark
Date of Preparation (include year): Feb. 13, 2007
Committee Activities during the Year:
Coordinated discussion by the Symposium Ad Hoc Committee regarding a special symposium for the 2008 WSWS meeting in Anaheim. Tom Dudley (UC-Santa Barbara) offered to co-chair the event if WSWS was interested in focusing on *arundo* and *phragmites*. The committee concurred that that was a great idea and it was presented to the Board in December (?) for a go-ahead vote. The Board so voted, and Tom Dudley and Adam Lambert prepared a more complete proposal, which is attached.

Recommendations for Board Action: Accept the Dudley/Lambert proposal for an *arundo/phragmites* symposium in 2008 and turn it over to the Symposium Ad Hoc Committee to figure out the details. Financial requests (if any) will be made to the Board at the Summer 2007 Board meeting.
Budget Needs: None.
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members:
Symposium Ad Hoc Committee, April Fletcher, Matt Rinella, Joe DiTomaso, Rita Beard, Celestine Duncan, Lincoln Smith, Tim Miller, Janet Clark (chair)
Name of Person Preparing This Report: Janet Clark

Board discussion: *There was a Board consensus that symposium abstracts be part of the Proceedings. Janet says word went out well in advance for getting the symposium abstracts. Kassim wanted to know if some type of evaluation on the symposium would me made. Janet said no but that it was a good idea, so she will have something ready by Thursday.*

The symposium agenda will be available Thursday morning at the registration desk.
Janet asked if a report could be made at the Thursday business meeting about the symposium. Phil said that extra help might be needed at the registration desk Thursday morning. Carol and Dirk said they could get grad students to help.

Discussion about the 2008 symposium was postponed until this afternoon.
Kassim thanked Janet and Tim for their great work on the quality 2007 symposium program after which Janet said that Tim really did much of the work.

MEMBER-AT-LARGE, PRIVATE SECTOR - Jeff Koscelny
Office or Committee Name: Member-At-Large – Private Sector
Officer or Chairperson Name: Jeffrey Koscelny
Date of Preparation (include year): March 4, 2007
Committee Activities during the Year:

- Received committee report from Herbicide Resistant Plants committee. Kirk Howatt will not be in attendance and asked report be given on the committee's behalf.
- members on Agronomic topics outside the normal weed science arena including a symposium on plant breeding and/or seed treatments. Symposium was not accepted for the Portland meeting but will be proposed again for acceptance for the 2008 Anaheim WSWS meeting.
- Voted on various board issues throughout the year.

Recommendations for Board Action: None
Budget Needs: None
Suggestions for the Future: None

Suggested Changes in Operating Guide: None
Name of Person Preparing This Report: Jeffrey Koscelny

Board discussion: *Jeff suggested rolling seed-business types of talks into Education and Regulatory. Phil S. said that this subject has been discussed in the past: are we only a weed science society or are we broader than a weed science society. No decision has ever been made. Phil B. mentioned past symposia about seed was incredibly well attended (Vancouver meeting). Afterwards, some said it was worthwhile and some said not. There's a great need for this information, said Kassim, because weed scientists do more than weed science. Carol said WSWS should advertise to recruit students out of agronomy departments and show them that weed scientists do other things that nozzle spraying. Phil S. said that we need to evolve with the times because "Old Chemistry" based business is rapidly going away. This is a way for us to broaden our horizons. Carol was concerned about the Society going so far into invasives that members will be marginalized, too, so this direction is good. Kassim suggested we package the topics into a good symposium. Monsanto and DuPont should coordinate that symposium. Kai thought this would be a good way of strengthening sections, too, and Phil B. said, particularly Basic Sciences.*

WSSA REPRESENTATIVE REPORT – Vanelle Peterson

Board discussion: *Kassim thanked Vanelle for her outstanding work w/ WSSA. The registration numbers were down for WSSA's this year, significantly. She asked university people to recommend that their students attend. WSSA is trying to increase grad student participation with reduced fees, etc. Joe D. says that he can't send students who work with invasives to both WSWS and WSSA meetings. Vanelle was concerned that the WSSA registration cost for the 2009 joint meeting w/ Southern's might be increased from normal, but she thought the hotel will probably make meeting room free bonuses so registration cost will probably not be increased. WSSA is providing monetary support for a weed scientist to work as a liaison to EPA.*

Office: Weed Science of America (WSSA) representative
Officer Name: Vanelle Peterson
Date of Preparation: March 5, 2007
Special dates:

1- WSSA meeting February 4-7, 2008 in Chicago, Hilton Hotel
2- International Weed Science Society meeting June 23-27, 2008 in Vancouver, BC

Activities during the Year:

1- Represented WSWS with the WSWS board at annual meetings in February 2006 and 07
2- Co-chair WSSA ad-hoc committee on new journal, I will continue with this committee under the direction of the Publications Board/Committee

Recommendations for Board Action or considerations:

1- WSSA revenues are in good standing (before the stock market correction last week) although membership is decreasing and registrations were down significantly for graduate students. There were 327 papers (149 posters), 4 symposia, a highlighted visit by Dr, Gail Buchanan (Undersecretary of Agriculture), round table discussions and new discussion sessions. Attendance was 490 with 68 graduate students.
2- Discuss WSWS input into joint WSSA and SWSS meeting to be held in 2009 in Orlando, committee formed to discuss arrangements regional reps are members of this committee (myself and Anita Dille are on it). The discussion at WSSA board was that there would be one (higher) registration fee which would mean that all registrants could attend either SWSS or WSSA talks. Is this an impetus for or deterrent to WSWS members to attend this joint meeting? What is the value to WSWS if WSSA had joint meetings with each regional society? Would WSWS be willing to change dates to accommodate this effort?

3- There was also discussion about having a joint meeting with the society of Range Management (SRM) in Denver in 2010. President, Jill Schroeder, will have a conference call with SRM to discuss further considerations.

Vanelle had concerns about if our meeting is in Denver the same year, so she wants the Board to consider this when voting on future meeting locations.

4- Strategic plans for WSSA include excellent projects that will benefit WSWS members: (a) creating a new journal (working title, Invasive Plant Science and Management) for which Janet Clark has been hired as Project Manager, (b) WSSA support for a Weed Scientist to work as a liaison at EPA, and (c) hiring a public awareness contractor to produce more popular press articles on the importance of weed science.

Vanelle says this is one of the most important things on which the WSSA Board is working. Their Board says they would be willing to hire a project manager to get this going. Janet Clark has been hired, so this will be moving forward quickly.

5- WSSA board voted to sell 500 copies of Invasive Weeds economics book (at $12.00 which is cost, plus shipping) for WSWS to sell on our web site.

Board discussion: *Phil B. said that they won't sell all 500 copies at once. Vanelle said that we can put whatever price on it we want. WSSA sells the book for $20. A Google search for the book doesn't come up with the WSSA site, said Phil. No one is marketing this at WSSA. Phil said that all books on our website will be on displayed at this meeting. Joe D. suggested that we consider selling the new edition of the Herbicide Handbook. Phil said that it hasn't been published, yet. The Board members thought that the new WSSA website was better than the old, but this book is buried and hard to find. Kassim would like the Herbicide Handbook sold on our website and praised our WSWS website for ease of finding books, etc.*

6- NIWAW was very successful and was a credit to chair, Nelroy Jackson (and WSWS member), and Lee Van Wychen.
7- WSSA web site under went a needed updated and is much improved.
8- XID agreement with WSSA needs photos, see Alex Ogg for list of weed photos needed
9- WSSA symposium funding is changing from $3,000 to $5,000 however outside finding of symposia is encouraged

Budget Needs: None
Suggestions for the Future: Recommend that WSWS fully support WSSA's strategic planning, especially regarding the creation of a new journal and the position of a "visiting" Weed Scientist at EPA.
Suggested Changes in Operating Guide: None
Name of Person Preparing This Report: Vanelle Peterson

Board discussion: *Vanelle is incurring travel costs to the WSSA Board meetings through her company, Dow, so she said she doesn't need reimbursement from WSWS. Janet said that several people from WSWS are organizing several WSSA sessions, so our Society has lots of influence. Kassim mentioned that the joint meeting with SRM has support from WSSA. Kassim told the Board that we need to be convinced that it will be of good for our Society and that the Board should think very seriously about this issue before discussion this afternoon. WSSA has asked to have joint meetings, so we have to determine if we are we going to enrich our program or are our "cultures" to different.*

CAST REPRESENTATIVE REPORT – Rod Lym (Kassim Al-Khatib)
Office or Committee Name: CAST Representative

Officer or Chairperson Name: Rod Lym
Date of Preparation: March 2007
Committee Activities during the Year: The CAST Board of Directors met for the fall board meeting in St. Louis, MO on 4 to 6 October 2006. This was my last CAST meeting as your representative and seemed to be the most progressive and encouraging meeting I have attended. Under the direction of the new Executive Vice President John Bonner, CAST has made major improvements in both recognition and financial stability.

For example, CAST is doing a much better job of getting information out to the public in general and to policy makers in particular in a timely manner. For example, in Nov. 2006 CAST released a CAST Commentary entitled *Convergence of Agriculture and Energy: Implications for Research and Policy*. This publication covers several critical questions involving the current ethanol rage, including: How much corn-ethanol needs to be produced? Can enough corn be produced for food, feed, and fuel? Can all co-products be used? What are the environmental impacts of grain-ethanol systems? What are the economic impacts on rural development? and What are the research and policy implications of an expanded grain-ethanol industry? The full text (CAST Commentary QTA 2006-3) is available online without charge at the CAST website (www.cast-science.org) which was recently redesigned and is now much more user friendly.

CAST published four Issue Papers, two CAST Commentaries, and an issue of NewsCast in 2006. Two publications likely to impact members of WSWS are *Acrylamide in Food*, and *Safety of Meat, Milk, and Eggs from Animals Fed Crops Derived form Modern Biotechnology*. The Spring 2006 NewsCAST was the final newsletter to be distributed in hard copy format to members. The latest information from CAST to its members is now distributed weekly via e-mail as CAST Friday Notes. Up to date happenings in Washington DC are included each week as well as links to various CAST events and publications.

These publications and informative updates are good examples of how CAST works to deliver science to the law makers in Washington DC and also keep CAST members informed about the issues affecting agricultural policies. Please consider becoming an individual member of CAST and help support the inclusion of science in agricultural related policies.

WSWS will be well represented in the future at CAST. Dr. Kassim Al-Khatib was elected to President-Elect by the CAST Board of Directors this summer and Dr. Phil Stahlman has now taken over the duties as WSWS representative on the board. I have enjoyed my two terms as your representative and appreciate the opportunity to represent the WSWS.

Recommendations for Board Action: Continue to support CAST and encourage individual members to join CAST.
Budget Needs: Support travel funds for the CAST representative to attend the Spring and Fall board meetings.
Name of Person Preparing This Report: Rod Lym

Board discussion: *Kassim felt that CAST has improved. Their financial status is more stable; more publications are being developed focusing on biofuel energy - how invasive species can fit with biofuel use; Joe D's white paper was issued. CAST has "political clout" to push his type of publication through the system. There's new publications coming about post-commercialization and gene flow of biotech product. CAST struggled on this topic so they split it into two papers. Kassim asked for WSWS ideas about papers/commentaries so CAST can serve the Societies better. CAST appealed to Joe D. to put together his white paper. Joe D says it is hard to find information on biofuel relating to invasives. Janet suggested that the arrendo symposium would be a way to get a white paper. Kassim said we should come up with a position paper ahead of time to issue at the arrendo symposium so we would be able to release*

two papers. There are many questions about whether or not weeds can be used for biofuels and if we go with weedy species, will they become a problem. Kassim urged a proposal soon.

CONSTITUTION AND BY-LAWS REPRESENTATIVE REPORT – Kai Umeda
Office or Committee Name: Constitution and Operating Procedures Representative
Officer or Chairperson Name: Kai Umeda
Date of Preparation (include year): February 2007
Committee Activities during the Year:

Operating guide activities were:

- finalize President duties to conduct WSWS business via email;
- revised timelines for Program Chair and Research Section Chair;
- CAST representative reports to membership via newsletter;
- Finance committee recommended operating funds reserve;
- Nominations committee clarified elections process;
- Fellows and Honorary Members committee changed submission dates;
- Awards committee clarified award titles;
- Poster committee revised procedures.

Student Enhancement and Placement committee removed from WSWS constitution and by-laws and ops guide on web.

Student Liaisons position description developed for board action.

Recommendations for Board Action: Student liaison position discussion and vote for inclusion in constitution and by-laws and ops guide

Budget Needs: NONE
Suggestions for the Future: NONE
Suggested Changes in Operating Guide: NONE
Name of Person Preparing This Report: Kai Umeda

Board discussion: *Kai told the Board that he had updated the WSWS website about two committees and he is communicating with various chairs about updating the other committees. Kai placed mention on the website that Board members would be communicating and voting by email between the meetings.*

Kai felt that the biggest topic that we didn't get through to the society was about the student liaison to WSSA, but that he has been working with Dirk and Angela about including them on the Board as non voting members. Kai told the Board that we need to approve the language at this meeting so we can take it before the general members next year.

Phil B. asked if we could include a constitution vote on the Board member voting ballot and some said yes - some said no. Kassim asked if we needed a 30 day notice before a vote. Kai couldn't find information on that rule. Other Board members said they thought it was in the rules. Phil said that the constitution states we can vote on changes at any regular meeting, therefore this wording may rule out doing it via the mail and the vote would have to be next spring. Kassim said that we need to change that rule so we have more flexibility and so we don't have to wait for an entire year until a vote can be taken. If there is no 30 day notice rule, then we can vote on it at this next Thursday's business meeting.

Vanelle said that if there was no 30 day notice rule, then we should vote on being able to vote and discuss any topic via email. Dirk says that we have already established the student group within the WSWS

Society, so this vote just formalizes. Kai said we need to let the membership know in advance, however. Dirk told the Board that he mentioned it last year at the Business breakfast meeting. Vanelle thought we should put the information on the tables at the breakfast meeting and Dirk said that the wording went out to the students already. Kai felt we should proceed as we have done in the past and let the Society members vote next yr, however, the Board could vote this afternoon.

Proposed changes and additions to WSWS Constitution and By-laws to add student liaisons:
Constitution
Article IV – Officers and Board of Directors

Section 2. The Board of Directors shall be composed of:

Non-voting Board members:

(14) Student President (new)
(15) Student Vice-President (new)

Section 11. (new)
The Student Liaisons, a Student President and a Student Vice-President, shall be elected at a students' meeting during the Annual meeting and begin to serve a one-year term at the close of the business meeting when they become Student Liaisons. The Student Liaisons must be a graduate or undergraduate student for the full duration of the term.

By-laws
Article X – Duties of Student Liaisons (new)

The Student President and Vice-President shall represent the student members of WSWS to the Board of Directors and to the WSSA Graduate Student Organization. The Student Liaisons shall promote graduate and undergraduate student activity and participation in the Society. The Student Liaisons shall perform duties delegated by the President and the Board of Directors.

Proposed Addition to the Operating Guide
Student Liaisons
The Student Liaisons, a Student President and a Student Vice-President, are elected by the student members of WSWS at a students' business meeting conducted at one of the student breakfasts during the Annual meeting. The Student Liaisons must be graduate or undergraduate students for the full one-year term of office. A Student President or Vice-President may be re-elected only once for a second term of office.
(1) The Student President shall represent students of WSWS to the Board of Directors at the Annual and Summer meetings;
(2) The Student Vice-president shall represent students of WSWS to the Board of Directors at the Annual meeting and shall assume the duties of Student President if the Student President cannot serve;
(3) The Student President and Student Vice-President shall represent WSWS students to WSSA Graduate Student Organization at the WSSA annual meeting;
(4) The Student President shall organize and preside over the students' business meeting (traditionally a Wednesday morning student breakfast). The Student Vice-President shall assist in organizing the meeting;
(5) The Student Liaisons shall assist in coordinating the Student Night Out activities at the annual meeting;
(6) The Student Liaisons shall support the Program, Local Arrangements, and Poster Committees by encouraging and recruiting student members to assist moderators during paper and discussion sessions,

poster room setup and take-down, and other functions related to the Annual meeting logistics and operations.

LOCAL ARRANGEMENT COMMITTEE REPORT – Carol Mallory-Smith
Board discussion: *Kassim thanked Carol for her work on the local arrangement. Carol said "so far so good" and that the hotel has been easy to work with, so unless someone has a complaint about rooms, everything is fine. Carol pointed out the request from her report to have a POST meeting discussion with Phil B. to streamline the local arrangements process so that only one person is working with the hotel. Phil B. agreed that things have gone well.*

Vanelle had questions about switching the Range and Forest session room closer to Wetlands and Wildlands. Phil told her that the room number was limited but that Wetlands and Wildlands may be switched with the Horticulture session in order to make the two sections meet in closer rooms This year, the talks are not at the same time so room proximity should not be an issue. Joe D. thought it would be okay to move Horticulture to Broadway I, a small room. then Wetlands and Wildlands could go to Galleria, a bigger room. Phil B. said that a room change announcement would be made.

Carol told the Board that he Local Arrangements Committee has a room in the Plaza Suites if anything was needed and that committee meetings could be held there. there also was a practice room available for meetings. Phil S. requested for a room for a committee meeting

Office or Committee Name: Local Arrangements
Officer or Chairperson Name: Co-Chairs Carol Mallory-Smith and Tim Miller
Date of Preparation (include year): February 16, 2007
Committee Activities during the Year: We organized the summer board meeting rooms and meals at the hotel. We met with the hotel staff during the summer board meeting and toured the meeting space. We have contacted session chairs to ensure that computers and projectors are available and have arranged for backup audio visual. We are working with the hotel to finalize menus and room arrangements for the sessions. Newsletter articles were submitted for publication. We have arranged for help at the registration desk.

Bob Parker will be delivering the poster boards and easels early Monday March 12. Don Morishita is taking the lead on putting together a tour of the Wheat Marketing Center in Portland.

Recommendations for Board Action: Post-meeting request that Phil Banks and Committee Co-Chairs assess who should be responsible for what assignments. Phil has taken on more responsibilities and it might be possible to change some of the operating guide based on the discussion.

Budget Needs: None
Suggestions for the Future: See above. Put the officers' email on the website.
Suggested Changes in Operating Guide: none given.
Current Committee Members: Andrew Hulting, Nelroy Jackson, Tom Lanini, Robert Parker
Name of Person Preparing This Report: Carol Mallory-Smith

FINANCE COMMITTEE REPORT – Jesse Richardson (Janet Clark)
Office or Committee Name: Finance Committee
Officer or Chairperson Name: Jesse Richardson
Date of Preparation: March 3, 2007
Committee Activities during the Year: The Finance Committee received updates on accounts and finances from Phil Banks, WSWS Business Manager and Stanley Cooper, financial advisor RBC Dain Rauscher.

As of February 28, 2007, the account balances with RBC Dain Rauscher totaled $204,633.30, compared to $175,150 on February 28, 2006. Our 2006 annual gain was 14.41%, compared to 6.88% in 2005. Our earnings were within the ballpark of the Dow (up 19.04%), S&P 500 (up 15.82%), and NASDAQ (up 9.50%). As of February 22, 2006, our asset allocation* is approximately 25% bonds, 71% stocks, and 4% cash. To be compliant with the Investment Policy Guidelines, Stanley feels we should move approximately 10% into bonds. The finance committee is in agreement with Stanley's recommendation. The committee also recommends that we roll the 4% cash into stocks.
As of February 28, 2007 the Bank of the West money market account totaled $65,070.68, compared to $130,832 on February 28, 2006. The Bank of the West checking account totaled $54,475.91, compared to $43,436 on February 28, 2006. The committee will audit the treasurer's records at the Portland meeting.

From April 1, 2006 to February 28, 2007, income for the society was $66,207.31, while expenses were $61,270.47. This does not include Weeds of the West accounting. Expenses for Weeds of the West were $129,122.82, while income was 79,916.89.
The committee will meet in Portland, OR.
Current Committee Members: Jesse Richardson (chair), Phil Munger, Dallas Peterson
Name of Person Preparing This Report: Jesse Richardson
*WSWS investment policy guidelines are 65% equity and 35% fixed income allocation.

Board discussion: *Janet mentioned that the Weeds of the West money market account earns only 0.25% and Phil told the Board that the account goes up high and then down low. Phil recommends putting the money into 6-month type CDs and schedule maturity so money would be available for printing. The money should be "laddered" in a way so something would be maturing ever three months. That way we'd enough money to cover ½ the costs up front and then the other ½ is paid at delivery. Phil said that since he has a 6 week leeway for the payment, he can schedule the CD maturity appropriately. Kassim asked that since we sell about 500 books per month, when do we get the checks form UWY and Phil replied that it is quite variable. Phil felt we should maintain $2500 in the money market account. We have $65K there now, so he suggested $30K be put into CDs. He told the Board that only a small penalty was levied if we have to pull money out of a CD early.*

MOTION: *The Finance committee recommended that Janet make a motion that the Business Manager be in charge of converting the money market account into CDs at his discretion. Janet made the motion, Vanelle seconded it, and it* **passed by a unanimous vote**.

Board discussion: *The Board was reminded it would have to approve the money market investment ratio. Funds in the Dain Rauscher investment portfolio are growing. Until we raised registration last year, we had to use Weeds of the West money - approximately $4-10K per year. Now we are at break-even for the annual meeting costs. Phil recommends that the Board think about what to do with $104K now which will be $300K in the near future. Phil suggests that we utilize this money somehow. Kassim said that Society members are thinking about new products e.g. Weeds of the West project to bring exposure to Society revenue.*

Kai asked how much we have in excess of the operating reserve. Phil told the Board that WSWS has been conservative in the past by wanting a $75K buffer per year. He said that we are actually $60K above the reserve in the DR account not counting the money in checking of approximately $50K. Phil said that after this meeting, we will still have approximately $40K. Kassim felt that it isn't bad to have extra money in the account, but he doesn't want to go back to old ways of using money from Weeds of the West. That book is "aging," so we need a new product to support the WSWS.

Vanelle felt that maybe we should think about creating an endowment such as WSSA has – one with which we could support students. Kassim said that it was a good idea, but endowments take a big chunk of money up front. He said that we definitely need to support students – we already have reduced student registration fees quite a lot. Vanelle mentioned that there's always a risk we could lose money on our symposia, so a buffer is okay. Kassim wants to break even, not keep the old practice of spending more than what we bring in to the Society.

Janet asked if there was a time to discuss and think-tank about ideas for using the money. Board members asked "What forum…as the Board…or could the Board entertain proposals from the general members? Kassim thought that we don't have a formal meeting. Phil said that it could be done as a strategic plan meeting. Kassim said that Weeds of the West had been an outstanding idea. He felt we should try to ignite this kind of thinking again. Kassim said that he was going to mention this topic in his general session address.

Joe D. mentioned that a non-crop weed manual of the west should be created and that the states do a good job with crops e.g. the PNW handbooks. Joe Y. said that the PNW doesn't make money, though. Kassim wanted something that would attract non weed scientists to our discipline. e.g. poisonous weeds. We would gain a wide audience, not just a few weed scientists. We are saturating our market now. Pam mentioned the Intriguing Weeds series by Larry Mitich. Dirk mentioned vet books available on poisonous weeds. Janet thought that we could replicate the short course etc. In general, the Board thought that there are many books geared with potential of being the "Next Weeds of the West."

NOMINATIONS COMMITTEE REPORT – Bob Parker (Phil Banks)
Office or Committee Name: Nominations Committee
Officer or Chairperson Name: Bob Parker
Date of Preparation (include year): February 15, 2007
Committee Activities during the Year:
Nominees

President Elect :
Dan Ball – Oregon State University
Drew Lyon – University of Nebraska

Chair Elect-Research Section:
Kirk Howatt – North Dakota Sate University
Steve Seefeldt – USDA/ARS (Alaska)

Chair Elect-Education and Regulatory
Bill Cobb - Cobb Consulting (Washington)
Phil Munger – BASF (California)

No Secretary nominees selected this year because it is now a two year appointment
A total of 147 ballots were returned and the winners of the election were:

President Elect :
Dan Ball

Chair Elect-Research Section:
Kirk Howatt

Chair Elect-Education and Regulatory
Bill Cobb

Vint Hicks will be chair of the committee for next year and Jeff Koscelny will be moving off the committee and will Phil Banks as Past-President. Kassim Al-Khatib will be replacing Phil as Past-President.

Current Committee Members:
Bob Parker, Vint Hicks, Jeff Koscelny, Phil Banks (Past-President)

Name of Person Preparing This Report: Bob Parker

Board discussion: *Phil told the Board that Bob did a good job of putting together a list of candidates. Phil asked Ron if he has thought of someone to rotate onto the committee. Phil told the Board again that 147 ballots were returned this year compared with 101 returned last year.*

Kassim said that we needed to have a discussion later today about how we are going to pay travel costs for Board members who are self employed and also others who might need funds.

Dan Ball told the Board that he is aware of the need to replace Janet rotating off the Member at Large committee.

FELLOWS AND HONORARY MEMBERS COMMITTEE REPORT – Vanelle Peterson

Board discussion: *Vanelle requested nominations and told the Board that we actually are sadly in need of nominations. Carol rotates off this committee, so Vanelle wanted to know if the past president rotates on - Phil Stahlman replied that it needs to be someone who already has received the award, so he could be on this committee and he is a past president, although that is not the criteria.*

AWARDS COMMITTEE REPORT – Don Morishita [Kassim Al-Khatib]

Board discussion: *Kassim mention we had no Young Scientist nominations and that we really should have nominations in this category next year. Kassim said that this years awards was a tough competition. Ron said that the committee spent a long time discussing the awards and that this is a good thing because there are lots of people who are very deserving. Awardees have really established themselves and are very deserving. Kassim said that we will have a special award from the Int'l Weed Science Society at our meting this year because the awardee is very sick and his health will not allow him to attend the Int'l meeting in Vanouver next yr. Carol will do the presenting and Arnold Appleby will receive.*

Office or Committee Name: Name: Awards Committee
Officer or Chairperson Name: Ron P. Crockett, Don Morishita, and Ronald Sherman
Date of Preparation: February 19, 2007

Committee Activities during the Year: The Award nomination notice went out to the WSWS membership in the normal WSWS mailing in the fall with submission due dates. We distributed the hold-over nominees and new additions to all committee members. We reviewed the documents individually, and then met on conference calls to discuss the nominees and the associated information packages. Awards recipients were chosen, and will be named at the Conference.

Here are the recipients of awards:

Rod Lym- Outstanding Weed Scientist Public Sector

Jim Freeman- Weed Manager

Carl Libby- Professional Staff

Not all available awards had candidates nominated, and so the slate of award winners is fewer than in previous years. As Board members we have added responsibilities to consider nominating worthy recipients and support the growth within the WSWS to encourage members to make significant contributions in their areas of work.

Ron Crockett will rotate off the committee, and Don Morishita will take over as chair, and a new committee member will need to be identified, at least by the end of the 2007 meeting.

Recommendations for Board Action: none were given
Budget Needs: None
Suggestions for the Future: See above text.
Suggested Changes in Operating Guide: None
Current Committee Members: Ron P. Crockett, Don Morishita, Roland Sherman
Name of Person Preparing This Report: Ron P. Crockett

POSTER COMMITTEE REPORT – Linda Wilson (Ron Crockett)
Joe D. said that there will be no shipping costs for easels since he will take them to CA and then to meeting next yr. Phil told that Board that we need to buy some new poster boards.

Office or Committee Name: Poster Committee
Officer or Chairperson Name: Linda Wilson
Date of Preparation (include year): 19 February 2007
Committee Activities during the Year:
Period: March 2006 – February 2007
Coordinated and managed poster setup and take down at the Reno meeting.

Coordinated WSWS easels and foam boards to return with Bob Parker to Prosser, WA, where he has agreed to store them and bring them to the Portland meeting in 2007.

Shipped WSSA easels back to Allen Press, in Lawrence, KS.
WSWS paid approximately $600 for shipment of WSSA easels and boards to and from 2006 Annual Meeting in Sparks (the cost should have been about $250 only for easels, we did not request boards). Rent for easels from WSSA was $150 ($5 each x 30 easels).

Appointed new poster committee member, David Belles.

Recommended to Board at Summer meeting to purchase easels. Recommendation was rejected, but approval for the purchase of 10 foam core boards was approved.

Arrangements are made for transfer of posters and easels to Portland. Arrangements are currently being made to transfer posters and easels from Portland to Anaheim for 2008 meeting.
Recommendations for Board Action: None at this time.
Budget Needs: None at this time.
Suggestions for the Future: None at this time.
Suggested Changes in Operating Guide: None at this time
Current Committee Members: Cheryl Fiore (2006); Linda Wilson, Chair (2007); David Belles (2008)
Name of Person Preparing This Report: Linda Wilson

STUDENT PAPER CONTEST REPORT – Brad Ramsdale (Ron Crockett)
Office or Committee Name: Student Paper Judging
Officer or Chairperson Name: Brad Ramsdale
Date of Preparation (include year): February 24, 2007
Committee Activities during the Year:
There will be 4 contests at the 2007 Annual Conference in Portland: the Graduate Student Poster Contest with 11 students; the Undergraduate Student Poster Contest with 4 students; and 2 separate Graduate Student Paper Contests with 7 students each. A request for judges was made on January 15 via email and members who haven't previously served as judges were encouraged to volunteer. The response was terrific as 5 judges are currently in place for each contest including several backups and several first time judges.

Students were contacted via email on January 20 to acknowledge their participation in the 2007 contests and to remind them of contest criteria, paper and poster formats, and deadlines for abstract submission and PowerPoint submissions.
Recommendations for Board Action: *none*
Budget Needs: Graduate Student Poster Contest: $100, $75, $50
Undergraduate Student Poster Contest: $100
2 Graduate Student Paper Contests: $100, $75, $100, $75
Total: $675
Suggestions for the Future: none
Suggested Changes in Operating Guide: none
Current Committee Members: Brad Ramsdale, Chair, Steve Enloe, Past Chair; Jim Harbour, Lisa Boggs
Name of Person Preparing This Report: Brad Ramsdale

Board discussion: *Ron suggested raising award money. Kassim thought we should limit poster contestants to 7, not 11 which is allowed in operating guide. He thinks 11 are too many. Kassim felt that the board can raise the award amount. Phil thought the committee wording was that they can split into two poster sections if they can get enough students. Vanelle asked if we would discuss the award amount during summer meeting and Kassim thought that would be appropriate. A $25 raise was suggested. Kassim wants the chair to send winners names/addresses spreadsheet to the president so a congratulations letter can be sent to the students.*

PUBLICATIONS COMMITTEE REPORT – Ron Crockett

Office or Committee Name: Publications Committee
Officer or Chairperson Name: Ron P. Crockett
Date of Preparation (include year): February 27, 2007
Committee Activities during the Year: Each editor will be submitting their reports (Newsletter, Proceedings, Research Report, and Website). Janet Clark will submit a report on the "Biological Control of Invasive Plants in the U.S." book and Tom Whitson will submit a report on "Weeds of the West "book.
Recommendations for Board Action. None
Budget Needs: Each Editor may make budget requests. No printing costs expected for Weeds of the West. No expenses for other publications.
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members:
Pat Clay – Newsletter Editor
Traci Rauch- Research Report Editor
Joan Campbell- Proceedings Editor
Tony White- Website Editor
Janet Clark- Biological Control Book
Tom Whitson- Weeds of the West
Name of Person Preparing This Report: Ron P. Crockett, Chair; Joan Campbell, Proceedings
Traci Rauch, Research Progress Report; Pat Clay, Newsletter; Tony White, Web Site

The following are the Publications Committee Reports from the editors:
PUBLICATIONS: PROCEEDINGS – Joan Campbell
Office or Committee Name: Proceedings Editor**s**
Officer or Chairperson Name: Joan Campbell and Traci Rauch, co-editors
Date of Preparation (include year): February 23, 2007

Committee Activities during the Year:
250 copies of 2006 Proceedings (224 pages) was printed by Omnipress at a cost of $2990.00 which included shipping to New Mexico.
Members required to submit information post-conference for the 2007 Proceedings have been contacted and reminded of the need for a timely printing of the Proceedings.
Phil Banks has expressed interest in preparing the index for the Proceedings this year. Abstracts will be sent to the editors after he has compiled the index.
Recommendations for Board Action:
None at this time
Budget Needs:
Anticipate about $3000.00 for printing and $340 airfare to annual meeting.
Name of Person Preparing This Report:
Joan Campbell and Traci Rauch
Board discussion: *Kassim wants to speed up process especially since the proceedings did not come out until September last year. The Operating Guide states publication by early May in time for the summer Board meeting. Kassim reminded the Board that a discussion will be held later today.*

The proceedings will be continued as a hard copy. Board members agreed that most members prefer a hard copy. Vanelle asked if we can give members a choice and would that save costs? Phil B. replied that we only print 165 copies of Progress Reports and 220 of Proceedings for members + 25-50 for libraries, so the printing expenses are not high.

Phil B. mentioned that these publications are not available on the website, but since components are submitted in electronic form we already have them electronically. Dirk suggested that we convert the documents to .pdf files and make them available on the website. Joe D. thought it would be great to be able to go to the website and do a search and hit on all the information you want from proceedings. Phil B. said that we have archived these publications since 1938 and that there is only one copy of some of the oldest ones which are hand-typed. Phil B. suggested that we scan them and make them available. Phil S. said that he would use the online source as much or more than if it was on a CD and thought that 70 years of Proceedings with a search possible would be great. Phil B told the Board that they have played around with the 1938 but some of the print is not dark enough on about 100 pages. Phil S says that if the problem was quality, then we could hire someone to re-enter.

Phil B. told the Board that WSWS breaks even on the Proceedings/Progress Report and that we haven't changed the price for a long time. Kassim made a point that if these publications were put on the website, then it would make work time for the web manager. Some thought that we may lose exposure because the printings won't be in libraries anymore - libraries are moving towards "Beyond Paper." Mention was made that the Int'l Weed Science Society would still want a print copy. Other societies have made the proceedings part of the registration packet.

Kassim thought this topic should be a discussion for this summer. Vanelle suggested the Publications committee come up with ideas for the future, and come back to Board and discuss these ideas this summer.

PUBLICATIONS: RESEARCH PROGRESS REPORTS – Traci Rauch
Office or Committee Name: Research Progress Report
Officer or Chairperson Name: Traci Rauch and Joan Campbell
Date of Preparation (include year): February 23, 2007
Committee Activities during the Year:

The 2007 Research Progress Report is 170 pages duplexed. Omnipress printed 180 copies of which 125 copies were sent to the meeting site and the remaining copies were sent to Phil Banks. The total cost including shipping was $2,170.00.
Project 1 - 16 reports
Project 2 - 17 reports
Project 3 - 35 reports
Project 4 - 1 report
Project 5 - 7 report
Project 6 - 0 reports
To continue encouraging submissions to the Research Progress Report, we included a note in the September newsletter and on the website. Next year, we will ask that the reports be submitted electronically by e-mail in Microsoft Word doc format (not docx) or as a pdf file type (Acrobat) in addition to paper copies. This will allow the editors to make minor changes (margins, typos, full justification, etc) without needing to contact the authors. The number of reports submitted was 76 in 2007. Reports were submitted from the following states: Arizona, California, Colorado, Idaho, Kansas, New Mexico, North Dakota, Oregon, South Dakota, and Washington.

Recommendations for Board Action: None
Budget Needs:
Budget request: $2,500 for printing + travel cost (airfare $250 + 3 night lodging) = $2850
Suggested Changes in Operating Guide: None
Name of Person Preparing This Report: Traci Rauch

Board discussion: *Discussion about whether or not Progress Reports are needed anymore. Kassim said that North Centrals dropped theirs, but we have different culture than them. Vanelle told the Board that Industry uses the reports. Phil asked if we could combine Proceedings and Progress Reports. The two publications are about the same size but the Proceedings are taken up largely by minutes, awards, etc. Costs may not go up said Phil S. because it'd be one product but it'd be bigger. Phil B. said lots more buy Proceedings vs Progress Reports. Phil S. thought that as long as there is a demand, then we should keep this service, but asked since interest is dropping, when do we stop? Phil B. suggested a straw poll at the breakfast Business meeting.*

Some Board members said they rarely use these publications, but others, such as Pam, Joe D., and Kassim said that since they have so many specialty crops, not much is published anywhere else for these crops.

Kassim recommended the Publications committee come up with suggestions to bring back to the Board.

Vanelle reminded us that there's an ebb and flow of contributions to sections in these reports. Kassim and others mentioned that we need to boost the Basic Sciences section reporting. Others thought that more project leaders in that section go to WSSA's while grad students in that section go to WSWS instead of WSSA's

More discussion about the Basic Sciences section ensued: S*hould we change the name of Basic Sciences section? If so, how do we do this? Vanelle said that we should have the section discussion group discuss this idea and Phil B. replied that the Basic Sciences section will be including this topic in their discussions. Kassim suggested that Jeff go to that meeting. Joe D. was concerned that not enough people will be in the discussion sessions. He said that we should combine discussion sessions for Range and Forest, Wetlands and Wildlands, etc. since they are at the same time and interested parties can only go to one discussion session. Others asked if a separate committee should be created to look at changing names? Kai thought that current and past chairs should give us input on what was good - what was bad*

about having overlaps. Kassim wondered what we would do if we have more papers than we have time in a given session, should we request papers go to posters? Board members felt that sessions have to overlap because of the paper numbers. Vanelle said she liked to see a special committee look at this because it is beyond the scope of what section committee functions. Kassim asked if the Board wanted an ad hoc committee. Joe D. and Phil B. said that project chairs form the last few years should be on this committee. Carol said that she'd much rather go to a meeting where she felt she missed something rather than a meeting where there were not enough papers of interest. Ron said that he will work on an ad hoc committee for structuring a better meeting.

PUBLICATIONS: WSWS NEWSLETTER – Pat Clay (Phil Banks)
Board discussion: *Kassim sent email to members asking for volunteer for newsletter chair but that only one person has replied to his email so far. He thanked Phil B. again for putting o0ut the January newsletter. Phil B. commended Pat Clay on the great job he's done with the newsletter. Phil B. told the Board that more and more members are requesting electronic newsletter copy and they are down to sending out only 100 hard copies. Kai suggested that our next newsletter chair should be someone who is good at "going after people" because that's what takes time. Janet pointed out that the editor is also a newsletter contributor. Joe D. felt that Board members should pay attention to what's going on in their on states of interest to them and also use it for the WSWS newsletter.*

PUBLICATIONS: WEEDS OF THE WEST – Tom Whitson (Ron Crockett)
Office or Committee Name: Publications (Weeds of the West)
Officer or Chairperson Name: Tom Whitson
Date of Preparation (include year): 1/18/07
Committee Activities during the Year: 12,000 copies of Weeds of the West were printed in 2006. 2000 copies went to Phil Banks to be sold by WSWS. 10,000 copies went to the University of Wyoming. The University of Wyoming started 2006 with 6782 copies in inventory for a total of 16,782 copies. 7638 copies were sold by UW from 1/1/06 to 1/19/06 for a profit to the society of $24,747.12. Current inventory is 9144 books.
Recommendations for Board Action: We will have enough inventory for 2007 and would anticipate another printing in the fall of 2007 or winter of 2008.
Budget Needs: We see no changes needed
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members: Tom Whitson and Authors of Weeds of the West
Name of Person Preparing This Report: Tom Whitson

Board discussion: *Are the 1/1/06 to 1/19/06 dates in this report right? Kassim said that they must be wrong but he has to submit what was sent. Joe D. asked Phil B. how much WSWS makes on all publications and Phil replied that it is easier to order online at the WSWS website since UWY requires a hard copy order and although we've only sold online Nov/Dec, we've sold $5K total of all books (doesn't include overhead). Phil said that the profit is about $2K. Phil told the Board that the approach is slow and consistent - not a huge peak. WSWS should be trying to add more things all the time. He spoke with Southern's about WSWS selling Weeds of the South - can we get the book for a 40% discount. If so, we'll advertise and sell.*

Kassim asked if we needed a new printing and was told that Tom said we'd need one this fall, Phil said that we have 2,000 on hand and which we won't sell all for 5 years. Phil proposes that we fulfill orders for UWY if they get low on copies before a new printing and that between them and us, we have more than a years supply. Kassim suggested revisiting this topic this in the summer because by the time we meet next spring, we will be down to only 3,000 copies. Everyone agreed.

PUBLICATIONS: BIOLOGICAL CONTROL OF INVASIVE PLANTS IN THE U.S. – Janet Clark
There was no written report and Janet gave an oral report. She had collected information from Phil B. who told her that WSWS has made $299 in royalties this year, but nothing in the last 6 months. She said that a royalty check is only sent if >$15. Janet felt that not much marketing was happening, so we need to advertise. She told the Board that she brought handouts to place at the meeting registration table. There is a Website link to University of Arizona press who takes orders. Janet wants to increase sales in order to increase our royalties. The book has brought in $5,350 total but we put in $15K to pay for it initially. There has not been a lot of recent activity in biocontrol, so the book is not out of date even though it was published a few years ago. Vanelle asked if that market was flooded, and Janet said maybe it was a big splash when it first came out, then nothing was planned afterwards, so excitement dropped. Janet feels that the publication should have a strategic plan. A notice could be given to state weed groups e.g. if WSWS wants to get into the publisher business then we need plans. Some board members reminded us that we need to recoup our investment. Janet said that she will work to get information on this book "out there" to make it more visible again.

PUBLICATIONS: WEBSITE REPORT – Tony White
Office or Committee Name: Publications (Website/Webmaster)
Officer or Chairperson Name: Tony White
Date of Preparation (include year): February 2007
Committee Activities during the Year: Several changes regarding the online registration and title/abstract submission were implemented for the 2007 Annual Meeting. Online title and abstract submission changes for 2007 include:

1. Revised the instructions to make submission easier.
2. Restructured some of the text boxes on the submission page to make the process easier and clearer to new members.
3. Made the overall page layout easier to follow.

Other Website Activity.

1. Credit card payment through PayPal is currently functioning well. To further utilize this new online payment tool, books and other items related to the WSWS went on sale through the website and payment was allowed through PayPal.
2. An updated 'Event Calendar' was postponed due to lack of interest and considerable programming time required to establish the online calendar.

Recommendations for Board Action: None at this time.
Budget Needs: None at this time.
Suggestions for the Future: I encourage members to provide feedback regarding how to improve and enhance the overall function of the website.

Name of Person Preparing This Report: Tony White
Board discussion: *Kassim commended Tony highly on the great job he is doing.*
Tony says the hilite benefit of the WSWS website is online registration submission and the online sales site – revenue we normally would not receive. General updates but no major changes have been made. Tony wanted to add an event calendar but there was a lack of interest and a significant amount of time would be needed for programming/maintenance of the calendar. Events are posted on the website but he doesn't feel there's enough to go full scale. Tony felt that coming to the summer meeting would be a great opportunity for exchange with the Board, so he is looking forward to the meeting. Pam aksed Tony about the possibility of searchable Proceedings/Progress Reports which had been discussed earlier, and he said it depends upon the format, that HTML or .pdf would be doable. Tony said he would think about what it would take and get back to the Board.

NOXIOUS WEED SHORT COURSE REPORT - Celestine Duncan (Rod Lym)
Office or Committee Name: Noxious Weed Short Course
Officer or Chairperson Name: Celestine Duncan
Date of Preparation (include year):2/ 2007
Committee Activities during the Year:
The Noxious Weed Short Course sponsored by the WSWS was held at Chico Hot Springs Resort located in Pray, MT, April 24th through 27th, 2006, and is scheduled for April 23th through 26th, 2007. We are only offering one session again in 2007 due to year because of conflicts with instructor and conference center schedules. There were 41 people that attended in 2006 and 41 registered in 2007 with 15 people on a waiting list. Registrations for the 2007 session were filled to capacity by October, 2006. Participants include USFS, BLM, National Park Service, Fish and Wildlife Service, Dept. of Transportation, and County Weed Coordinators. The course continues to be highly recommended to weed managers within agencies.

Instructors include: Dr. Rod Lym, Dr. Steven Enloe, Dr. Steve Dewey, Dr. Jim Jacobs, and Celestine Duncan representing the Western Society of Weed Science. Dr. Bret Olson (MSU), Gary Adams, USDA APHIS, Mary Mayer USDA, ARS, Melissa Brown, consultant, will also assist with the course.

Registration fees were increased from $450 per person in 2006 to $500 for the 2007 session to cover PayPal fees and additional facility costs. Balance in the NWSC budget is $33031.57 [from 4/1/06 to 2/16/07: Income = $17,474.80 and Expenditure = $15, 192.55]. Additional revenue of about $3000 is outstanding for the 2007 session.
Recommendations for Board Action: Continue the course
Budget Needs: None- funded by registration.
Suggestions for the Future: Continue the course
Suggested Changes in Operating Guide: none; continue to modify program based on student evaluations and needs.
Current Committee Members: Celestine Duncan with expert guidance/advice from Stephen Enloe, Rod Lym, and Steve Dewey!

Name of Person Preparing This Report: Celestine Duncan

Board discussion: *Janet said that since this course is so popular, it should be given more often, but the challenge is the instructors' time can't be given more than it is already given. Kassim asked if the attendee numbers could be increased to 60. Joe D. said that the course includes lots of hands-on, so it would be unwieldy to have more people. Janet said that people come to this course from all over country. She told the Board that there's a move to replicate the course in the East, which may take some pressure off. However, Janet can only see the demand increasing in the future e.g. cooperative weed management groups. Kassim asked if there was student interest and that if so, we could sponsor attendance. Joe D. thought that intern position could possibly be created. Dirk said that if an intern helped, maybe class size could be increased. Kassim asked Janet to speak with Celestine about the student intern idea. Janet said that the availability of time by the "star quality" instructors is the limiting factor. Board members thought that we shouldn't micro-manage the course especially since the fees they ask from us are small and that WSWS gets lots back from this course.*

SUSTAINING MEMBERSHIP COMMITTEE REPORT – Neil Harker (Phil Banks)
Office or Committee Name: Sustaining Membership
Officer or Chairperson Name: K. Neil Harker
Date of Preparation (include year): January 30, 2007
Committee Activities during the Year:

- Neil used the list of contacts for companies (forwarded by Lynn Fandrich) to request sustaining membership payments for 2007 (E-Mail contact on September 7, October 16, and December 22). All of last year's sustaining members as well as the following prospective sustaining member companies suggested by Kassim Al-Khatib: Helena, Valent, and UAP, were petitioned for sustaining membership.

As of January 18, 2007, Phil Banks confirmed that he has received funds from the following Sustaining Members for 2007:

Agriliance, LLC
AGSCO, Inc.
AMVAC Chemical Corp.
BASF Corporation
Bayer CropScience
Dow AgroSciences
FMC
Gowan Company
Helena Chemical Company
Marathon-Agricultural & Environmental Consulting, Inc.
Monsanto Company
Syngenta
Valent
Wilber-Ellis Company

- Notable absence of DuPont… Neil received no response from Michael Edwards (303-280-3830, Michael.T.Edwards@usa.dupont.com) or Betsy Wise (208-324-8006, betsy@elecdata.com).
Recommendations for Board Action: Board Contact – Phil Banks (Immediate Past-President)
Budget Needs: Nil
Suggestions for the Future:
- (Neil) Have Phil Banks forward the paid members contact list (attached to this message) to the next chair to ensure that sustaining member solicitations are to recent company people that have dealt with WSWS sustaining membership.
- (Jeff) Kassim could make case for adding Sustaining Members prior to start of Industry Update session to remind participants to work in their organization for a WSWS membership.
- (Jeff) Our Industry continues to move to delivering weed and insect control in seed. As yet the WSWS as made no move to reach out and attract companies such as Pioneer -(DUPONT), DEKALB-(Monsanto) and Syngenta to present seed based information at our meeting. If we want to attract and maintain membership we need to offer value to our Sustaining Members.
- (Lynn) There was also some discussion among the committee re making a better case for the $100 sustaining membership fee for States/Provinces, *i.e.* what do they get for their membership?
- (Lynn - *comment*) It is difficult to think of merits for the states/provinces to be sustaining members, yet once-upon-a-time, this was important enough to include in the regulations. What do you suppose was the original thinking? I suppose the perks were very much similar to those obtained by industries: booth space, job advertising, and copies of the proceedings/reports. Perhaps the value in those has eroded or never really existed <?> for states. I don't see any reason why their contributions (participations, knowledge, influence, etc.) and involvement should be less than their industry peers. Therefore, they are equal in terms of being a society "player." As company budgets tighten, we are looking for ways to maintain or increase our sustaining membership $$$ and must give considerable thought to what it means for all members. As an example, if we go forth and say only companies that are sustaining members can participate in the "What's new with industry" section, we risk alienating potential sustaining members who do not belong to industry.
Suggested Changes in Operating Guide:

- No changes suggested
Current Committee Members: Neil Harker, Chair; Jeff Tichota; Lynn Fandrich
Name of Person Preparing This Report: K. Neil Harker

Board discussion: *Phil B. commended Neil's work and the work of the committee. Last year we had 13 sustaining members. One company did not renew this year - Bell Sprayer. Vanelle asked if the "What's New in Industry" would be limited to 5 minutes and she reminded us that last year, one rep from a non-sustaining member company spoke for approximately 30 min.*

NECROLOGY COMMITTEE REPORT – Lisa Boggs (Pamela Hutchison)
Lisa told Pam that Nelroy Jackson is helping put together the obituary for Ken Dunster and will present it at the breakfast Business meeting.
Office or Committee Name: Necrology
Officer or Chairperson Name: Lisa Boggs
Date of Preparation (include year): February 26, 2007
Committee Activities during the Year: The necrology committee regretfully reports the loss of one member during the year 2007. Ken Dunster of Brentwood, California passed away January 18, 2007. Ken was a past president of WSWS.
Recommendations for Board Action: none given
Budget Needs: none given
Suggestions for the Future: none given
Suggested Changes in Operating Guide: none given
Current Committee Members: Amber Vallotton, Brad Hanson, Lisa Boggs

Name of Person Preparing This Report: Lisa Boggs, Chair

PUBLIC RELATIONS COMMITTEE REPORT – Brian Olson (Joe Yenish)
Office or Committee Name: Public Relations
Officer or Chairperson Name: Brian Olson
Date of Preparation (include year): February 16, 2007
Committee Activities during the Year:
A press release dated February 12, 2007 announced the 60th Annual Meeting of the WSWS (at the end of document) and distributed by e-mail to:

WSSA Newsletter	Capital Press
American Society for Horticultural Science	AgOnline (Successful Farming)
Agronomy Society of America	Advanstar (Landscape Management and Golfdom)
North American Weed Management Association	Turf Magazine
FICMNEW listserve	Wildland Weeds
Farm Press	American Nurseryman Publishing
Meister Publishing	Recreation Management Magazine
Yuma Daily Sun	Associated Press
Southwest Trees and Turf	Farm Progress Publishing (California Farmer,
Columbia Publishing (Carrot Country, Potato Country, Onion World)	Western Farmer-Stockman)
	Metrofarm radio

– Continuing education hours requests for various state licensing requirements for attendees were submitted to: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Utah, Washington, and Wyoming. Certified Crop Advisor (CCA) certification and Society for Range Management certification were applied for this year.

– Requested from local arrangements chair that CEU sign-in area be located near the registration desk with two 6 or 8 ft tables.

– Pat Clay will photograph officers and awards recipients following luncheon.

– Dennis Scott, Bayer Crop Science, joined the PR committee this year.

Recommendations for Board Action: none given
Budget Needs: none given
Suggestions for the Future: none given
Suggested Changes in Operating Guide: none given
Current Committee Members: Erin Taylor, Milt McGiffen, Brad Hanson, Bill Cobb, Mark Ferrell, Dennis Scott, Brian Olson
Name of Person Preparing This Report: Brian Olson

Board discussion: *Board members asked how publishers, groups, etc. entities could to be added to the list and the answer was to send contact information to the chair – Brian Olsen. Meeting and symposium notices will then be sent to publishers. Joe Y. commended the committee for their work. The Board suggested that for the CA meeting next year – start advertising right away and for symposium, too.*

Press release:
WESTERN SOCIETY OF WEED SCIENCE
The 60th annual meeting of the Western Society of Weed Science is to be held in Portland, Oregon at the Hilton Portland and Executive Tower Hotel on March 13-15, 2007. Attendance is welcome to anyone interested in various weed science issues specifically those of concern in the western United States. Participants will include producers and university, industry, state and federal personnel. We encourage participants from any discipline to attend the meeting and become involved in the society.

The program features 158 scientific presentations of which 60 are poster displays describing research activities in weed science in crops, rangelands and forests, wetlands and wild lands, and educational outreach programs.

A detailed program, registration, and lodging information may be accessed at: www.wsweedscience.org or contact Phil Banks, Business Manager - WSWS, 205 W. Boutz, Bldg. 4, Ste. 5, Las Cruces, NM 88005, 505-527- 1888.

EDUCATION COMMITTEE REPORT – Tracy Sterling (Joe Yenish0

Joe says the program has been successful. Kassim agreed with Tracey's recommendation to continue this ad hoc committee.
Office or Committee Name: Education (Adhoc) Committee – Distance Education Sub-Group
Officer or Chairperson Name: Tracy Sterling
Date of Preparation: February 2, 2007
Committee Activities during the Year: The Education subgroup for Distance Education has met its long-term goal of developing web-based Weed Science educational materials for multiple type learners. Many lessons have been developed (see WSWS web site). Ten of these lessons have been published in the peer-reviewed, on-line journal, *Journal of Natural Resources and Life Science Education* (JNRLSE). Additional lessons are being written to submit for consideration of publication (i.e. Herbicide Discovery, Cellular Absorption of Herbicides; Herbicides that Inhibit Fatty Acid Biosynthesis; Phloem Transport). The funding provided by WSWS was used to set up the WSWS website as a sibling site to the http://plantandsoil.unl.edu website and showcase those lessons specific to Weed Science.

Using these materials, Bill Dyer, Scott Nissen, and Tracy Sterling partnered to offer a graduate-level Herbicide Physiology course via Distance Education from Montana State University during Fall 2006 (http://eu.montana.edu/credit/courses/PSPP546.htm; see attached course description. Nine students from across the western U.S. and Canada enrolled and two dropped because of time constraints. Student reviews were generally quite favorable, emphasizing knowledge gained, practical applications, and in-depth coverage of topics. Suggestions for future improvement included better organization, clearer grading expectations, and better predictions of student time required for the course. This 14-week course (PSPP 546 Herbicide Physiology) will be offered every Fall semester. The course will be advertised in WSSA and WSWS newsletters for the 2007 offering.

Recommendations for Board Action: none were given
Budget Needs: None
Suggestions for the Future: Continue to seek funding to create additional lessons and animations relevant to Weed Science.

Suggested Changes in Operating Guide: none
Current Committee Members: Tracy Sterling, Chair; Carol Mallory-Smith; Scott Nissen; Bill Dyer; Kassim Al-Khatib.

Name of Person Preparing This Report: Tracy Sterling

Course information:
http://eu.montana.edu/credit/courses/PSPP546.htm

PSPP 546-01: Herbicide Physiology
Online
September 5 – December 8, 2006
3 graduate credits
Tuition: $675
Instructors: Professors William Dyer, Montana State University; Tracy Sterling, New Mexico State University; and Scott Nissen, Colorado State University

Register Online

Course Description: Herbicide Physiology is a new online graduate level course that will cover topics in herbicide classification, herbicide mode of action, and resistance mechanisms. In addition to providing basic information about herbicide physiology and plant responses, students will be challenged with applied problems that may be encountered in field situations. Students will thus learn to hone their diagnostic and problem-solving skills that will be required in a number of employment opportunities.

Instructors: Professors William Dyer, Montana State University; Tracy Sterling, New Mexico State University; and Scott Nissen, Colorado State University

Cost: Tuition is $675. This should be paid to the Office of Continuing Education at Montana State University at the time of registration.

Credit: 3 graduate credits

Prerequisites: Upper division courses in biochemistry (BCHM 340 General Biochemistry or equivalent) and plant physiology (PS 450 Plant Physiology or equivalent), or consent of the instructors. Contact Dr. William Dyer at wdyer@montana.edu for more information.

Time Commitment: 9 to 12 hours per week over 14 weeks. If you are unfamiliar with this field of study and/or with telecommunications, this course may require more of your time.

Target Audience: Students from Weed Science, Plant Physiology, Plant Biology, Land Reclamation, Ecology, Range Science, Agronomy, Integrated Pest Management, and Conservation Biology will be served by this course. The course is designed for students without traditional access to this course material, and is not designed to replace existing, on-campus courses at other institutions.

Course Materials: This course has no textbook as all readings and activities take place online.

For more information: Contact Dr. William Dyer at wdyer@montana.edu

Note: This course will be delivered using WebCT. WebCT is an online course delivery tool. You will receive more information about how to login closer to the course start date.

LEGISLATIVE COMMITTEE REPORT – Sandra McDonald (Vanelle Peterson)
Office or Committee Name: Legislative Committee
Officer or Chairperson Name: Sandra McDonald
Date of Preparation (include year): 2/5/2007
Committee Activities during the Year: Since the passage of the Salt Cedar and Russian Olive Control Demonstration Act (SCROCDA), Eric Lane has been working with Lee Van Wychen, Jennifer Vollmer (BASF), and others to secure funding for FY 08 and have funding included in the President's FY 09 budget. Primarily, this has been accomplished through work during National Invasive Weed Awareness Week

The committee is also tracking HR 658, the National Park Service bill that would allow NPS to collaborate with other neighboring landowners on weed control.

Recommendations for Board Action: None at this time but a few phone calls from specific WSWS and WSSA members to appropriations committee members or House Natural Resources Committee members may be helpful to secure funding for SCROCDA and advance HR 658. This may be an activity to pursue at WSWS.
Budget Needs: None at this time.
Suggestions for the Future: None at this time.
Suggested Changes in Operating Guide: None at this time.
Current Committee Members: Sandra McDonald, Eric Lane, Greg Haubrich
Name of Person Preparing This Report: Eric Lane and Sandra McDonald

HERBICIDE RESISTANT PLANTS COMMITTEE REPORT – Kirk Howatt (Jeff Koscelny)
Office or Committee Name: Herbicide Resistant Plants
Officer or Chairperson Name: Kirk Howatt
Date of Preparation: February 22, 2007
Committee Activities during the Year: Revise resistance terminology to improve grower understanding. General resistance terms previously were made available through the web site. Additional sheets to be available this year include genetics terms and factors affecting evolution.
Recommendations for Board Action: none
Budget Needs: none
Suggestions for the Future: The committee would like a charge or directive to consider.
Suggested Changes in Operating Guide: none

Current Committee Members: Kirk Howatt, David Vitolo, Steve Seefeldt, Monte Anderson, Steve King, and Craig Alford
Name of Person Preparing This Report: Kirk Howatt

Board discussion: *Kassim said that Resistance is a big issue in other Societies and that the WSWS committee should be able to find a directive in this area. Jeff said that he will get together with Kirk before Thursday for brainstorming and give a report then. Janet asked if anyone has done an overall report on resistance in the West. She suggested that maybe it could be a WSWS report. Kassim wanted the committee to think about how they can address the needs of the Society with this big issue. Collecting information about the instances of Resistance around the West would be useful.*

SITE SELECTION COMMITTEE REPORT – David Vitolo (Kassim Al-Khatib) **Board discussion**: *This committee asked for advice from the Board about Hawaii as a meeting place for 2010 i.e. how does the Board want the site selection committee to proceed? Kassim said we needed to discuss first the issue about a joint meeting with WSSA and SRM in 2010 because doing so meant we'd have to go to Denver that year. Kassim then made three points: 1) A joint meeting would be in February, however, people have adjusted to our WSWS meeting occurring in March. 2) Will our members benefit from a joint meeting? 3) How is this going to impact our income?*

Vanelle says that the Southern's joint meeting with WSSA was well-crafted and costs were shared, $50K needed by Southern's and they asked WSSA for the funds so it'd be a "no risk" situation for Southern's. Board members wondered if it would appear that WSSA was subsidizing the region? Vanelle said that the room numbers would increase enough that the registration costs would not have to be raised. SRM negotiated $97 room at Couer d' Alene where rooms for meeting attendees regularly cost $119, so that is not an issue.

Dirk said that a joint meeting he went to recently was more like two separate meetings going on at the same place but that they weren't coordinated well. For instance, talks were 15 min in one meeting and 20 min in the other. Joe D. wanted to know if the meetings would have to last 5 days instead of our regular 3 days. Kassim said that the committee hasn't gotten that far yet.

What about value to our members? WSSA is typically Basic Science and Agronomic Crops, so Kassim felt that their culture is different than ours. Nelroy and others disagreed. Kassim felt that SRM would be separate from WSSA. Nelroy says that access would be given both ways and that there would be joint sessions. Nelroy thought that SRM and WSSA wouldn't have enough room in the same hotel. Board members said that the SRM meetings are large, 2K to 2.5K attendance by BLM weed managers, large ranchers, land managers, etc. The group is more "on the ground" not research oriented. WSWS interactions would benefit SRM with technology, so a joint meeting would be a nice blend for them.

Joe D. said that people like him have three main meetings to go to: WSSA, SRM, and WSWS. Now that WSSA is doing the new journal – it would be logical for WSSA to meet with SRM, however, WSWS should not be a third party to this meeting. Nelroy says that NIWAW is right after WSSA and right before WSWS so there'd be a conflict.

Kassim felts that the consensus of the Board was that there is no support for WSWS to get in on this joint meeting. There was discussion about benefits to Wetlands and Wildlands and other sections. A joint meeting such as this doesn't take away from Horticulture/Agronomic crops because they'd go to the WSSA meeting and be okay. This helps so Wetlands and Wildlands, etc. since people interested in that WSWS section and SRM won't have to choose one year.

Vanelle said that we should have an attractive meeting site that year e.g. the most affordable Hawaii site. Phil said that we would lose the Federal, state, etc. member who can't go to Hawaii just as they couldn't go to Canada. Nelroy reminded us that the last Coeur d' Alene meeting, SRM had a meeting before or meeting after ours and that helped attendance at our meeting.

Phil told the Board that If we went to Keahua Bay that year, the facility's size dictates that we'd be the only meeting going on, so we might have room for price negotiation. Phil was surprised that the two Marriott hotels there gave us a decent bid.

The Board consensus was that it was okay to go to Hawaii if we can get rates as low as possible. Phil said that he can talk to the hotels about coming down for grad students room costs. Phil said we would automatically lose 25% even though this site attracts others who maybe don't always come to WSWS, so as a meeting site, Hawaii is a higher risk because economic down turn, security issues, etc. affect Hawaii more than mainland meeting sites. A straw vote of by the Board favored Hawaii for 2010.

MOTION: *A motion was made and seconded that we recommend Hawaii to site selection committee for the 2010 meeting site.* **A vote by a show of hands was 8 for and 2 against.**

Office or Committee Name: Site Selection Committee – 2010 meeting site
Officer or Chairperson Name: Dave Vitolo
Date of Preparation (include year): February 23, 2007
Committee Activities during the Year: Worked with Phil Banks to screen hotels in Hawaii, Spokane, Coeur d' Alene, Boise, Salt Lake City: see attached list of bids requested, and files of proposals received (attached in e-mail)

Dear Committee -
It is past time to begin requesting bids for our 2010 WSWS meeting. The WSWS board has suggested Hawaii, Spokane/Coeur d'Alene, Boise, or Salt Lake City as a site. Below are my suggestions.

Have a look and contact me if you have additions or strong feelings about these hotels, by the end of the week. I'll then ask Phil to provide the hotels with our RFP.

Additional Hawaii and Boise Hotels will follow. If you have suggestions for these locations, please let me know.

Thanks and regards,

Dave Vitolo
Syngenta Crop Protection
2109 9th Ave
Sacramento. CA 95818
Mobile: 1.916.316.6951
Fax: 1.916.442.3795
david.vitolo@syngenta.com

Salt Lake City - The Grand America
http://www.grandamerica.com/

Salt Lake City - Marriott City Center
http://marriott.com/property/propertypage/slccc

Little America Hotel - 2002 site
http://www.littleamerica.com/slc/

Sheraton City Centre Hotel, Salt Lake
http://www.starwoodhotels.com/sheraton/property/overview/index.html?propertyID=1327

Hilton Salt Lake City Center
http://www1.hilton.com/en_US/hi/hotel/SLCCCHH-Hilton-Salt-Lake-City-Center-Utah/index.do

Coeur d'Alene/Spokane - The Coeur d'Alene Resort - 2001 site
http://www.cdaresort.com/

Spokane –
DOUBLETREE HOTEL SPOKANE CITY CENTER
http://doubletree.hilton.com/en/dt/hotels/index.jhtml;jsessionid=51XQBWFJB3YJ4CSGBIX222QKIYFCXUUC?ctyhocn=SPCC-DT

Red Lion Hotel at the Park
http://redlion.rdln.com/HotelLocator/HotelOverview.aspx?metaID=18

LasCruces, NM
DAVENPORT HOTEL
http://www.thedavenporthotel.com/#

Boise –
The Grove Hotel Boise
http://www.grovehotelboise.com/

Red Lion River Inn
http://redlion.rdln.com/HotelLocator/HotelOverview.aspx?metaID=62

Red Lion Hotel Boise Downtowner
http://redlion.rdln.com/HotelLocator/HotelOverview.aspx?metaID=6

Hawaii -
Kauai Sheraton - 2003 Site
http://www.sheraton-kauai.com/nh.htm

Summary:
We have all of the proposals we are going to get (with possibility of one additional from Spokane Red Lion) in this round. The Coer d'Alene Resort is a very good proposal (attached below). Salt Lake City and Boise are out (either could not accommodate our meeting room needs or too expensive). Most of the Hawaii proposals are expensive. A couple may work (Hilton and Marriott), but will require input from the Board re price sensitivity of our membership.

If these hotels do not meet the needs of the membership, the committee can seek bids from additional city venues: Suggestions please.

2010 RFP revised:

WESTERN SOCIETY OF WEED SCIENCE

ANNUAL MEETING
REQUEST FOR PROPOSAL
MARCH 2010

Group Profile: Weed Science is the study of weeds and their relationship to man and the environment. The organization was founded in 1938 and has conducted an annual meeting since then. The objective of the Western Society of Weed Science is to:

- To foster and encourage education and research in weed science.
- To foster cooperation among state, federal and private agencies in matters of weed science.
- To aid and support commercial, private and public agencies in the solution of weed problems.
- To support legislation governing weed control programs and weed research and education programs.
- To support the Weed Science Society of America and foster state and regional organizations and agencies interested in weed control.

Location: For consideration: Hawaii, Spokane/Coeur d'Alene, Boise, or Salt Lake City

Dates: Second week in March 2010

Client: Western Society of Weed Science. Members are evenly divided between industry (large companies such as Dow, DuPont, Monsanto, BASF, etc), academic (state and federal scientists), and land managers (federal, state and county).

Meeting Name: Annual Meeting 2010

Number of attendees: 350

Comments: Client is rate-sensitive. Great history. Site inspections will take place in the spring or early summer of 2007. The meeting site will be approved at the Board of Director's meeting in the summer of 2007. **Proposals must be received no later than March 1, 2007.**

Guest Room Requirements: WSWS requires 200+ sleeping rooms per night with an approximate 25% double occupancy. The preferred pattern is:

Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**
Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
20	50	190	225	190	30 (or 100)*

*Dependent on the development of a local one day symposium.

Room rates are not subject to a finder's fee.
Reservation Method: Individual on own.

Criteria for Site Selection:

1. Sleeping rooms and meeting space (all) under one roof.
2. Prefer meeting space and exhibit space (all) on the same floor level.
3. Affordable and guaranteed room rate.
4. One (1) complimentary sleeping room per 40 rooms sold.
5. Complimentary meeting space and meeting set-up (excluding AV).

6. Complimentary exhibit hall space.

Special Concessions Requested:

1. 2/3 block doubles and 1/3 singles.
2. Group needs per diem room rates.
3. Graduate student rooms triple occupancy rate (10-12 rooms).
4. One (1) complimentary Presidential Suite and one (1) complimentary Junior Suite.
5. Group/presenters can bring in own A/V.
6. Co-sponsor group board meeting for 12-14 people, to take place the summer (July or August) 2010 (10 comp rooms).

Exhibit Space Requirements: Exhibit space required for up to 5 tabletop exhibits and 85 4 X 4 posters. Skirted tables will be needed for the tabletop exhibits. Group brings their own easels. Posters need to be positioned for good viewing ideally near the registration/break area. WSWS requests that there be no charge for use of the space, as the exhibits and posters are educational and are not revenue generated.

Meeting Space Requirements: See **Exhibit A** for details.

History: 2002 Salt Lake City, 2003 Hawaii, 2004 Colorado Springs, 2005 Vancouver, 2006 Reno, 2007 Portland, 2008 Anaheim, 2009 Albuquerque

John Ascuaga's Nugget Hotel

Sparks (Reno) NV	*2006*	*Room Block*	*Pick-up*
	Saturday, March 11	20	29
	Sunday, March 12	50	53
	Monday, March 13	175	210
	Tuesday, March 14	200	229
	Wednesday, March 15	175	220
	Thursday, March 16	40	38
	Friday, March 17	0	5
		660	784

Rate: $98.00 s/d
Food & Beverage: $ N/A
Contact:
Phone:

Hyatt Regency Hotel

Vancouver BC Canada	**2005**	**Room Block**	**Pick-up**
	Sat 3/5/05	20	24
	Sun 3/6	50	40
	Mon 3/7	215	185
	Tues 3/8	230	197
	Wed 3/9	215	193
	Thur 3/10	40	42
		770	681

Rate: $169.00 s/d

Food & Beverage: $ N/A
Contact: Sam Lee
Phone: 604-639-4740

Contact Information: Send proposal to:

WSWS Meeting
Attn: Phil Banks
205 W. Boutz, Bldg. 4, Ste 5
Las Cruces, NM 88005
Phone: 505-527-1888
Fax: 505-527-8853
E-Mail: wsws@marathonag.com

Decision Process: The following is required for consideration by the WSWS's Meeting Policy and Site Selection Committee:

1. Firm room rate.
2. Copies of the floor plans. Specifically requested is the seating capacity (theater-style) and ceiling height of the meeting rooms. Seating capacity must take into account columns. Any column or post must be notated on floor plans.
3. Restaurants, seating capacity and prices including cash fast-food breakfast and lunch, such as continental breakfast and box lunch.
4. Catering costs (example menu, service charges, other regulations on food and beverage functions).
5. Distance (in minutes) from the airport to the hotel. Cost via taxi, limo/shuttle or public transportation.
6. Distance from the hotel to other restaurants, sightseeing and shopping. Availability and cost of city ground transportation.
7. Availability and cost of a business center or similar service in the hotel.
8. Any costs related to storage space and supplies shipped by exhibitors prior to the meeting.
9. Price list of available audiovisual equipment. Requirements regarding who operates the equipment.
10. Allow WSWS to bring in their own laptop computer and LCD projectors for presentations.
11. Hotel will comp A/V prices and not charge WSWS members for patching into house.

Exhibit A
Vancouver, British Columbia, Canada 2005

Monday

Meeting	Attending	Time
Exec. Board	25	8:00-17:00
Registration		8:00-17:00
Storage		8:00-23:00
Presentation Practice	12	13:00-17:00
Welcome & Retirees Reception	250	18:00-19:30
Poster Session	60	18:00-23:00
Commercial Displays	10	18:00-23:00

Tuesday

Meeting	Attending	Time
Posters	60	6:00-23:00
Registration		6:00-20:00
Storage		8:00-23:00

Presentation Practice	12	6:00-23:00
Commercial Displays	10	6:00-23:00
Grad Student Breakfast	30	6:00-8:00
Meeting	350	8:00-12:00
Placement	12	8:00-23:00
Breakout	200	9:30-11:45
Breakout	100	1:15-5:45
Breakout	200	1:15-5:45
Breakout	200	1:15-5:45
Meeting	100	1:15-5:45

Wednesday

Meeting	**Attending**	**Time**
Posters	60	6:00-23:00
Registration		6:00-20:00
Storage		6:00-23:00
Presentation Practice	12	6:00-23:00
Commercial Displays	10	6:00-23:00
Grad Student Breakfast	30	6:00-8:00
Breakout	100	8:00-11:45
Placement	12	8:00-23:00
Breakout	200	8:00-11:45
Breakout	100	8:00-11:45
Awards Lunch	350	11:45-13:30
Breakout	100	13:30-17:45
Breakout	100	13:30-17:45
Symposium	200	13:30-19:00
Breakout	50	13:30-17:45

Thursday

Meeting	**Attending**	**Time**
Registration		6:00-12:00
Storage		6:00-12:00
Commercial Displays	10	6:00-12:00
Placement	12	6:00-12:00
Business Breakfast	350	6:30-9:00
Exec. Board	20	8:00-17:00
Breakout	150	9:15-12:00
Breakout	100	9:15-12:00
Breakout	100	9:15-12:00

Sparks (Reno), NV 2006

Monday

Meeting	**Attending**	**Time**	**Comments**
Exec. Board	25	8:00-5:00	breakfast & lunch
Registration		12:00-5:00	
Storage		24 hr	
Presentation Practice	12	24 hr	
Welcome & Retirees Reception	250	6:00-7:30	
Poster Session	80	5:00-11:00	set-up posters
Commercial Displays	5	5:00-11:00	set-up displays

Tuesday

Meeting	Attending	Time	
Posters	80	24 hr	80 posters
Registration		6:00-5:00	
Storage		24 hr	
Presentation Practice	12	24 hr	
Commercial Displays	5	24 hr	
Grad Student Breakfast	30	6:00-7:30	
Spouse Breakfast	15	8:00-9:00	
Meeting	350	8:00-12:00	General session
Placement	12	24 hr	
Breakout	100	1:15-5:45	
Breakout	200	1:15-5:45	
Breakout	200	1:15-5:45	
Breakout	100	1:15-5:45	

Wednesday

Meeting	Attending	Time
Posters	80	24 hr
Registration		6:00-5:00
Storage		24 hr
Presentation Practice	12	24 hr
Commercial Displays	5	24 hr
Grad Student Breakfast	30	6:00-7:30
Placement	12	24 hr
Breakout	100	8:00-11:45
Breakout	200	8:00-11:45
Breakout	100	8:00-11:45
Breakout	200	8:00-11:45
Awards Lunch	300	11:45-1:30
Breakout	100	1:30-5:00
Breakout	100	1:30-5:00
Breakout	200	1:30-6:30
Breakout	200	1:30-5:00

Thursday

Meeting	Attending	Time	
Registration		6:00-12:00	
Storage		6:00-12:00	
Commercial Displays	5	6:00-12:00	
Placement	12	6:00-12:00	
Business Breakfast	350	6:30-9:00	
Exec. Board	20	11:30-2:00	
Breakout	150	9:15-12:00	
Breakout	100	9:15-12:00	
Breakout	100	9:15-12:00	
Breakout	150	9:15-12:00	
Breakout	200	1:00-5:00	Tentative
Reception	200	6:00-8:00	Tentative

Friday

Meeting	Attending	Time

Breakout	200	8:00-12:00	Tentative

Recommendations for Board Action:

1. Decide on specific venue for the 2010 meeting – Coeur d' Alene resort and several venues in Hawaii (Hilton and Marriott) have facilities that meet our needs.
2. If these hotels do not meet the needs of the board, direct the committee to seek bids from additional city venues.
3. Complete Site selection for specific hotel by 2007 Summer Board meeting

Budget Needs: None
Suggestions for the Future: None
Suggested Changes in Operating Guide: None
Current Committee Members:

d. "David Vitolo " david.vitolo@syngenta.com (current chair)
e. "Michael T Edwards" michael.t.edwards@usa.dupont.com (past chair)
f. "Brian Olson" bolson@oznet.ksu.edu

Name of Person Preparing This Report: Dave Vitolo
The following is information from proposed hotels:

Location	Hotel	Single	Double	Govt	Tax	Transport	Other	
Spokane, WA http://www.thedavenporthotel.com/	Davenport Hotel	$150	$150	-	?	$15 self/22 valet	Need to purchase $37K food/Beverage	
Coer d'Alene, ID http://www.cdaresort.com/	The Coer d'Alene Resort	$119-$139-$159 Most at $139-$159	$119-$139-$159	-	13%	$ 49 Roundtrip shuttle from Spokane		
Honolulu, HI http://www.marriottwaikiki.com/	Waikiki Beach Marriott Resort	Run of House $229 Run of Ocean $259	Run of House $229 Run of Ocean $259	-	Hawaii State Excise Tax 4.16% Occupancy Tax 11.4%		Resort Fee – No Bellman fee $7	Bid valid till 6 March
Waikoloa – HI http://marriott.com/hotels/travel/koamc-waikoloa-beach-marriott-resort-and-spa/	Waikoloa Beach Marriott	Run of House $209 Run of Ocean $239	Run of House $209 Run of Ocean $239	-	"		Resort Fee - $16+4% tax Bellman fee - $5	Bid valid till 6 March
Honolulu, HI http://www.hiltonhawaiianvillage.com/	Hilton Hawaiian Village	$235 - $310, Depending on view	$235 - $310, Depending on view	$149 s $199 d 25 rooms	"		$3,000 day for poster space	
Kona, HI http://www.sheratonkeauhou.com/	Sheraton Keauhou Bay Resort & Spa	$220	$220		"			
Big Island http://www.fairmont.com/orchid/	The Fairmont Orchid	$369-$469	$369-$469		"		+$175,000.00 in banquet food	

FROM HILTON HAWAIIAN February 7, 2007

Mr. Phil Banks
Business Manager/Treasurer
Western Society of Weed Science
205 W. Boutz, Bldg 4, Suite 5
Las Cruces, NM 88005

Aloha Phil,

Warm greetings from the Hilton Hawaiian Village! We were pleased to learn from Adele Tasaka with the Hawaii Visitors & Convention Bureau of your interest in Hawaii for the Western Society of Weed Science 2010 Annual Meeting. We look forward to the prospect of working with you on this event.

At the Village, we are committed to providing a high level of professional service and true Hawaiian hospitality. With six distinctive towers, the hotel encompasses 2,860 rooms over 22 acres of lush, tropical gardens, waterfalls, exotic wildlife, award-winning restaurants, great entertainment including our weekly King's Jubilee with fireworks, over 90 shops and boutiques, a year-round children's program, Atlantis submarine dives, Hawaiian cultural activities, a 10,000 square-foot pool, and Waikiki's best beach to sun and surf.

As a destination the island of Oahu offers a variety of experiences from the best in shopping and dining, art and cultural museums, eco-friendly tours, historical sites, visitor attractions, the best in water sports and other sports related activities, and a nightlife that is rich and varied.

CURRENTLY AVAILABLE PROGRAM DATES

March 6 – 12, 2010

ROOM BLOCK

Sat	Sun	Mon	Tue	Wed	Thur
20	**50**	**190**	**225**	**190**	**100**

ACCOMMODATIONS
We are pleased to confirm the following group rates:

	No. of Rooms	2007 Published Rates	**2010 Group Rates**
*Government per Diem	25	$459.00	**$149.00 single/ $199.00 double**
Garden View	40	$459.00	**$235.00**
Partial Ocean View	100	$489.00	**$260.00**
Ocean View	50	$509.00	**$285.00**
Deluxe Ocean View	10	$549.00	**$310.00**

Our rates are net, non-commissionable and based on single or double occupancy, and subject to current Hawaii state taxes of 11.962% (taxes subject to change).

*Government rate prevailing in 2010 will apply.

SPECIAL OFFER

• One (1) complimentary One-Bedroom Suite.
• One (1) complimentary room night per every fifty (50) revenue room nights.
• Subject to availability, group rates will be extended three (3) days prior to and after the main group dates.
• Meeting Space: General Session and Breakout Rooms will be extended complimentary, based on minimum utilization of 85% of your original room block commitment.
• Poster Space - $3,000.00 plus tax, per day.

FUNCTION SPACE

The Village offers over 150,000 square feet of function space, divided between three conference centers. Based on a 225 room program, we would be willing to commit meeting space in the Tapa Conference Center, which offers a major ballroom and 10 smaller meeting rooms. Attached is a tentative Schedule of Events outlining the function rooms that your conference will require.

Please view our digital meeting planner at www.hhvmciplanner.com to familiarize yourself with our facilities and services. It also has catering information and an overview of Oahu.

Phil, please note we are not holding space for this program. I will be calling you soon to discuss how we can work with you in bringing your group to the Hilton Hawaiian Village. Should you need to contact me in the interim, please feel free to contact me on my direct phone line (808) 947-7858, or by facsimile at (808) 947-7914, or by email at linda_kadohiro@hilton.com.
"Imua Kakou a hana like" – We look forward to working with you.

Warmest aloha,

Linda Kadohiro
National Sales Manager, Meetings & Conventions
cc: Adele Tasaka, Hawaii Visitors & Convention Bureau

July 16, 2009

Mr. Phil Banks
Business Manager/Treasurer
WESTERN SOCIETY OF WEED SCIENCE
205 W. Boutz, Bldg.4, Ste. 5
Las Cruces, NM 88005

Proposal sent via email to wsws@marathonag.com and prepared especially for:

March 6, 2010 - March 12, 2010
Annual Meeting

Aloha Phil,
On behalf of the Sheraton Keauhou Bay Resort & Spa, thank you for requesting a proposal.

ROOM BLOCK & RATES
We are pleased to be able to offer you the following block of rooms:

March 6, 2010 - March 12, 2010

	Sat 3/6/2010	Sun 3/7/2010	Mon 3/8/2010	Tues 3/9/2010	Wed 3/10/2010	Thurs 3/11/2010
Run of House	20	50	190	225	190	100

Total Room Nights: 775

We are pleased to be able to offer you the following preferred rates. The rates are discounted off of our 2006 published room rates, shown below, and are based on your utilization of the block of rooms indicated in this proposal.

Run of House Accommodations: $220.00 $360.00 Published Rate

These rates are net non-commissionable. The rates are valid for single, double and triple occupancy, and are subject to Hawaii State Hotel and General Excise taxes currently at 11.4%. Any additional guests 18 years or older, up to four per room, are at an additional $60 per person per night.

SPECIAL PROGRAM ENHANCEMENTS / CONCESSIONS

Sheraton Keauhou would enjoy partnering with you on this exciting opportunity. We believe that the rates we offered provide an exception value. However, to sweeten things up just a bit, allow us to extend the following courtesies to you.

- One per 40 complimentary rooms, cumulative
- One complimentary Presidential Suite for conference VIP
- One complimentary Deluxe Executive Suite during conference dates
- Two Deluxe Executive Suites at the group rate during conference dates
- Five upgrades to guaranteed Deluxe Ocean Front View rooms at the group rate
- 35 rooms at the 2010 prevailing government per diem for
- Room rate available for single, double and triple occupancy
- Complimentary meeting space for all catered and planned events
- A complimentary custom website built just for your event. This site enables faster reservation processing, instant confirmations and to you as the planner, 24 x 7 access to rooming list and pickup reports!
- Up to 20,000 Starwood Preferred Guest StarPoints just for booking this event with us
- Commissionable "Extend Rates" in all of our Hawaii resorts… As a special benefit for confirming this group with the Sheraton Keauhou Bay Resort, we are happy to offer special pre & post rates at any Starwood Hotels or Resorts in Hawaii for your attendees. This includes the Sheraton Waikiki, Sheraton Moana Surfrider, Sheraton Princess Kaiulani Hotel, Royal Hawaiian Hotel, W Honolulu, Sheraton Maui, Westin Maui, Sheraton Kauai Resort, or the Princeville Resort. Rates vary at each property and are based on availability

BANQUET SERVICES

The Sheraton Keauhou Bay Resort & Spa offers complete banquet catering and conference services to suit your every need. Challenge us to create a unique themed event for your final night event. Enjoy the camaraderie and intimacy of a private breakfast or open-air lunch. The following is a sample banquet pricing guideline.

EVENT	AVERAGE PER PERSON BANQUET PRICES
CONTINENTAL BREAKFAST	$18.50
BREAKFAST BUFFET	$26.00
PLATED BREAKFAST	$22.00
AM THEMED BREAK	$18.00
BOX LUNCH	$20.00
PLATED LUNCH	$34.00
LUNCH BUFFET	$36.00
HOT OR COLD HORS D'OUEVRES	$3.50 PER PIECE
WELCOME RECEPTIONS	$68.00 (PRICE DOES NOT INCLUDE THE $100.00 PER HOUR CHEF ATTENDANT CHARGE, BASED ON A TWO HOUR MINIMUM)
PLATED DINNER ENTRÉE (4 COURSE)	$85.00
THEME DINNER BUFFET	$72.00 (PRICE DOES NOT INCLUDE THE $75 PER HOUR CHEF ATTENDANT CHARGE, BASED ON A TWO HOUR MINIMUM)
CALL BRAND COCKTAIL HOUR	$17.00 – ONE HOUR $25.00 – TWO HOURS

	$6.50 – EACH ADDITIONAL HALF HOUR
PREMIUM BRAND COCKTAIL HOUR	$19.00 – ONE HOUR $29.00 – TWO HOURS $7.50 – EACH ADDITIONAL HALF HOUR

Please note that the aforementioned prices so not include an 18% taxable service charge or the prevailing Hawaii State Excise Tax, currently 4.16%.

TAXES & GRATUITIES

Our prevailing taxes are: Hawaii State Excise Tax 4.16% Occupancy Tax 11.4%
The resort's food and beverage service fee is 18%. It is taxable.
Round-trip Porterage Fees are $7.00, per person
Maid Gratuities are suggested at $2.00 per room, per day.

ALOHA NUI LOA

All of us here at the new Sheraton Keauhou Bay Resort & Spa are looking forward to the opportunity of being selected for your **Annual Meeting**. You can expect a call from me shortly to make sure everything arrived safely and to see if we can have you take a closer look at our solutions. In the meantime, if you have any questions, please give me a call at 808-930-4875 or via e-mail at john.dominguez@sheraton.com.

Warmest Aloha,

John Dominguez

John Dominguez
Senior Sales Manager

THE Fairmont ORCHID HAWAI'I

July 16, 2009
Via Email: wsws@marathonag.com

Phil Banks
Business Manager/Treasurer
Western Society of Weed Science
205 W. Boutz, Bldg. 4, Suite 5
Las Cruces, NM 88005

Aloha Phil,

We are delighted to have received information from the Hawaii Visitors & Convention Bureau that you are considering The Fairmont Orchid, Hawaii for your 2010 Annual Meeting. We would love to have the opportunity to work with you and welcome your attendees. I am confident your attendees will enjoy the wonders of the Big Island. From snow-capped mountains to desert-like landscape to lush tropical rainforests, there is much to offer the adventurous and spirited traveler.

Once you have had time to review this proposal, we hope you will find that The Fairmont Orchid is the perfect choice for this program. We currently have the following dates available, but are **not holding space** pending your response:

Available Dates:	March 7-12, 2010
Room Block/Total Room Nights:	20/50/190/225/190/100 (775)
Garden View Room Rate:	$369.00 (up to 125 rooms at this rate)
Partial Ocean View Room Rate:	$419.00
Ocean View Room Rate:	$469.00

The rates and concessions in this proposal are valid for 30 days from the date of this proposal at which time they may be subject to change unless confirmed by a letter of agreement. These rates and concessions are confidential and intended for Western Society of Weed Science only.

Room rates quoted are Net-Non Commissionable. The group room rates listed above are based on single or double occupancy. Third adult charge is an additional charge of $75.00 plus tax per night in addition to the room rate (maximum of 3 adults per room). The above rates reflect the European Plan (EP) (accommodation only, no meals).

Taxes and Service Charges:
All room rates are quoted exclusive of applicable state and local taxes, which are currently 11.416%. Porterage and maid gratuities/service charges are not included in the above rates and will be at the individual guest discretion.

2007 Porterage:	Suggested at $8.50 per person, round-trip
Maid Gratuity:	Suggested at $2.50 per room, per day

Additional Service Charges:

In-Room Delivery Fee:	$3.00 per room 1st item, $.50 each add'l item per room
Overnight Self Parking:	$9.00 per night
Overnight Valet Parking:	$15.00 per night

Concessions:

- One (1) One Bedroom Presidential Suite upgraded at the ocean view room rate for 5 nights, pre and post room nights at 30% off 2010 published rates, based on availability.
- One (1) One Bedroom Executive Suite Ocean View upgraded at the partial ocean view room rate for 5 nights, pre and post room nights at 30% off 2010 published rates, based on availability.
- Complimentary meeting room rental based on a minimum guarantee of $175,000.00 in banquet food and beverage revenue.
- Up to 25 Garden View rooms at a discounted rate of $225.00 each per night
- 1/50, cumulative
- Exhibit tables at a discounted rate of $40.00 plus tax each per day. Includes 1-6' skirted table & 2 chairs

Guest Room product consistency. All guestrooms and hallways have new décor since December 2006, with a subtly luxurious, unmistakably Hawaiian look and feel. As we are situated on The Big Island, with direct flight service offered through many major air carriers into Kona International Airport (KOA). All guest rooms are 522 sq ft with large private lanais and Italian marble bathrooms with separate shower and tub and two sinks.

Choose to play 36 holes of championship golf at the Francis H. I`i Brown golf course. Or opt for an invigorating game of tennis at our 10-court facility. Paddle an outrigger canoe, learn to surf with one of our Beach Boys, or participate in a historic hike. Enjoy snorkeling in the crystal clear waters of Pauoa Bay, a scuba lesson in our 10,000-square-foot heated swimming pool open 24-hours, or a refreshing dip in one of our lava-enhanced whirlpools. For those who seek the ultimate in relaxation, try our **'Spa Without Walls,'** and enjoy a massage in one of our Oceanside Cabanas, Garden or Waterfall massage *hale* (houses), or sit back and watch the Kohala sunset from the vantage point of a swaying hammock. ***Opening this Summer are The Shops at Mauna Lani. Over 80,000 sq ft of upscale retail and dining options. Anchor restaurants include Tommy Bahama's Tropical Café, Emporium, Ruth's Chris Steak House, Daras Thai Cuisine, and Starbucks plus over 30 more shops for fashion, food and lifestyle, all within the Mauna Lani Resort. With complimentary shuttle service or within-walking distance of the hotel.***

Four restaurants showcase the flavors of the islands in dynamic menus created by a talented team of culinary experts Pacific Rim to Japanese cuisine.

Off property activities include; horseback riding, sunset and snorkel sails, hiking through valleys and waterfalls, deep sea fishing, visit a snow capped mountain atop Mauna Kea (also home to the worlds largest observatory), tour the island in a convertible or take a helicopter ride through valleys and over the active Kilauea Volcano.

Function Space:

The Fairmont Orchid, Hawai'i features over 76,000 square feet of spectacular outdoor function space and over 32,000 square feet of indoor meeting space. Our experienced Banquet and Catering & Convention Services team is ready to service your program needs and make this a most memorable event.

Complimentary Features & Services:
• Daily local newspaper
• Fresh flower lei greeting upon arrival
• Signature Beach Boys program with daily ocean and cultural activities and historical hikes
• Coffee makers and complimentary Kona Coffee and tea in all guest rooms and suites
• Safety deposit boxes and in-room safes
• Use of fitness center
• Secure High Speed Internet access complimentary for Fairmont President's Club Members (www.fairmont.com/fpcenroll), $14.95 per 24 hours for non-members

Banquets (2007 pricing), subject to change:

Breakfast	$22.00 - $56.00
Theme Breaks	$13.00 - $16.50
Lunch	$27.00 - $52.00
Reception	$95.00 - $105.00
Dinner	$74.00 - $120.00
Food/Beverage tax	4.166%
Food/Beverage service charge	22%

Activities (2007 pricing) subject to change:

Tennis Rates:	$15.00/person/day
Francis I'I Brown Golf Rates:	$145.00/cart/green fee
Optional Activity Fee:	$55.00/Adults & $40.00/Child

One time fee per stay includes; Masks, snorkels & fins, Soft-top paddleboard, Personal floats, Laguna chair, One-person kayak, Two-person kayak, Personal CD Player for use at the beach, Daily seaside yoga class, K Swiss tennis skills clinics, Hit with the Pro tennis class, Surfing Introduction lesson – by appointment & Outrigger Canoe rides – by appointment

Restaurants and Bars:
Your guests have many choices while here for their dining pleasure:

THE GRILL - Innovative, upscale and distinctly fine dining, The Grill menu utilizes the world's most superlative ingredients, and changes seasonally to best take advantage of nature's bounty. Koa-paneled walls and elegant white linen, award-winning wine list and impeccable service make The Grill a must for the discriminating diner. The Grill is open for dinner.

THE ORCHID COURT – Open for breakfast, the Orchid Court offers the island's most sumptuous breakfast buffet daily, or order from a tempting array of a la carte selections. Al fresco seating in a tropical garden setting.

BROWN'S BEACH HOUSE – The Big Island's top restaurant for gorgeous ocean views and incomparable cuisine has a new look with the creation of an exciting exhibition kitchen and new menu items for the lunch and dinner menus. The exceptional island-inspired menu features fresh Hawaiian fish, the finest locally grown produce and herbs, and earned Brown's Beach House the coveted Hale `Aina Award for Top Big Island restaurant by readers of *Honolulu* magazine in 2003. Nightly entertainment by a Hawaiian duo and a hula dancer.

BROWN'S DELI –Situated alongside Brown's Beach House restaurant, Brown's Deli is open for breakfast, lunch and dinner. Brown's Deli is features delicatessen favorites with island-inspired flair, plus a selection of panini, pizzas, fine cheese, salads, desserts, made-to-order specialties, picnics to-go, and gourmet coffee and beverage selections.

NORIO'S SUSHI BAR & RESTAURANT –Norio's features authentic Japanese cuisine plus exciting signature items, and is located adjacent to The Orchid Court Restaurant. Enjoy watching the sushi masters at the eight-seat sushi bar, or opt for Norio's private dining room overlooking a serene koi pond.

THE OCEAN BAR – Take a quick break from the beach or pool at the poolside Ocean Bar the perfect venue for a most refreshing afternoon or sunset cocktail. The Ocean Bar is located near the entrance to Brown's Beach House and is open daily.

THE POLO BAR, THE PANIOLO LOUNGE AND THE SUNSET TERRACE – Hawai`i's Paniolo (cowboys), polo players and pa'u riders are celebrated in The Polo Bar and Paniolo Lounge. In the evening, enjoy the finest cordials, cigars and gourmet coffees. Live entertainment on weekends. Billiards and other table games provide for friendly competition. Comfortable outdoor seating and astounding views are available at The Sunset Terrace, adjacent to The Polo Bar and across from the lobby.

KAHAKAI BAR – Kahakai means "beach" in Hawaiian and this new beachside bar features a Polynesian-style thatched roof, refreshing trade-winds and breathtaking views of Mauna Kea and the blue Pacific. A variety of tropical libations and mouth-watering pupus (appetizers) are served

Phil, if you would like any collateral of our hotel please let me know and I'll be happy to forward a sales kit to your attention. Please also visit our web site at www.fairmont.com/orchid. Should you have any questions, or require any additional information do not hesitate to contact me. I look forward to speaking to you soon.

Warmest regards,

Virginia Delacruz
Sales Manager
The Fairmont Orchid, Hawaii
T: 808-887-7353 F: 808-885-8886
E: virginia.delacruz@fairmont.com

Marriott
HAWAIIAN ISLANDS HOTELS & RESORTS

Proposal

Western Society of Weed Science

We are pleased to propose the following for your program based on today's February 5, 2007 availability:

Available Dates	# Rooms	Your 2010 Rate	2007 Published Rate
Waikiki Beach Marriott Resort March 6 – 12, 2010	225 Peak Rooms	Run of House $229.00 Run of Ocean $259.00	City View $425 Partial Ocean View $475 Ocean View $535 Deluxe Ocean View $595
Waikoloa Beach Marriott March 6 – 12, 2010	225 Peak Rooms	Run of House $209.00 Run of Ocean $239.00	Garden/Mountain $425 View $495 Ocean View $565 Ocean Front $600 Lagoon Cabana

Please note the rates listed above are for single or double occupancy, net, non-commissionable and subject to applicable state and local taxes, currently 11.71% (11.962%-Oahu only).

Hotel	Maximum Occupancy	Additional Per Adult Charge *	Bellman Porterage *	Housekeeping Gratuity
Waikiki Beach Marriott Resort & Spa	(3) adults or (2) adults & (2) children	$40.00 per night	$6.81	$2.00
Waikoloa Beach Marriott Resort & Spa	(4) persons	$40.00 per night	$5.25	$2.00

Maximum Occupancy: There is no additional charge for children (18 years and under) when accompanied by a paying adult.
Bellman Porterage: Per person, round trip, inclusive of tax, subject to change.
Housekeeping Gratuity: Optional, suggested per room, per night

* *Subject to change*

ACTIVITY RESORT FEE

Hotel	Activity Resort Fee per Day *	Includes *	Value *
Waikiki Beach Marriott Resort & Spa	None		
Waikoloa Beach Marriott Resort & Spa	$15.95 plus 4.167% tax	Overnight Self-Parking Free Local Phone Calls (Big Island Only) Mai Tai for Two in Clipper Lounge or Nalu's Bar &	$7.00 Daily $1.00 / Call $10.00 / Day

		Grill One Child's (11 & under) Meal in Hawaii Calls Keiki Dinner Menu with a Purchase of an Adult Entrée Daily ½ Day Snorkel Rental for Two Unlimited High Speed Internet Access	$10.00 / Child $24.00 / Day $9.95 / Day
** Subject to change*			

SELLING FEATURES

Hotel	Includes
Waikiki Beach Marriott Resort	▪ More than 60,000 square feet of meeting space ▪ $65 million renovation completed in 2002 ▪ Scenic side of Waikiki next to Diamond Head, Honolulu Aquarium, Zoo and Kapiolani Park ▪ Easy Beach Access ▪ 85% Ocean view rooms
Waikoloa Beach Marriott	▪ 26,500 square feet of indoor space and extensive beachground areas ▪ High Speed internet access in all guest rooms ▪ Six tennis courts ▪ Complimentary use of fitness center ▪ 36 Holes of Championship Golf

FUNCTION AGENDA

Date	Time	Function	Set-Up	Number of People
Function Space Available as Requested				

For the dates and requirements requested, I am not holding space at this time, but would be happy to do so at your request, if still available.

The above will be valid until ***March 6, 2007***

In addition to the above dates we will also provide the following concessions:

- ❖ Complimentary meeting space and set up
- ❖ Complimentary exhibit hall space
- ❖ (1) One complimentary room night for every (40) forty room nights actualized on a cumulative basis

Base on 85% utilization of total room block, the Hotel will provide the following additional concessions:

- ❖ (1) One complimentary Presidential Suite
- ❖ (1) One complimentary Junior Suite
- ❖ Group / Presenters are allowed to utilize their own Audio Visual equipment

For more information or questions, please contact:

Charlene T. Nakamura
Director of National Accounts
Marriott International Hawaiian Islands Hotels & Resorts
Ph: (808) 921-5112 Fax: (808) 921-5225
Email: charlene.nakamura@marriott.com

Coeur d' Alene Resort information

World-class dining…

Our Culinary team travels the globe to bring our Guests a world-class dining experience. From the Italian creations of *Tito Macaroni's*, to upscale Pan-Asian fare at *Bonsai Bistro*, the diversity of family dining at *Dockside*, steaks and seafood at *The Beachouse Rib and Crab Shack, Cedars Floating Restaurant* and our DiRona (Distinguished Restaurants of North America) award-winning signature restaurant *Beverly's*, you will sample something for everyone. The Resort also features three indoor lounges and two outdoor lounges, two Starbucks Coffee outlets and is within walking distance of dozens of other restaurants.

Unmatched value…

I have reviewed the current specifications for your program and we currently have the following dates and rates available:

ROOMS

	Sat 3/06/10	Sun 3/07/10	Mon 3/08/10	Tue 3/09/10	Wed 3/10/10	Thu 3/11/10	Total Rooms
Total Rooms	20	50	190	225	190	30	705

RATES

Room	Single Rate	Double Rate
Premier	$ 159.00	$ 159.00
Deluxe	$ 139.00	$ 139.00
Traditional	$ 119.00	$ 119.00

The current tax and surcharge on Guestrooms are as follows: STATE & LODGING @ 8%, SURCHARGE @ 5% for a total of 13% and are subject to change.

Summary of Special Considerations:

- All meeting space and lodging are located under one roof
- All meeting space and exhibit space will be located on the same floor
- Highly discounted group room rates
- One complimentary room offered per forty occupied calculated on a per night basis
- We will offer complimentary meeting space rental and meeting set up
- We will offer you complimentary exhibit hall space
- We will hold the same group rate if needed for triple occupancy
- We will be happy to provide you with two complimentary penthouse suites
- We will allow for the WSWS and its presenters to bring in their own A/V
- Complimentary WI-FI in all guest rooms and lobby area
- We will be happy to offer a Co-Sponsor group board meeting for 12-14 (10 Complimentary rooms) people in July or August of 2010 based on our availability and at or discretion.

Additional Information for consideration:

- Distance from Spokane International airport to the Coeur d'Alene Resort is approximately 35 miles and takes 40 minutes. Cost for round trip hotel shuttle service is $49 per person
- Business center service will be offered on a complimentary basis for your event
- We will waive all storage fees for your group prior, post, or during your event
- We will allow for the WSWS to provide their own laptop and LCD projector for the use of the presenters

THE
DAVENPORT HOTEL
and Tower

February 2, 2007

Mr. Phil Banks
Western Society of Weed Science
205 West Boutz Bldg. 4 Suite 5
Las Cruces, NM, 88005

One of America's exceptional hotels is pleased to be considered as a stage for the **March 2010 Western Society of Weed Science Annual Meeting**. Born in the age of elegance and reborn in the information age, The Davenport Hotel extends a warm welcome to you and your members and promises to offer a truly unique experience during your event. Our service, ambience and history are unmatched and we are pleased to share it with you.

Dates and Guest Room Block:
The Davenport Hotel is unique in the fact that all of our guest room floors have been completely reconstructed. When Walt and Karen Worthy purchased the hotel in May 2000 it had 500 guest rooms. Following an extensive two-year restoration that included upgrading room quality and increasing room size, The Davenport Hotel currently has 283 luxurious guest rooms. This includes 24 suites ranging in size from 670 – 3,000 square feet.

In addition, we have started construction on a new Tower located across the street from our hotel. The new Tower will feature 328 new guest rooms, a restaurant, lounge, and retail space. Guests at The Davenport Hotel and Tower will have signing privileges at both locations and access to the hotel's pools, fitness centers, spa, restaurants, 24 hour room service, private catering, pet concierge services, housekeeping, laundry and town car service. The Tower will open in January 2007.

At this time, we have the following dates and room blocks available for your consideration between The Davenport Hotel & Tower:

Day	Date	# Of Rooms
Saturday	**March 6, 2010**	**20**
Sunday	**March 7, 2010**	**50**
Monday	**March 8, 2010**	**190**
Tuesday	**March 9, 2010**	**225**
Wednesday	**March 10, 2010**	**190**
Thursday	**March 11, 2010**	**30**
	Total Number of Rooms	**705**

Guest Room Rates:
We will guarantee the following overnight guest room rates and offer a complimentary upgrade to our Deluxe Rooms for your guests:

Deluxe Rooms

$150.00 – single or double occupancy
$165.00 – triple occupancy
$180.00 – quad occupancy

These rates do not include applicable taxes or surcharges and are non-commissionable. By comparison, our prevailing room rates are $199 single or double for a Standard Room and $239 single or double for a Deluxe Room.

Complimentary Rooms/Concessions:
The Davenport Hotel & Tower will offer either one guest room for every 50 rooms realized per night or one suite for every 100 rooms realized per night on a complimentary basis. In addition, we will provide the following on a complimentary basis once 90% of the contracted room block is realized:

- 2 parlor suites
- 2 round trip airport transfers
- Board Meeting for 12 – 14 people in July or August (dates based upon availability) up to 10 rooms on a complimentary basis for one night. Should additional nights be required, we will offer them at a reduced rate.
- It is our understanding the Group will bring in their own AV. Please know that our AV staff is in-house and happy to be of assistance.

Banquet & Meeting Space:
The Davenport Hotel is located adjacent to The Tower and offers a wide range of meeting and banquet space. With over 25,000 square feet of meeting space, The Davenport Hotel has more public space per room ratio than any other hotel in the Northwest. Our larger meeting facilities are as follows:

- The Grand Pennington Ballroom – 6,253 square feet with state of the art technology – can seat up to 460 people at rounds of 10
- The Hall of Doges Prefunction area- 2,976 square feet, beautifully painted vaulted ceiling circa 1905 – located outside the Grand Pennington Ballroom and can seat up to 140 people at rounds of 10.
- The Marie Antoinette Ballroom 3,080 square feet with balcony, can be used in a large theatre seating format or for a lovely social gathering – this room can seat up to 280 people at rounds
- The Isabella Room 3,177 square feet and conveniently situated off the main lobby this room too can be utilized for conference sessions or social functions for up to 300 people
- The Elizabethan Room, 2,200 square feet, English Tudor oak paneled room would be an excellent choice for conference meeting space or for food and beverage functions for up to 150 people. This room is divisible into 2 sections.
- The Early Bird Ballroom is 2,800 square feet located across from Spa Paradiso and is ideal for groups of up to 150 people.
- Two boardrooms which can accommodate 20 - 25 people
- Two breakout rooms which can accommodate 40 – 80 people depending upon room set

At this time we understand your agenda to be as follows:

Day	Date	Time	Function	Set Up	# Of Guests	Meeting Room
Mon	03/08/2010	07:00AM – 08:00AM	Breakfast	Conference	25	Davenport Boardroom
Mon	03/08/2010	07:00AM – 11:59PM	Registration/Office	Existing Set	FLOW	Coat Check Room
Mon	03/08/2010	07:00AM – 11:59PM	Presentation Practice	Rds/10	12	Cutter Room
Mon	03/08/2010	07:00AM – 11:59PM	Commercial Displays	Special Set	FLOW	Hall of the Doges Foyer
Mon	03/08/2010	07:00AM – 11:59PM	Poster Sessions	Special Set	FLOW	Mezzanine
Mon	03/08/2010	08:00AM – 05:00PM	Executive Board	Conference	25	Davenport Boardroom
Mon	03/08/2010	12:00PM – 01;00PM	Lunch	Conference	25	Davenport Boardroom
Mon	03/08/2010	06:00PM – 07:30PM	Cocktail Reception	Cabaret	250	Marie Antoinette with Balcony

Tue	03/09/2010	06:00AM – 07:30AM	Grad Student Breakfast	Rds/10	30	Porter Room
Tue	03/09/2010	07:00AM – 11:59PM	Registration/Office	Existing Set	FLOW	Coat Check Room
Tue	03/09/2010	07:00AM – 11:59PM	Presentation Practice	Rds/10	12	Cutter Room
Tue	03/09/2010	07:00AM – 11:59PM	Commercial Displays	Special Set	FLOW	Hall of the Doges Foyer
Tue	03/09/2010	07:00AM – 11:59PM	Poster Sessions	Special Set	FLOW	Mezzanine
Tue	03/09/2010	08:00AM – 09:00AM	Spouse Breakfast	Conference	15	Davenport Boardroom
Tue	03/09/2010	08:00AM – 12:00PM	Meeting	Rds/10	350	Grand Pennington
Tue	03/09/2010	01:15PM – 05:45PM	Breakout Meeting	Theatre	100	The Early Bird Room
Tue	03/09/2010	01:15PM – 05:45PM	Breakout Meeting	Theatre	100	Elizabethan Room
Tue	03/09/2010	01:15PM – 05:45PM	Breakout Meeting	Theatre	200	Isabella Ballroom
Tue	03/09/2010	01:15PM – 05:45PM	Breakout Meeting	Theatre	200	Marie Antoinette with Balcony
Wed	03/10/2010	06:00AM – 07:30AM	Breakfast	Rds/10	30	Porter Room
Wed	03/10/2010	07:00AM – 11:59PM	Registration/Office	Existing Set	FLOW	Coat Check Room
Wed	03/10/2010	07:00AM – 11:59PM	Presentation Practice	Rds/10	12	Cutter Room
Wed	03/10/2010	07:00AM – 11:59PM	Commercial Displays	Special Set	FLOW	Hall of the Doges Foyer
Wed	03/10/2010	07:00AM – 11:59PM	Poster Sessions	Special Set	FLOW	Mezzanine
Wed	03/10/2010	08:00AM – 06:30PM	Breakout Meeting	Theatre	100	The Early Bird Room
Wed	03/10/2010	08:00AM – 06:30PM	Breakout Meeting	Theatre	100	Elizabethan Room
Wed	03/10/2010	08:00AM – 06:30PM	Breakout Meeting	Theatre	200	Isabella Ballroom
Wed	03/10/2010	08:00AM – 06:30PM	Breakout Meeting	Theatre	200	Marie Antoinette with Balcony
Wed	03/10/2010	11:45AM – 01:30PM	Lunch	Rds/10	350	Grand Pennington
Thu	03/11/2010	06:30AM – 09:00AM	Breakfast	Rds/10	350	Grand Pennington

Thu	03/11/2010	07:00AM – 11:59PM	Registration/Office	Existing Set	FLOW	Coat Check Room
Thu	03/11/2010	07:00AM – 11:59PM	Commercial Displays	Special Set	FLOW	Hall of the Doges Foyer
Thu	03/11/2010	07:00AM – 11:59PM	Poster Sessions	Special Set	FLOW	Mezzanine
Thu	03/11/2010	09:15AM – 02:00PM	Breakout Meeting	Theatre	100	The Early Bird Room
Thu	03/11/2010	09:15AM – 02:00PM	Breakout Meeting	Theatre	100	Elizabethan Room
Thu	03/11/2010	09:15AM – 02:00PM	Breakout Meeting	Theatre	150	Isabella Ballroom
Thu	03/11/2010	09:15AM – 02:00PM	Breakout Meeting	Theatre	150	Marie Antoinette with Balcony
Thu	03/11/2010	11:30AM – 02:00PM	Executive Board	Conference	20	Davenport Boardroom
Thu	03/11/2010	01:00PM – 05:00PM	Breakout Meeting	Theatre	200	Marie Antoinette with Balcony
Thu	03/11/2010	06:00PM – 08:00PM	Cocktail Reception	Cabaret	200	Isabella Ballroom
Fri	03/12/2010	08:00AM – 12:00PM	Breakout Meeting	Theatre	200	Marie Antoinette with Balcony

- Please note: If the Hotel is required to set up the tabletops - there is a charge of $50 per tabletop display per day. It is our understanding the Poster Displays and Commercial Displays will be set up by an outside company.

Meeting Room Rental/Food Minimum:
Based upon the above agenda, meeting room rental would be as follows:

Guest Rooms Occupied	**Meeting Room Rental**
90 – 100%	$2,000
80 – 89%	$3,000
70 – 79%	$4,000
Below 70%	$5,000

Please note: The meeting room rental for the above agenda should be $25,000 and this amount as been reduced based upon the anticipated guest rooms and food and beverage functions.

The Western Society of Weed Science agrees a minimum of $37,000 will be spent in food, beverage and/or floral arrangements ordered from the hotel florist during the course of this 2010 meeting. This minimum does not include service charges, taxes, labor charges, restaurant charges, audiovisual charges, or any other miscellaneous charges incurred during the event. Should the amount fall below $37,000 the meeting room rental may be reassessed.

Property Location:

Entertainment:

Dining, dancing, theater and live music is all within 2 blocks of the hotel:

- The Big Easy is the Northwest's premier nightclub, concert house and restaurant.
- The Bing Crosby Performing Arts Center and The Fox Theatre, home to the Spokane Symphony are located next door.
- CenterStage presents theater in cabaret and dinner theatre style.
- AMC 20 Screen Movie Theater in River Park Square features the latest movies
- The Spokane Veteran's Memorial Arena features Spokane Chiefs Hockey, concerts and various community events is also located within 5 – 10 minutes from the hotel.
- Spokane features several wineries that offer daily tastings, tours and special events
- Mobius Children's Museum is located in River Park Square and offers creative hands on learning for children under 10.

Shopping:

Beautiful River Park Square shopping mall is within 2 blocks of the hotel and features the following stores: Nordstrom, Macy's, Pottery Barn, Banana Republic, Restoration Hardware, The Gap, Abercrombie and Fitch to name a few.

Activities:

Spokane's landmark Riverfront Park is within 5 blocks of the hotel and features a Looff Carrousel, and walking trails that connects to Centennial Trail. An IMAX Theater, amusement rides and seasonal ice-skating is also available. River rafting down the Spokane River can be arranged for guests and is within 5 minutes of the hotel.

Access to Convention Center:

The Spokane Convention Center, Opera House and Arena are all within walking distance (approximately 5 – 7 blocks).

Golf:

There are 5 premier public golf courses located within a 5 – 15 minute drive from the hotel. These fabulous courses have greens fees under $30!

Airport Transportation:

The Davenport Hotel is located 7 miles (approximately 15 – 20 minutes) from the Spokane International Airport. The Hotel will provide Town Car service between the hours of 5:00am and 11:00 pm, or by appointment, daily. This service will be available to all registered guests, based on availability. Requests within a 2-mile radius are complimentary for registered guests; airport service is $35 roundtrip per room; hourly rates are $75 per hour, based on availability with a two-hour minimum. These rates are subject to change.

Parking:

The Davenport Hotel offers over 500 covered parking spaces for guests. Currently there is a charge of $15 per day for self-park and $22 per day for valet for overnight guests. These rates are subject to change.

Accommodations/Amenities:

- 611 spacious guestroom and suites, classic décor with every modern amenity.
- Exquisite Marble Bathrooms and Showers
- Plush Terry Robes at The Davenport Hotel
- 3-Two Line Phones in Each Room with Voice Mail and Private Direct-line Capability
- 27 inch Flat Screen Internet-enabled TV's
- Complimentary High Speed Ethernet Access
- Irons and Ironing Boards
- Hair Dryers
- Make-Up Mirrors
- Complimentary Daily Newspaper
- In-Room Safe

Features and Guest Services:

- Concierge Service
- 24 Hour Business Center
- 24 Hour Room Service available at The Davenport Hotel
- Complete Fitness Center
- Spa Paradiso Full Service Day Spa/ Hair Salon available at The Davenport Hotel
- Indoor Lap Pool and Jacuzzi
- Town Car Service
- The Award Winning Palm Court Grill Restaurant and Peacock Room Lounge at The Davenport Hotel
- The Safari Room Restaurant and Lounge at The Tower
- Pet Friendly
- AAA Four Diamond Award-Winning Hotel – highest rated hotel in Spokane
- Rated as a Top 10 Hotel in Customer Service by Expedia Travelers
- Recognized by Conde Naste Gold Top 700 Hotels in The World

The Davenport Hotel is exceptional in many ways. Consider that we are the only AAA Four Diamond hotel in Spokane; our local ownership means your investment with us stays in the local community; every public space is fully dressed in both the grandeur of the gilded age as well as the functionality of the information age; and Neil Diamond liked our beds so much he bought one to take home with him! We hope our guests will be so pleased with their stay that they will be glad they came, sorry to leave and eager to return. We look forward to being at your service.

I hope this information assists you in your conference location selection. If you have further questions, please do not hesitate to contact me at (509)789-6811 or via email mharper@thedavenporthotel.com.

Best regards,

Meg Harper
Director of Sales

The Davenport Hotel & Tower

The new Tower of the Davenport Hotel is located at 111 South Post Street in the heart of downtown Spokane's shopping, arts, business and financial district, across First Avenue from the historic Davenport Hotel. Scheduled to open in the fourth quarter of 2006, the Tower will have 18 floors comprised of over 300 spacious hotel rooms and executive suites. It will also have a restaurant, pool and Jacuzzi, fitness center, 24-hour business center, six meeting rooms with complete catering and audio visual services, a gift shop and secure parking.

One half of the 450 square foot Tower guest rooms will be King bedded rooms. The other half will be furnished with two Queen sized beds. Each guest room will be designed with an oversized marble and granite shower, custom designed furniture, a Davenport Hotel pillow top mattress with imported Irish linens, LCD Flat screen TV's, high speed wired and wireless internet access, 3 telephones with voice mail, iron and ironing board, lighted make-up mirror, hair dryer, in-room safe, Lodgenet and Pay Per View movies with Nintendo.

The 900 square foot executive suites will be located on the upper two floors of the Tower. Each suite will be appointed with a King sized custom made Davenport pillow top mattress bed plus custom designed furniture with a kitchenette. The powder room and bathroom will be wrapped in marble and granite and contain similar amenities as the Tower guest rooms. The executive suites will have the ability to connect to other suites on the same floor, offering two and three bedroom suite configurations. Available for nightly, weekly, monthly or yearly rental, the executive suites offer a new style of urban living in downtown Spokane.

Amenities at the Tower will include an attached 5 level secured parking garage, complimentary local newspaper available at the front desk, a themed restaurant, pool and Jacuzzi with a Fitness Center, 24 hour business center and gift shop. The entire second floor will contain six meeting rooms that include a 400 square foot boardroom and five other meeting rooms varying in size from 525 square feet to 1650 square feet that can accommodate up to 100 guests for meetings and banquet events. Signing privileges will be available to all Tower guests just across the street at The Davenport Hotel for services in its various shops, restaurants and spa. Like the historic Hotel, Tower guests will enjoy this prestigious address and some of the most beautiful panoramic views of the city.

TheHiltonFamily

Pace Report

Account Name: Western Society of Weed Science

Post As: Western Society of Weed Science Meeting

		Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Totals	03/10/07	03/11/07	03/12/07	03/13/07	03/14/07	03/15/07	03/16/07	03/17/07
Contracted Rooms	770	20	50	215	230	215	40		
8 weeks prior to cutoff	229	6	11	51	67	67	23	3	1
7 weeks prior to cutoff	257	7	12	57	75	76	26	3	1
6 weeks prior to cutoff	257	7	12	57	75	76	26	3	1
5 weeks prior to cutoff	369	9	18	86	106	108	35	5	2
4 weeks prior to cutoff	478	14	26	109	135	138	45	7	4
3 weeks prior to cutoff									
2 weeks prior to cutoff									
1 week prior to cutoff									
Cutoff									
1 week after cutoff									
2 weeks after cutoff									
3 weeks after cutoff									
4 weeks after cutoff									
Day of Arrival Reservations									
Arrivals									
No Show									
Same Day No Show/Cancellation %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Final Pickup	473	13	25	108	134	137	45	7	4
Comp Room Nights (not included in final p/u)									
Total p/u including comps	473	13	25	108	134	137	45	7	4
% Wash from Cutoff	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walks									
Total Suites									

DIRECTOR OF SCIENCE POLICY REPORT – Lee Van Wychen (Vanelle Peterson, Nelroy Jackson)

DEMOCRAT TAKEOVER IN HOUSE AND SENATE WILL INFLUENCE AGRICULTURE, ENVIRONMENT, AND SCIENCE AGENDA

- The November elections brought forth the largest "power shift" in DC in over a decade.
- Senate filibuster and Bush veto will focus activity at the committee level.
- Western region has several key committee chairs, particularly with natural resource jurisdictions.

FARM BILL

- It will happen. Led by Rep. Peterson (D-MN) and Goodlatte (R-VA) in House and Sen. Harkin (D-IA) and Chambliss (R-GA) in Senate.
- Ag policy will center around **renewable fuels** and **conservation**.
- Harkin is the creator of the Conservation Security Program (CSP) in the 2002 Farm Bill which pays farmers for following specific land and water conservation practices.
- Peterson says energy independence will be the most important aspect of the new farm bill and has created a 6th Ag Subcommittee in the House with jurisdiction over renewable fuels
- It may be time for weed scientists to take a serious look at the feasibility of using weed biomass for cellulosic energy production. Work with CAST to write a white paper.
- However, WSSA also wants USDA and USDI to be aware of the implications associated with introducing invasive weeds for biofuels production. Thanks to DiTomaso and Holt for helping to write a white paper on this issue during NIWAW.

AG RESEARCH FUNDING- CREATE-21 and NIFA

- Creating Research, Extension, and Teaching Excellence for the 21st Century (CREATE-21)
- Being pushed by the Nat'l Assoc. of State Univ. and Land-Grant Colleges (NASULGC).
- The CREATE-21 proposal calls for the reorganization of USDA's Research, Education, and Economics program area (and Forest Service R&D) within a new National Institute in order to enhance the integration, efficiency, and flexibility of programmatic efforts.
- The CREATE-21 proposal also includes major elements of the National Institute of Food and Agriculture (NIFA) proposal, which is the 2002 Farm Bill study conducted by Danforth.
    - Would provide substantial new funding (~$2.6 Billion) over 7 years for competitively-awarded research, extension, and education grants, while sustaining existing intramural and university capacity funding (formula funds)
    - NIFA would function similar to the National Institute of Health (NIH) and the National Science Foundation (NSF)
    - Would shift the ratio of "Capacity/Competitive" funding from **90/10 to 58/42 over 7 years**
- WSSA has not taken a position on these proposals, buts remains cautiously optimistic.
- NASULGC **needs buy-in from USDA** and several Congressional "champions".

Over $85 Billion in mandatory funds in Farm Bill. **Ag research is asking for JUST 1%**

OTHER CONGRESSIONAL COMMITTEE CHANGES

Senate Environment and Public Works Committee:

- Few panels would see a more drastic change of focus with Sen. Barbara Boxer (D-CA) as chair and **James Inhofe (R), Oklahoma**, as ranking member
- Main focus will be on global warming and climate change.
- Sen. Boxer has been a strong supporter of invasive species management and research in the past, particularly **aquatic invasive species**.

House Resources Committee:

- Nick Rahall II from West Virginia will take the reins of the House Natural Resources Committee (formerly House Resources) from Richard Pombo (R-CA). Don Young (R-AK) is ranking member
- Legislation on Endangered Species Act and NEPA reform is dead.
- Rahall argues that more money is needed for federal agencies to fulfill their responsibilities under the endangered species act, but he does not favor a complete overhaul.

House Appropriations Committees

- Rosa L. DeLauro from Connecticut chair of the House Ag Approps subcommittee and Jack Kingston from Georgia is ranking member. DeLauro will make food safety a priority, including improved enforcement of food safety laws and surveillance for mad cow disease.

Senate Appropriations Committees

- Sen. Robert Byrd (D) from West Virginia and Sen. Thad Cochran (R) from Mississippi are the chair and ranking member of the full Senate Appropriations Committee.
- Senator Herb Kohl (D) of Wisconsin is chair of the Senate Ag Appropriations Subcommittee and Sen. Robert Bennett (R) from Utah is the ranking member.

SALT CEDAR AND RUSSIAN OLIVE CONTROL DEMONSTRATION ACT (SCROCDA)

- Signed by Bush on October 11, 2006. Authorizes $80 million over 5 years (FY 2006-2010). FY 2008-2010 are authorized at $15 million per year.
- Implemented in 3 phases through Dept of Interior: (1) assess the current extent of the infestation by salt cedar and Russian olive trees in the western United States; (2) demonstrate strategic solutions for the long-term management of such trees and the reestablishment of native vegetation; and (3) **assess economic means to dispose of biomass** created as a result of removal of tamarisk and Russian olive trees.
- Funding for SCROCDA was one of three main policy positions supported during NIWAW.
- WSSA Schroeder and Derr met with Sen. Bingaman and Domenici staff (NM) during NIWAW to seek support for a "Dear Colleague" for appropriations.

BUILDING A COALITION WITH FISH AND WILDLIFE GROUPS

- Federal and state wildlife management agencies commit millions of dollars to fighting invasive species challenges through mandated State Wildlife Action Plans.
- Excellent progress made during NIWAW. John Kennedy, chair of AFWA Invasive Species Committee brought on board along with Tim Richardson from Wildlife Forever.

Board discussion: *Nelroy said that we didn't get much with this before but we may have a chance now because of J. Kennedy, a visible AFWA Chair who works with 3,000 organizations in U.S. A link would be beneficial to us.*

EPA ISSUES

- EPA issued a final rule clarifying two circumstances in which a Clean Water Act (CWA) permit is not required before pesticides are applied. **Strengthens FIFRA**. WSSA supports!
- WSSA supports a terrestrial weed science subject matter expert liaison at EPA and posted the position description on March 5.
- Herbicide reregistration issues discussed during NIWAW. Gained support of Debbie Edwards.

Board discussion: *This presence has been beneficial to us in the past. We have a chance now to work with terrestrial invasives. Debbie Edwards is a good liaison. Vanelle said that WSSA already has approved.*

FY2007 AND FY2008 BUDGET ISSUES. – Huge fight to maintain baseline budget levels.

Board discussion: *Nelroy told the Board that they made contact with Garden Club of America, a group who goes to visit the legislature ever year and it happens to be the same time that NIWAW is there. They work on native plants and invasives so the link to them with and their 2,000 members would be valuable.*

Nelroy told the Board that there is a white paper on biofuels. Colleen Efermin was visited by Jill Shroeder and Jeff Derr (President and President-elect WSSA) in D.C. with the paper in hand. She thanked them because the issue had not hit her desk, yet. Apparently, the Ag committee is approving biofuels w/o talking to Interior who has the problem with getting rid of invasives. Nelroy felt that the NIWAW activity was good this year with gov't presence and the Nature Conservancy. Janet added that the WSSA white paper went directly to ag staffers writing/working on the bills. Diane Fienstein spent a week in CA talking about the Ag bill and biofuels never came up, so this white paper was very timely.
The new journal was advertised at general NIWAA session reception was very positive. Janet felt that weed society presences was more visible that in the past.

STUDENT LIAISON COMMITTEE REPORT - Dirk Baker.
Office or Committee Name: Student Liaison
Officer or Chairperson Name: Dirk Baker, Angela Kazmierczak
Date of Preparation (include year): May – June 2006
Committee Activities during the Year:
An email with the proposed duties of the Student Liaisons attached was sent to the student membership in September asking for feedback. One student responded approving of the wording as written.

Kai Umeda has drafted the wording for proposed changes to the Constitution/Bylaws to add the Student Liaisons to the Board as non-voting positions.

Recommendations for Board Action: We ask that the Board consider approving wording provided by Kai Umeda.
Budget Needs: None.
Suggestions for the Future: Insure that wording for changes to Constitution/Bylaws is included in a future newsletter such that the membership may vote at the 2008 Annual Meeting.
Suggested Changes in Operating Guide: none given by this committee
Current Committee Members: Dirk Baker, Angela Kazmierczak, Kai Umeda, Jeff Koscelny
Name of Person Preparing This Report: Dirk Baker

Board discussion: *A minor change was made by Dirk from what Kai sent as the Constitution change for a Student organization: the officers should be called President and Vice President as per WSSA rules. Dirk said that the Student Liaison Committee would like to have their meeting in conjunction with the grad student breakfast on Wednesday. Vanelle suggested a lunch instead of a breakfast and that maybe we could get a sponsor for the lunch. Kasssim said that maybe we could switch a sponsor to lunch instead of finding another sponsor. Dirk said that attendance was good with approximately 20+ out of 31 total students attending the WSWS meeting. Dirk told the Board that since the breakfast meetings are "established," he would not like to take both away. Mike said that the committee has to work to get sponsorship because of perceived fluctuation in student attendance at sponsored meetings, and that arranging sponsorship is going to get more challenging. Phil B. said that sponsored events go towards*

the hotel contract food and beverage commitment in the contract, so if sponsors don't pay, WSWS has to meet the contract amount. Others felt that WSWS should not cancel these grad get-togethers because no one sponsors that year. Mike asked for as much advance notice as possible so that he can solidify hotel arrangements at future sites.

SPECIAL SYMPOSIUM/WORKSHOP FOR 2008 MEETING REPORT -Janet Clark
Board discussion: *Janet brought a proposal from the committee as Board requested last summer. Janet told Tom Dudley (UCSB) to give us his "ideal" program and then the Board could work from there. Janet pointed out that the idea is to come out with something tangible to from the symposium such as a book. Janet told him that she would get back to him next week. There was a question about if Tom was a WSWS member. Thoughts were that he wasn't.*

Nelroy was concerned that information presented n this symposium wouldn't be science based - that all methods would not be presented, and that the emphasis would be on biocontrol since that is where Tom's expertise lies. Nelroy was concerned about mixing native species together with discussion about invasives. Joe D. says that is why Kristin Saltonstall was invited because she knows what is native and what is not native. Joe D. agreed that many of the proposed presentations are about bicontrol. Kassim said that the next proposal version should include the topics not just the authors because the authors are not familiar to all of us. He also would like to see management as a component. Kassim said that the program is probably too costly as initially given in the proposal. The Board needs to know how many will attend. Joe and Nelroy thought that at Vegas, attendance was about 200 people. Kassim want to serve the Society, and a biocontrol saturated program probably would not be of very much interest to a majority of WSWS members. Vanelle suggested a person from CA who is well versed in the science: Carl Bell. Janet said that we should not be so critical because we might have said the same about the Knotweed symposium if we had known they are bringing people from Europe and presentations will be about case studies rather than research trials. Janet says with the Knotweed symposium, they decided how much funding they could get first, then they tailored the meeting so that it was break even. Joe D. said we should pull speakers from our own Society and locals for best speakers/topics.

Kassim will announce we will have this symposium topic at the 2008 CA meeting and Janet could give some details after his announcement.

Symposium proposal:
***Arundo donax* and *Phragmites australis* symposium, WSWS Meeting, Anaheim, CA (2008)**
Symposium coordinators – Adam Lambert and Tom Dudley (UCSB)
Reed grasses constitute a unique invasive life form – primarily vegetative reproduction and dispersal through rhizomes, rapid growth rate, substantial allocation of energy to belowground biomass, and adapted to disturbance. This symposium will address the invasion ecology, impacts, and control of *Arundo donax* L. (giant reed) and *Phragmites australis* (Cav.) (common reed), two of the most widely distributed invasive reeds in coastal riparian and wetland ecosystems in North America. These grasses interfere with water management and transportation systems, and are also known to compete with native plants, provide inferior quality habitat for wildlife, promote wildfire, and affect erosion and sedimentation dynamics in many ecosystems, and can also be major consumers of groundwater in arid regions. Management and control of invasive populations cost millions of dollars each year. Biological control programs have been established for both species as sustainable and cost effective alternatives to conventional control programs. The purpose of this symposium is to collate experimental and anecdotal information for these species to provide an ecological framework and foundation to guide biological control and restoration programs. An important outcome of this symposium will be a much needed synopsis (published as a series of manuscripts or book) of ecological, economic, and control issues for these grasses.

Symposium topics and possible presenters*:
**Not all listed below will attend, some papers will be collaborative efforts with several co-authors.*

1) Invasion, establishment, and genetic considerations

Karen Gaffney (Consultant)[w]	Arundo
Jesse Giessow (S. Cal. Weed Management Area)[a]	Arundo
Kristin Saltonstall (Panama)[i]	Phragmites
David Burdick(University of New Hampshire)[e]	Phragmites

2) Growth, reproduction, and dispersal

Jodie Holt (UC Riverside)[a]	Arundo
David Spencer (USDA, Albany, CA)[w]	Arundo
Scott Steinmaus (Cal Poly, San Luis Obispo)[a]	Arundo
Laura Meyerson (University of Rhode Island)[e]	Phragmites

3) Ecological and economic impacts of invasion

Gretchen Coffman (UCLA)[w]	Arundo
Adam Lambert (UCSB)[a]	Arundo and Phragmites
Tom Dudley (UCSB)[a]	Arundo
Randy Chambers (College of William and Mary)[e]	Phragmites
Dave Kisner (Consultant)[a]	Arundo
Valarie Vantanian	Arundo

4) Management, control, and restoration

Mark Newhauser (Sonoma County Ecology Center)[w]	Arundo
John Goolsby (USDA, Weslaco, TX)[e]	Arundo
Alan Kirk USDA, (Montpellier, France)[i]	Arundo
Jason Giessow (S. Cal. Weed Management Area)[a]	Arundo
Bernd Blossey (Cornell University)[e]	Phragmites
Mark Schwarzlaender (University of Idaho)[w]	Phragmites
Nelroy Jackson	Arundo
Richard Casagrande (University of Rhode Island)[e]	Phragmites
Patrick Häfliger (CABInternational, Switzerland)[i]	Phragmites
Hariet Hinz (CABInternational, Switzerland)[i]	Phragmites

Other potential presenters/attendees

Dean Hendrickson	Arundo
Toni Vijte (UC Irvine)[a]	Arundo
E.J. Remson (TNC)[a]	Arundo
Patrick Ewanchuk (Providence College)[e]	Phragmites
John Boland (Tijuana Estuary Invasive Plant Manager)[a]	Arundo
Trish Zimmermen[w]	Arundo
Peggy Rose (Ventura County)[a]	Arundo
Joel Trumbo	Arundo

[a] Denotes presenters that are within driving distance of Anaheim, CA and will incur minimal expenses for travel.
[w] Denotes presenters that will be brought in from locations in the western US.
[e] Denotes presenters that will be brought in from locations in the eastern US.
[i] Denotes presenters that will be brought in from international locations.

Tentative budget items:
Potential income:

Session registration fees

Sponsership from government and industry sources: Southern California Wetlands Recovery Project, California Coastal Conservancy, Monsanto, other control/pesticide companies.

Potential expenses:

Travel costs – 10-15 presenters/participants local to the Los Angeles/Anaheim area. Costs will include mileage, hotel accommodations.

Western US participant travel: 5-10 presenters/participants from western states and northern California. Costs will include airfare and hotel accommodations.

Eastern US participant travel: 3-5 presenters/participants from eastern states. Costs will include airfare and hotel accommodations.

International participant travel: 3-5 presenters/participants from Europe and Central America. Costs will include airfare and hotel accomodations.

Hospitality –

Pre-symposium social

Breakfast and lunch.

Publishing costs –

Manuscript preparation and page charges.

MEMBERSHIP COMMITTEE REPORT – Phil Stahlman (Kassim Al-Khatib)
Office or Committee Name: Membership
Officer or Chairperson Name: Phil Stahlman
Date of Preparation (include year): March 2, 2007
Committee Activities during the Year: The general consensus at last years committee meeting in Reno was that perhaps the best way to attract new members is to sponsor symposia on topics of particular interest within the region where the annual meeting is held. Organizers of the Knotweed Symposium at this years meeting prepared and distributed a nice color informational brochure about the symposium, and advertised the symposium by sending notices to state and county weed coordinators and Forest Service and Park Service employees primarily in Oregon, Washington, and Idaho. There is evidence of wider distribution so the information apparently was passed on as hoped.

An electronic copy of that brochure along with an invitational memo on WSWS letterhead was sent to each member of the Membership Committee with the request they distribute the invitation and Knotweed Symposium brochure to individuals or organizations in their state that might be interested. Persons registering only for the Knotweed Symposium will receive complimentary membership in the WSWS in hopes of enticing those who are not already members to remain active members of the Society. They will receive Newsletters and all other member correspondence for next year. Phil Banks will place a brochure or other form of information about the WSWS in the packets of those registering for the symposium.

Recommendations for Board Action: Consider the need for an updated WSWS brochure to distribute and help recruit new members, and approve expenditure to cover printing costs if decision is to proceed.
Budget Needs: $400 (estimate) to print 1000 copies of a two-sided full color 8.5 by 11 inch brochure printed on high-quality paper folded in thirds.

Suggestions for the Future:
1). Continue to sponsor symposia as part of the annual meeting. Consider co-sponsoring with an appropriate state or regional organization if one is available. A symposium is already being planned for the 2008 meeting in Anaheim, CA. Thus, it is important to engage with organizations such as the California Invasive Plant Council, Doug Johnson, Exec. Dir.
2). Appoint a member (preferably the Chair) of the Symposium committee as an ad-hoc member of the Membership Committee to facilitate communication and coordination of activities.
3). Appoint as chair of Membership, if possible, a person with passion for membership recruitment and retain them as chair for more than one year.

Suggested Changes in Operating Guide: None
Current Committee Members: Dirk Baker, John Baker, Lisa Boggs, Vanelle Carrithers, Steve Fennimore, Jeff Koscelny, James Olivarez, Dudley Smith, Randy Smith, Phil Stahlman, Kai Umeda, Brenda Waters, and Ralph Whitesides,
Name of Person Preparing This Report: Phil Stahlman

Board discussion: *Phil S. said that one of the better ways to reach potential new members is through symposia and he feels that the committee did an outstanding job of advertising the Knotweed symposium. He took info from the symposium brochure and discussed it w/ his committee. Phil S. asked Phil B. if he had any more copies and Phil B. did not know at the time. Phil S said that we should update our WSWS brochure. He has gotten one estimate which is shown in his report. Phil S. emphasized getting a chair who has a passion for membership. There was a question about distribution and Phil S. said to target attendees of symposia. This year symposium participants get an honorary one-yr WSWS membership. The brochure is advertising. Kassim said we probably can get one done for less cost than $400/1000 with Phil Bank's sources. A new brochure would have to be brought up to date. Janet suggested a professional designer be paid because that makes a different perception about new exciting features, etc. Online products available, etc. should be included to show the benefits of being a WSWS member. Tony said that if we can't convey all of this with personal contacts and the website. Dirk suggested using something like this in the SRM trade show meeting packet. Janet suggested sending brochures to every state weed control association every year, cooperative weed management areas, etc. Phil B. said that our membership is very "strange" and broad. On the last membership survey, 30% said they'd been a member for 3 years or less; approximately 300 people who attended in 2005 and 2006 were not at this 2007 meeting; that means there is a total of 600 people who have attended the annual meeting in the last three years. Phil B. said that we need to maintain some type of contact with those people who only attend when the meeting comes close to their locale. He said that if we do, then many would probably pay the $25 to keep their membership. He reminded us that once someone has not attended for two years in a row, they are dropped from the contact/mailing list. Phil S. felt that even if only a few are attracted to the WSWS by a brochure, then it would be a worthwhile endeavor.*

Kassim asked the Board how this brochure process would be conducted. Phil B. said that he can get it printed inexpensively. The Board needs to decide the course of action. Kassim said that if we approved his report, we would approve the recommendation for a brochure.

MOTION: *Vanelle moved and Ron seconded to approve the Membership Committee report with the recommendation for a brochure.*

Discussion ensued. Phil S. said that the funding he has suggested may not be enough. What about a professional designer – how much would that cost? Kassim said that it won't be that costly since it is only a 1-2 page brochure. Phil S. said that he can get an estimate for a designer and Kassim said he can get advice, too. Phil S. had specified quality paper, color, 3-fold.

Tony told the Board that there is a misconception about how easy it is to design this from a graphic viewpoint. He said that a member probably could not do it in a timely manner so we should go with a designer and make $1000 the funding limit. We have connections, so we don't have to start from scratch. Janet said that we need to decide the primary objective of this brochure and what action should happen because of this brochure. This decision sets up the whole design. Joe D. wants it to be multi-faceted i.e. join WSWS, attend meetings, buy products online. Kassim felt at first that this brochure should be mainly for people coming to symposia, but now our discussion has extended beyond. Kassim wanted to know if the expenses are worthwhile. Nelroy said that the Board changes and people forget how useful a brochure would be e.g. at NAWAW, there was no WSWS presence and a brochure would have been great. Vanelle said the WSWS member interests have changed, too.

Vanelle made a friendly amendment to the motion and Joe D. seconded to set the brochure development cost and printing at $1000, and to involve a professional designer. **The amended motion passed unanimously.**

Kassim asked that the Membership committee to find a professional to work with the project. Some meetings are occurring in San Diego in September so it would be great to have the brochure at the meetings then especially since our WSWS 2008 meeting is in CA.

OLD BUSINESS:

Ways to expedite printing the WSWS annual meeting proceeding – discussed earlier.

Proposed Student liaison additions/changes to the WSWS Constitution and Operating Guide
MOTION: *Jeff proposed that we include the language about the WSWS student President and Vice-President representing the student members of WSWS to the WSWS Board of Directors and to the WSSA Graduate Student Organization as recommended by Dirk and written by Kai in the WSWS Constitution and By-laws and Operating Guide as well as adding the language about student liaisons as nonvoting Board members. Vanelle seconded the motion which* **passed by a unanimous vote.**

NEW BUSINESS:

Newsletter Editor – *was discussed earlier.*

Possibility that WSWS provides travel funding for board members that are self employed or retiree *– was discussed earlier and Phil B. added to the discussion at this time. He told the Board that travel cost varies by site since some sites give complimentary rooms. Expenses for a summer meeting average $1200/person and there are 9 voting members +7 nonvoting members = 16 total. Some felt that WSWS should at least provide travel funding for self-employed board members or retirees. Phil B. didn't think we could make the decision now about who would need future funding. He proposed that everyone should get a form to fill out for travel reimbursement and if funding was needed, to return the completed form to the Board.*

Janet felt that Board members won't abuse this funding opportunity. Kassim wants this in the Society Operating Budget and Phil B. agreed. Phil B. said that the budget process would evolve over time as we got more experience. So in the near future, we could decide where we'd get travel funds from, such as Weeds of the Weeds.

Kassim thought that we should set a funding limit, such as $500 but others thought that a limit would be restrictive i.e. what about expensive places we go especially where we might have to increase registration costs. Nelroy said that it is a personal decision that he makes to come to this meeting even though he has no funds now. This Board has a policy to provide travel funds for the WSSA Representative to go to the WSSA summer board meeting and Nelroy said that he never reached that $1000 limit. Nelroy recommended that we approve up to a certain maximum amount then hand out the expense form, so requests and funding still would be flexible as the meeting costs change from year to year. He emphasized the fact that we are losing good input from many potential Board members, such as retirees, who have no funds to attend Board meetings outside of the annual meeting.

Kassim recommended that the Board come up with a formula and make a motion now or table the discussion until the summer meeting.
MOTION: *Joe D. moved that we provide $500 Board travel funds for summer meetings to voting and non-voting Board members to use at their discretion if needed and Janet seconded the motion. Some discussion followed about how the Board meetings should be considered as a professional development activity, so time away from business is actually worthwhile. Nelroy was concerned about the $500 limit depending upon the meeting site.* **The motion passed unanimously**.

Pam asked how we would announce this funding. Kassim said that the Nominating committee can mention it as they call people. Vanelle said that this needs to be written down and institutionalized in the Operating Guide. Dan Ball suggested attaching a blank expense report with the summer agenda. Phil B. asked that he be reminded about this so the attachment will be made and the funding will be included in future budget reports. Kai said this would probably fall under the budget area in the Operating Guide, but that he would figure out the appropriate section and get back to the Board with the information.

An aside was made about how the WSWS logo size should be reduced and made black and white. Tony said that Board reports could be put on the WSWS website specifically on a Board page within the website.

Business Manger proposal for managing society fund that is temporary deposited in money market account – discussed earlier and a motion was passed.

Cooperation opportunities with WSSA or other regional societies
There was some discussion earlier. Questions arose again about overlap. Vanelle said that cooperation was good, but she is looking for suggestions to do more. For example, DSP and Publications overlap but they always communicate; also the WSWS Website – Tony does a great job communicating and cooperating with WSWS members and committees on our website but would cooperation and communication be as good with other Society websites? Kassim asked if we would cut costs by cooperating and asked for new ideas. He recommended that we keep an open dialogue with WSSA and told the Board that Vanelle has been doing an excellent job. Vanelle reminded the Board that the new journal will give WSWS members more opportunities for cooperation with other disciplines and societies.

Kassim asked for any other new business.

Dan Ball: Steering Committee/USDA special grant on Jointed Goatgrass will terminate after 2009. *The committee would like to have a ½ day symposium at the WSWS meeting in 2010 to summarize all that*

has been done with this special grant over the past 15 years. The committee has identified $5K to help with room charges, etc. The Board reminded Dan that 2010 could possibly be in Hawaii so could they do the symposium in 2009 in at the Albuquerque meeting since federal and state members probably couldn't go to Hawaii. Dan said that they really need to do it in 2010 because long term studies will be finished up in 2009, so summaries couldn't be presented until 2010. Dan said that local, interested people wouldn't go to Hawaii, either. He also told the Board he thought the symposium would not be large. Joe Y. said that a proposal from the committee to WSSA was not approved (voted down). Dan told that Board that doing the symposium in 2011 would be a difficult because their funding would be gone then, in fact, they couldn't even submit summaries in 2009 but not use the symposium funds until 2011 since the CRIS final reports have to be done for 2010. Problems would arise if they did the CRIS reports and then had to hold off on a symposium until 2011. Kassim asked Dan to discuss with the steering committee if the symposium could be conducted in 2009 and to ask if having the symposium in 2010 at a Hawaii meeting site could be acceptable. Dan said that he will provide more information on this subject at the summer meeting after having the steering committee discussion.

A time and place for the summer meeting needs to be determined. *Ron said that he will set this at the Thursday lunch meeting and that the summer meeting would probably occur the last Friday in July.*

There were no more new business items.

MOTION: *Vanelle made a motion and Joe D. seconded to adjourn.* **The motion was passed with a unanimous vote.**

Addendum to the March 12, 2007 Board Meeting Minutes: WSWS Board email correspondence after the WSWS Summer Board meeting and before the March 2007 meeting (not including attached reports and agendas).

August 9, 2006
A motion was made and seconded to provide complimentary membership to WSWS for one year for those register for Knotweed Symposium and pay the $75 fee. This would allow those folks to receive newsletters and the call for papers/posters for the Anaheim meeting, perhaps encouraging them to remain as members to WSWS.

Kassim Al-Khatib asked for any discussion on this motion.

Philip A. Banks: Great idea for membership recruitment. I see no problem handling this through the office.

The motion passed via email votes from the Board.

August 22, 2006
The board has approved a complimentary one year membership to WSWS to those register for Knotweed Symposium and pay the $75 fee. This would allow those folks to receive newsletters and the call for papers/posters for the Anaheim meeting, and we hope that this will encourage them to remain as members of WSWS. There were 7 votes that approved the motion.

September 08, 2007
Kassim Al-Khatib forwarded information to the Board about a webcast conducted by The Coalition for Eastern Invasive Plant Species Control (CEIPSC)

October 19, 2006
Kassim Al-Khatib copied the Board on an email sent to John Bonner about Phillip Stahlman replacing Rod Lym as the WSWS representative to CAST.

December 15, 2006
A motion was made by Janet Clark and seconded by Joe DiTomaso that the ad hoc WSWS Symposium Committee pursue the idea of a special symposium focusing on Arundo and Phragmites for the 2008 WSWS annual meeting in Anaheim.
The ad hoc WSWS Symposium Committee proposed to have a special symposium focusing on Arundo and Phragmites for the 2008 WSWS annual meeting in Anaheim, CA. Tom Dudley (UC-Santa Barbara) has offered to co-chair a symposium on this topic. The committee will offer a full proposal to the WSWS Board for approval at the spring Board meeting.

Kassim Al-Khatib asked for discussion on this motion.

Friday December 15, 2006
Janet Clark:
According to Tom Dudley, there's not been a comprehensive symposium on these species for several years. And there's a great need for such. Interestingly, I believe that Arundo is one of the species being considered to be grown for biofuels in Florida, isn't it? This symposium could be really timely from a policy standpoint.

Joe DiTomaso:
Yes, I participated in the last one and I believe it was in Las Vegas about 7 years ago. I have had many calls concerning Florida and planting *Arundo* for biofuel. There is also a lot of new information about the taxonomy and ecology of the invasive *Phragmites*. Very timely and I believe it will be well attended.

Vanelle Peterson:
For the Anaheim area these weeds would be of special concern and we may be able to pull a large crowd in to a symposium on them. That is unless there has been so much activity on these weeds through CalIPC that they may be "over-exposed?"

Joe DiTomaso:
No, Cal-IPC has nothing planned and I have not heard of a symposium or workshop being organized on these species. Perhaps that could happen next year, but nothing in the works now.

December 24, 2006
Kassim Al-Khatib sent the following:
The motion to pursue a special symposium focusing on Arundo and Phragmites for the 2008 WSWS annual meeting in Anaheim, CA is passed. The total number of boards who voted was 8 and all of them voted yes. The Ad-hoc symposium committee will offer a full proposal to the WSWS Board for approval at the spring Board meeting.

January 13, 2007
Kassim Al-Khatib sent a WSWS committee report form to the Board and Chairs to use for the annual meeting in Portland.

January 19, 2007
Phil Banks, Business Manager/Treasurer, sent the annual meeting program to the Board and Chairs for review of misspelling, mistakes, omissions, etc.

Various Board members replied with edits, changes, corrections.

January 23, 2007
Kai Umeda:
Please review the Operations Guide with respect to your office or
committee responsibilities.
http://www.wsweedscience.org/Society/operate.asp
There are some already in review/revision process. If there are needs for any changes, please let me know how the Guide can be improved or updated. I hope that they were of benefit in conducting your WSWS business this term.

January 24, 2007
Kassim Al-Khatib:
Thanks for the leadership of Vanelle Peterson and Don Morishita, the Fellow and Honorary Members and the Awards. All committees finished their work on WSWS 2007 awards and fellowship.

A motion was made and seconded to approve 2007 awards as follows:
Fellow for public sector: Phil Stahlman
Fellow for Private sector: Bill Cobb
Outstanding Weed Scientist Public Sector Award: Rod Lym
Outstanding Weed Scientist Private Sector Award: John Fenderson
Weed Manager Award: Jim Freeman
Professional Staff Award: Carl Libby
WSWS Honorary member: Rob Hedberg

January 26, 2007
Kassim Al-Khatib:
The motion to approve the Fellow and Awards was passed with 8 yes votes.

January 28, 2007
Phil Banks, Business Manager/Treasurer:
Attached is the current room pickup at the Portland Hilton. We obviously have a ways to go to meet the room block. I'll keep you updated each week. Things should pick-up as we get closer to cut-off for pre-registration. Please urge everyone attending to stay at the meeting hotel.

January 31, 2007
Phil Banks forwarded information about Shared Leadership I from Bonnie Haigh, Institute for Conservation Leadership.
The Shared Leadership workshop series has benefited eighteen (18) CAST member societies over the past five years. The workshops provided tools and skills enabling leadership teams to revitalize their societies. New and emerging leaders developed the skills and confidence to lead effective change. Several societies enrolled a second team because of rapid
turnover within volunteer leader positions. Two workshops are scheduled for 2007. Now is the time to mark your calendar and assemble your team.
http://www.icl.org/programs/clca-sl1.php

January 31, 2007
Kassim Al-Khatib replied to Phil Banks:
Phil, The program is very successful and useful. However, this program is no longer funded by Kellogg foundation. he cost of attending the training went up and it is more than what used to be in the past. In

addition, the last WSWS group went to the workshop training recommended not to send another team in the near future. I do not see the need to spend money at this point to send another team. Please let me know if you think that we need to send another team to the training.

February 15, 2007
Kassim Al-Khatib sent an email reminder to send him committee reports before the annual meeting

February 26, 2007
Kassim Al-Khatib sent the agenda for the Monday March 12, 2007 Board meeting

February 28, 2007
Kassim Al-Khatib sent the draft agenda for the WSWS business meeting for the morning of Thursday, March 15, and asked for a short summary of committee reports that morning

March 06, 2007
Kassim Al-Khatib sent copies of committee reports via email in preparation for the upcoming Board meeting at Portland.

WSWS ANNUAL BUSINESS MEETING
Thursday, March 15, 2006
Hilton Portland & Executive Tower Hotel
Portland Oregon
Grand Ballroom I

Call to Order – Kassim Al-Khatib
Kassim called the business meeting to order at approximately 7:00 am and then introduced the current and incoming Board members. Kassim thanked BASF for sponsoring this breakfast and Monsanto, Syngenta, DuPont, Bayer, BASF, Mike Edwards for arranging the sponsorship and also thanked the Local Arrangement committee members. He thanked Ron Crockett for putting together a great program; the Knotweed Symposium ad hoc committee for the great symposium they've put together; all past presidents; and mentioned the outstanding job they did for helping the meeting go smoothly.

WSWS BOARD AND BUSINESS MEETING MINUTES – Pamela Hutchison, Secretary
She asked if there were any changes or additions to the minutes published in last year's proceedings and there were none from the members at the meeting.

TREASURER-BUSINESS MANAGER REPORT – Phil Banks
Phil thanked his helper at the registration desk, Edward Morris from Marathon Ag, and asked everyone to turn in their name tag before leaving for the day. He mentioned the new member and officer orientation presentation he gave. Phil said that the Society has done well and that the financial report published will show we lost approximately $25K, however, the reprinting cost of the Weeds of the West was approximately $100K, so we actually had a good cash flow. Phil mentioned we are earning money by website sales of books. He said if anyone had suggestions, to see him personally and/or fill out the cards on the table and give to him. Kassim said that the training sessions Phil conducted were excellent.

PROGRAM COMMITTEE REPORT – Ron Crockett
Ron said that one small change, paper #154 has been cancelled, so Bill Price's paper will be at 9:45 a this morning. At this meeting, 90 papers and 60 posters were presented; attendance is 375, but the Knotweed symposium may bring in more walk-ins, so our attendance may top 400 this year. Ron commended the quality of presentations and symposia, such as the Knotweed Symposium, and also Bob Wolf's symposium. Kassim told the members that the last time we had 400 attendance was at the Couer d' Alene meeting in 1994

LOCAL ARRANGEMENTS – Carol Mallory-Smith
Carol thanked the hotel staff and Mike Edwards for all the work he did with arranging the meals. She gave a special thanks to Bob Parker for driving here with the poster stands and boards and to Tim Miller for his help with the arrangements. Carol reminded the members to tell Nelroy Jackson about suggestions for next years local arrangements. She thanked all who helped take down the poster boards and stands.

IMMEDIATE PAST-PRESIDENT'S REPORT – Phil Banks
Phil told the members that being the Past President was a good job because his duties are not as heavy as when he was the president. Phil mentioned that he is standing in for Joan Campbell for publications and passed on the Joan needs to get all discussion section minutes, photographs, etc to her as soon as possible. Phil told the members that there has been discussion about putting the proceedings on CD so if anyone had any thoughts on that idea, put it on a card and hand it to a Board member. Phil thanked Traci Rausch for her good work with Research Reports and getting people to submit timely so the reports were handed out at the annual meeting.

MEMBER-AT-LARGE REPORT Public sector – Janet Clark
Janet said it was her pleasure to work this year with the ad hoc symposium committee. Tim Miller gave an overview of the Knotweed symposium. Janet thanked the committee members. She said that the Anaheim symposium will be timely and that woody and invasive grasses have been suggested for a symposium at the 2009 meeting in Albuquerque.

WSSA REPRESENTATIVE REPORT – Vanelle Peterson
Vanelle announced two dates: WSSA Feb 4-7 in Chicago at the Hilton; and the International Weed Science Society June 23-27 Vancouver B.C. She mentioned that WSSA finances were in good standing before the stock market correction at least. Vanelle thought that the WSSA meeting in San Antonio was good and mentioned a joint Southern Weed Science and WSSA meeting and that WSSA may have a joint meeting with the Range society in 2010 in Denver.

Vanelle told the members that WSSA is supporting a weed scientist working with EPA on how to deal with use of pesticides in rangeland and other "non-crop" areas and for use of pesticides around endangered species. WSSA is also hiring a publicity-type person to get the word out about weed science. WSSA is starting a new journal, Invasive Plant Science and Management. Janet Clark has been hired as the project manager for that journal. Vanelle mentioned that the NIWAA meeting was very successful, that the WSSA website was updated, and that WSSA has decided to increased the funding potential for symposia at the annual meeting from $3K to $5K.

CAST REPRESENTATIVE REPORT – Rod Lym
Rod felt that CAST really has improved recently with the new Executive Director such as a more timely and faster manner of getting information out as CAST commentaries. e.g. In November, information on the Convergence of Ag and Energy went directly to Congress on the Hill. Members could read information such as this on the CAST web page: two commentaries and four issue papers in 2006. Rod mentioned that Phil Stahlman will be the new CAST WSWS rep and Kassim Al-Khatib will be the new CAST President. Kassim asked WSWS member to join CAST and told the members that CAST may be working soon on a "white page" about invasive species and biofuels headed by Joe DiTomaso and others. Rod said that CAST publications were free, although some were worth $60. Kassim thanked Rod for his two terms as the WSWS CAST representative.

CONSTITUTION AND OPERATING PROCEDURES REPORT – Kai Umeda

Kai mentioned changes discussed at the Monday WSWS Board meeting. Kai said that maybe as the CAST president, Kassim will become more like Steve Miller for promoting CAST membership. Kai told the members that the procedures were amended for Presidential duties so the president can conduct business through email. Kai mentioned changes in the Program chair, Research section chair, and CAST chair. He said that the Finance committee recommended that the operating funds have a reserve. Kai mentioned that the Nomination committee suggested new rules and a submission timeline change. There were Poster committee revisions. Kai told the members that two WSWS students would be representing WSWS as Student Liaison to WSSA next year as per WSSA rules.

DIRECTOR OF SCIENCE POLICY REPORT – Lee Van Wychen
Lee talked about two challenges: 1) Coordinating a field tour for Congress in August during their break. He said that Senators and Representatives would make the effort to go on the tour if they wanted public exposure, so for example, if you have 500 people lined up for an Extension program, they might want to attend. Lee mentioned that the Safety DOT highways bill funding can be used for controlling invasive species, in particular, invasive plants and that Fish and Games - State Wildlife Action plan funding for habitat management and weed management

COMMITTEE REPORTS:
Poster Section – Linda Wilson
Linda said she was pleased to serve as the Poster Chair this year and thanked the other committee members. She also thanked everyone who helped setup and take down the poster exhibits. Linda especially thanked Bob Parker for the work. Linda mentioned the total number of posters and numbers in each section.

Finance – Jesse Richardson
Jesse said the Society was "in the black" with $204K vs $174 last year which was a 14.41% gain. He mentioned that the Society's stock asset allocations were slightly higher than the Guidelines recommendation of 65%. Phil Bank's records had been audited were in excellent order.

Nominations – Bob Parker
Bob thanked all who ran for Board positions and reminded the members that the Secretary position is a 2 year appointment. Bob reminded the members that Dan Ball was elected President-elect, the new Chair Elect-Research Section was Kirk Howatt, and the new Chair Elect-Education and Regulatory was Bill Cobb

Fellows and Honorary Members – Vanelle Peterson
Vanelle reminded the members of the 2007 Fellows in Public and Private sector: Phil Stahlman and Bill Cobb, and that Rod Hedberg was the 2007 Honorary WSWS member.

Awards – Don Morishita
Don reminded the members who had received the 2007 WSWS Awards: Outstanding Weed Scientist - Public sector, Rod Lym; Outstanding Weed Scientist Private sector, John Fenderson; Weed Manager, Jim Freeman; and Professional Staff, Carl Libby. Don told the members jokingly that those attending the last talk at 11:30 a will be entered in a drawing for a car.

Proceedings Report – Joan Campbell and Research Progress Reports – Traci Rauch
Given by Phil Banks during his Past-President's report.

Website Report – Tony White
Tony told the members that the PayPal Online Store aspects of website have been critical for ease of payment and managing these proceedings. He said that 90-95% of the meeting attendees actually paid

online with a credit card. Tony said that he'd like to expand the online store, so if anyone has any ideas, to let the Board know. Kassim commended Tony for the great job on the website and said he thought it was the best one of all the weed science societies.

Newsletter Report – Pat Clay/Phil Banks
Kassim thanked Pat for his effort putting together the newsletter these past years and reminded the members that Pat is stepping down from this job. Kassim reminded the members of the option to receive an electronic newsletter only, and that about 2/3 of the members have selected this option. He asked that if you have not done so and want to, you could log into your personal options to do so. Kassim said that the Board has identified a potential new newsletter editor.

Site Selection – David Vitolo
David said that the 2110 site selection committee had looked at a number of sites including Hawaii, Boise, Coeur d' Alene, and Spokane. After discussion by the Board at Monday's meeting, the committee will concentrate efforts on Hawaii since they had received good proposals from Hawaii. David said they also received a good proposal from Couer d' Alene, so he asked the board to consider that site for 2011. David thanked the committee members for their help and also thanked Phil Banks for his work negotiating with the hotels. Kassim thanked the committee for their time.

Education – Tracy Sterling - given by Scott Nissen
Scott said that the committee had culminated work on a project by teaching their 1st online MOA course with 7 students. He said that it was a three-credit, grad level class and that it will be offered again this fall. The intent is not to usurp anyone teaching a MOA class, but student numbers have been decreasing enough so that an on-campus class could not always be justified. This class targets off-campus people such as extension educators who are working towards a grad degree. Scott said they had a lot of student comments about the class. He thought the comments were positive but there was room for improvement. Scott hoped they'd be able to offer the class to more students at a time. Kassim mentioned that an online Integrated Weed Management class is offered through Kansas State online.

Noxious Weed Short Course – Celestine Duncan – given by Rod Lym
The course is offered the last week of April in Chico Hot Springs, MT Attendees numbered 40 this year and 41 last year. The course wasn't even advertised but it was filled from the waiting list. There have been many federal and state government attendees. The waiting list still has 15 people. Registration was increased from $450 to $500. The members were reminded that it always snows at least one time during that week, so be prepared.

Public Relations – Brian Olson
Brian said that there CEU credits for each state, so please sign p for those credits and he will pick up the lists after this meeting. Kassim thanked Brian and his committee for putting out the many meeting announcements and publications.

Legislative – Sandra McDonald
She thanked the other committee members, especially Eric Lang, who spent a lot of time in D.C. or on conference calls. She mentioned legislation on salt cedar and Russian Olive, as well as efforts by NIWAA.

Sustaining Members – Neal Harker – by Phl Banks
There currently are 16 WSWS sustaining members, and Phil thanked them for their support.

Necrology – Nelroy Jackson

Before Nelroy gave his report, he said that Wanda Graves sent her greetings and that she wishes she could be here.
Nelroy had been asked to give the obituary for Ken Dunster. Hilites from his reading "One of the giants of weed science…" worked on developing bromoxynil for weed control in small grains and alfalfa. Ken was a mainstay in WSWS since the beginning in his career. He was a WSWS Fellow in 1978 and Outstanding Weed Scientist - private sector in 1993. "Excellent example of what a good private sector weed scientist should be….particular willingness to help and assist." Ken had persuaded Wanda Graves to become involved in WSWS. Nelroy said that a copy of this tribute has been sent to his widow.

Herbicide Resistance Plants – Kirk Howatt
The committee is looking for ways to make a positive influence for WSWS and asked for contact from members about ideas. Kirk mentioned that they will have information on the WSWS website, soon

Membership Development Committee – Phil Stahlman
Phil told the members that this was an ad hoc committee charred with 2 tasks 1) Recruiting and retaining members, and 2) increasing value to current members. He said that one way to accomplish these tasks was to give symposium registrants 1 year WSWS membership for the potential to retain then as members in future years. Phil said that for next years symposium, and WSWS information brochure will be printed to go in the symposium attendee's packets, and it will be used for other purposes, too. Phil also discussed current makeup of committee projects and if they should remain or be changed. He asked members to please let the Board know of any ideas for the committee

Student Liaison – Dirk Baker
Dirk reminded the members that 2 years ago, he was selected by the WSWS Students to be liaison to the WSWS Board, and that last year, the position was formalized. It is modeled after the recently formed WSSA student group. Two liaison students from each regional society are needed for the WSSA group, and Angela Kazmierczak was elected by the WSWS students last year. As President and Vice President (WSSA terminology) of the WSWS student group, they attended the WSSA meeting last year worked with Kai Umeda to amend the WSWS Constitution and Operations Guide for the positions and titles of President and Vice President required by WSSA. Todd Gaines will be the next Vice President as Dirk rotates off this committee. Dirk thanked everyone in the society and the welcoming nature of the Board. In keeping with the tradition of the passing of the Hoe, Dirk passed the Dandelion Digger to Angela. Kassim thanked the students for their work.

Poster and Paper Contest – Brad Ramsdale
Participants in the contests totaled 29, with 25 grad and 4 undergrad students. He asked them to stand and be recognized for their participation, the 20 judges also were asked to stand.
The winners were as follows:
Weeds of Agronomic Crops – 7 students
1st place Michael Duff, Kansa State University
2nd place Joanna Eginca, Montanan State University

Horticulture - 2 students / Weeds of Range and Forest - 5 students
1st place Luke Samuel of North Dakota State University
2nd place Matt Williams of Washington State University

Undergraduate Posters – 4 students
1st place Maria Lockhart Washington State University

Graduate Posters - 11 students
1st place Dirk Baker, Colorado State University

2nd place Maia Zappiola, Oregon State University
3rd place Seth Gershdorf, University of Idaho

Brad said that he looked forward to student participation at future meetings.
Kassim congratulated all students for outstanding papers and posters and said that everyone was impressed

New Business
Wording of the WSWS Student Liaison in the constitution and Bylaw – Kai Umeda
Kai mentioned the wording in his earlier report.

Passing of Gavel
Kassim thanked everyone for the opportunity to serve as President of WSWS and then passed the "gavel" to Ron Crockett. Ron gave Kassim a gift as a token of appreciation for his service. Ron thanked Phil Banks for his help with the program and thanked Kassim for his devotion to weed science. He said that working with Kassim this year and knowing him in the past, he could describe Kassim as 'High capacity… well grounded… fabulous family man…pleasant and positive person to be around Ron told the members that he felt it'd be difficult to match Kassim's level of conducting the presidency, but he would try his best.

A motion was made and seconded and passed unanimously by voice vote to end the business meeting.

Pictures were taken after the meeting of student paper and poster contest winners and the Board.

WSWS BOARD MEETING
March 15, 2007
Hilton Portland & Executive Tower Hotel
Broadway III
Portland Oregon

The meeting was called to order by Ron Crockett.

Present at the meeting: Kassim Al-Khatib, Dan Ball, Bill Cobb, Joe DiTomaso, Carol Mallory-Smith, Phil Banks, Rick Boydston, Ron Crockett, Mike Edwards, Kirk Howatt, Pamela Hutchinson, Nelroy Jackson, Angela Kazmierczak, Vanelle Peterson, Kai Umeda, and Tony White.

Ron Crockett read the following from the annual meeting comment cards:
Two people wanted Russian thistle symposium at the 2009 meeting; Enhance multi-state efforts; IWM, Shift more of the program responsibilities to section chairs; Make research progress reports searchable on DVD or online, but don't eliminate the hard copy; Put committee list on the program so people can volunteer.

The 2007 Summer Board Meeting was set for a 1 p start on July 27 Friday afternoon and finishing at noon Saturday July 28th. Nelroy asked to let him know if you are going so he can arrange the comp rooms, meeting room, and hotel tour at 3p after break on Friday.

Phil Banks said he will send Dan Ball the contracts so he gets idea of the meeting room layout, etc. Nelroy says there are two sleeping towers and one has suites: kids suite w/ 2 bedrooms and 2 couples can stay in separate bedrooms w/ a living room in the middle. Costs are incremental. All meeting rooms will be in one tower. The meeting registration desk is built in and the foyers are large. The meeting luncheon

will be in the other part of the hotel a short walk through the atrium. There's free shuttle service to Disneyland and restaurants and shops are within walking distance.

There was a question about shuttles from the airports: LAX, John Wayne, and Ontario. All have Super Shuttle type service = approximately $12. This information will be out for the general membership in a newsletter.

Tour options are as follows: container nursery; Disneyland inside tour landscaping, etc.; San Diego flower production. An invasive plant tour would be difficult because of the drive time. There was discussion about sections doing small private tours. Nelroy said that he could give section chairs the contact information. Vanelle asked about Catalina Island and Nelroy said a private tour would have to be arranged to go there.

Ron asked for incoming board members email/contact information.

Ron asked the Board members for their impressions of meetings and was given the following:
1) The section Chairs said that it worked well for Joe D. to get the meeting talks sent to him via email and then get a CD from Joe for talks in their section. Joe D said that preparing the CD's wasn't that much trouble.
2) Dan mentioned that talks done with PPT Vista may not be compatible and if not, to let the members know that this format should not be used.
3) Vanelle mentioned that the projector currently being used for the Knotweed symposium was not working properly. Carol told her that there were extras so hopefully Tim Miller was switching out.
4) Joe said that everyone except the chairs brought their own computer projectors but the practice rooms - Broadways were a little hard to find.
5) Carol said that there was still an issue about discussion sections where some discussion leaders make it more presentation than discussion. A suggestion from one Board member was to not have projectors available in those discussion sections. Apparently there used to be a grad student moderating presentation sections, which the Board felt was good because it would give them some experience plus put students in front of the WSWS members.
Someone asked if there were rules for discussion sessions and was told, yes, that there was supposed to be a 5 min limit on presentations. Mike said that it is important to have a very short presentation to get the discussion going. He felt that putting the chairs in a circle and not having some opening presentation has "fallen flat on its head" is his experience.
6) Joe D. mentioned that the Wildlands and Wetlands and Rangeland and Forest voted 18 to 4 for merging JUST the discussion sessions. Mike told the Board that there was discussion in the Rangeland and Forest section about having a joint discussion with Wildlands and Wetlands. They could maybe alternate the topic each year between Wildlands and Wetlands and Rangeland and Forest.
7) Phil suggested that the symposium and the WSWS meeting program be together rather than separate as it is now AND have the symposium abstracts published in the WSWS proceedings.
8) Some people thought the symposium ended at noon since that part of the agenda was the only part in the WSWS program.

Phil told the Board that there were 20 walk-ins for the Symposium and 28 for the WSWS meeting making attendance about 380 total registered.

9) Dan wanted to know how we decided on symposium topics. He has heard that a symposium on adjuvants would be well received. Ron said that having too many symposia would detract from the meeting, and that the Board should get suggestions from the membership and plan the symposia well. Kassim said that since we now already have one "special symposium" planned for each future meeting, that we probably only have room for two symposia within the meeting. Board members suggested that the

symposia we don't hold one year could possibly be done the next year. The Spray symposium was an example of holding over from one year to the next, and it fit in very well this year. Kai suggested that Dan consult each section chair about this topic and others. Kassim said that something should be put in to the newsletter, too, asking for suggestions.

Vanelle brought up the fact that since Janet will now be very busy with the new journal, she would need help with the ad hoc symposium committee. Janet had not asked to be off the committee, however. A suggestion was made to rotate the chair of that committee. April F., Joe D., Tim Miller, and Nelroy asked to be/stay in the committee. Someone asked if Tim would agree to chair the committee now. Kassim said that the committee needs continuity, so someone needs to stay as chair for a while. Nelroy says that the idea of thinking in advance for the symposium is very good because of we know in advance, we can line up advertising, etc. These actions help get a lot of local interest for the symposium. Keith Duncan, LAC for the 2009 WSWS meeting in Albuquerque, and April Fletcher and other people form NMSU will work with the committee to help with symposium advertising and promotion

A question was raised about how long an ad hoc committee lasts before it becomes a standing committee. Kassim said that for this one in particular, since it has been so successful, maybe it could become a standing committee very soon.

Ron asked the Board members if there were any other comments on the meeting and there were none.

MOTION: Cheryl Fiore has volunteered to be the newsletter editor. Kassim moved we approve Cheryl as newsletter editor and Mike seconded the motion which **passed by a unanimous vote.**

A new Member-at-large is needed because Janet Clark's term has expired. *Dan will appoint someone before the summer meeting.*

MOTION: A motion was made, seconded, and **passed unanimously** to adjourn.

Western Society of Weed Science Financial Report
April 1, 2006 through March 31, 2007

CAPITAL

2005-2006 Balance Forward	$349,802.78
Current Income (loss) for 2006-2007	(38,758.58)*
	$311,044.20

DISTRIBUTION OF CAPITAL

RBC Dain Rauscher Funds	$208,782.93
Money Market (Bank of the West)	15,092.33
Checking (Bank of the West)	37,168.94
Certificate of Deposit (Bank of the West)	50,000.00
	$311,044.20

*Does not include the investment income ($ 5507.90) from the 1st Quarter of 2006 that was not accounted for in the previous Financial Statement.

WSWS Financial Report – April 1, 2006 through March 31, 2007

INCOME

Registration & Membership Dues (includes Proceeding and Research Progress Report income)	$ 67,137.56
Noxious Weed Control Short Course	23,953.10
Weeds of the West	80,458.09
Bio Control of Invasive Weeds book	299.12
California Weeds Books	3186.92
Bank interest & Investment income	22,930.87
2007 Sustaining Membership Dues	5,978.39
Misc. Income	107.66
	$ 204,051.71

WSWS Financial Report – April 1, 2006 through March 31, 2007 (continued)

EXPENSES

Annual Meeting Expenses (includes cost of Proceedings, Research Progress Report, & programs printing and mailing)	35,139.90
Website (Host Fees)	276.00
Tax Accountant	363.80
Franchise Tax Board filing fee	10.00
Liability Insurance	530.00
CAST Membership Dues (2007)	629.00
CAST Representative Travel	1425.53
WSSA Director of Science Policy	15,000.00
Service Contract for business management	19,500.00
Noxious Weed Control Short Course	18,997.90
Shared Leadership Workshop	4180.67
Weed Science On-line lessons	1286.93
Honorarium to Website Editor	2500.00
Honorarium to General Session Speaker (2006)	500.00
Newsletters (printing and postage)	2079.47
Invasive Plants Books	141.92
Travel to meeting for editors, student rep, and speakers for Knotweed Symposium.	4596.67
Website transaction fee	287.00
Book handling charges	142.50
Misc. Expenses	567.46
Weeds of the West (includes cost of reprinting 12,000 plus postage, etc.)	129,147.64
	$ 237,302.39

WSWS Fellow – PRIVATE SECTOR - Dr. William Cobb

Dr. William Cobb received his Ph. D. in Plant Pathology in 1973 at Oregon State University. Bill is a Certified Professional Agronomist, Certified Professional Plant Pathologist, Certified Crop Advisor and a Certified Environmental Inspector. These certifications give a prelude to the diversity of Bill's knowledge and experience as a consultant on agronomic and pesticide issues.

Bill has been a member of WSWS since 1975, when he attended his first WSWS meeting. He has been a faithful member of WSWS since that time giving numerous oral and poster presentations. He has also co-organized 3 symposia including a Soil Organic Matter Symposium in 2004, serves on several committees, was elected Chair/Editor of the Research Reports for the Horticultural section. One of Bill's greatest contributions to WSWS was to initiate the Elanco Breakfast tradition at the 1976 meeting. This event evolved into the WSWS Breakfast Business meeting hosted by Elanco, then Dow AgroSciences and now by BASF. This tradition greatly increased attendance at the annual business meeting.

Bill has been an active member of the Washington State Weed Association. He has attended many annual meetings and served on the Board of Directors from 1974 to 1978. He was recognized for his outstanding contributions to this organization as an Honorary member in 1976. And in 2004 he received this associations highest award by being selected "Weed Warrior of 2004".He is also an active member of the American Phytopathological Society since 1968 and has served on several important committees and has given several presentations at their annual meetings.

Although Bill received his formal university training as a Plant Pathologist, he has received extensive practical training in Weed Science. In 1970, Bill accepted a position as manager of Sun Royal Co. in Washington in the heart of a highly diverse irrigated-agriculture region which meant that he had to address all of the pest problems of over 50 different crops. Bill rose to the challenge and in the 2nd year of his leadership, Sun Royal received the Chevron Golden Dealer Award, only 1 of 5 awarded across the US. In 1974 Bill accepted a position as Senior Scientist and Research Scientist with Lilly Research laboratories, the Eli Lilly Company. He was responsible for research and development of candidate pesticides on all crops in the greater Pacific Northwest region. From 1974 to 1988 he planned and conducted over 400 field research trials on weeds and other pests in irrigated and dryland crops. In this capacity, Bill expanded his practical knowledge of weeds and herbicides. During the last 4 to 5 years with Lilly his research shifted towards determining the environmental fate and groundwater contamination of new pesticides. This line of research led him to establish his own consulting company, Cobb Consulting Services, located in Kennewick, WA. As leader of Cobb Consulting Services, Bill investigated crop loss and pesticide injury claims and consulted on environmental issues related to agricultural waste-water disposal, bioremediation of soils contaminated with pesticides and potential for groundwater contamination by agricultural chemicals. Bill also did contract research and independent quality assurance for laboratories conducting research under the Good Laboratory Practices. Bill has led many training classes for field staff of agricultural companies, university departments and state governmental agencies. The subject matter of these classes included soil, plant and water sampling techniques and explanation of soil factors affecting pesticide behavior. Cobb Consulting has received grants from a wide array of companies and governmental agencies to support these training classes.

Dr. Cobb is also recognized as an expert in pesticide claims investigations and he has given many presentations regarding the appropriate steps to follow in these investigations. He is highly sought our by attorneys for expert testimony in cases involving injury claims and pesticide behavior in the environment. He is especially noted for bringing a high level of science and integrity to the courtroom.

During his career, Bill has given 40 invited presentations and lectures including 9 guest lectures ato the Weed Science classes at Oregon State University. He has authored over 20 scientific, technical or popular articles related to weeds science and agricultural issues.

WSWS Fellow – PUBLIC SECTOR - Dr. Phillip Stahlman

Dr. Phillip Stahlman currently serves as Professor and Senior Weed Scientist at the Kansas State University Agricultural Research Center-Hays. Dr. Stahlman has served in this position since November, 1976 with a 100% research appointment. Prior to moving to Hays, Phil was Superintendent at the Harvey County Experiment Field near Hesston, KS and Assistant Agronomist at the North Central Branch Experiment Station near Minot, ND. In 1985, Phil took sabbatical leave followed by a leave of absence to work towards a Ph.D. in weed science at the University of Wyoming. During this period, he continued to direct a limited research project in Kansas through communications with a Research Technician and periodic visits to Hays. In 1986, he resumed full-time responsibilities at Hays, and completed his Ph.D. in 1989. For the past 30 years, he has been heavily involved in herbicide testing and development research involving crops grown in western Kansas. Much of his research involves winter wheat, sorghum, sunflower, and fallow; however, corn, soybean, and pasture experiments are also performed. Current research includes integrated weed management systems, risks and benefits of herbicide resistant crops, weed spectrum shifts associated with herbicide-resistant cropping systems, expansion of current herbicides into novel crops, and continued evaluations of selective herbicides. The goal of Phil's program is to improve current weed management strategies in dryland cropping systems and develop innovative methods of reducing the risks of soil erosion and crop failure using plant residue and soil water management. Consequently, research conducted by him, or under his direction, includes weed ecology, weed-crop competition, herbicide efficacy, crop tolerance, cultural agronomics, and evaluation of new chemistries. These studies are conducted to determine critical periods of weed interference and weed density thresholds, to optimize herbicide performance while maintaining or improving crop tolerance, and to integrate cultural and chemical control practices. Experimental and non-labeled herbicides are evaluated for utility in crops of the semi-arid dryland cropping systems. Dr. Stahlman has been deeply involved in weed science from the local to international levels throughout his career. He often entertains requests for extension oriented activities despite not having official extension responsibilities. On the regional level, Phil organized the KSU Weed Science Forum. This organization annually brings together scientists, graduate students, agronomists, and other technical personnel interested in weed science issues. On a larger scale, Dr. Stahlman, along with researchers at other universities, helped establish guidelines for field bindweed control in wheat, sorghum, and fallow. Phil also served for three years on the National Jointed Goatgrass Research Program steering committee, and hosted a former national extension coordinator for the program. He also participates in regional studies examining potential weed shifts and resistance development associated with glyphosate-tolerant cropping systems. His expertise in weed management has led to consultation with colleagues in Egypt, England, Germany, Russia, Kazakhstan, Ukraine, and Australia. Dr. Stahlman has served as the major advisor for four M.S. and two Ph.D. weed science students, and has served on the committees of several others. He has performed several merit reviews of USDA projects and external promotion/tenure reviews of university and USDA peers. Phil also has been a reviewer for *Weed Technology, Weed Science, Agronomy Journal*, USDA-CSREES and National Research Council's Agency for International Development grants. Phil has served as weed science representative on the North Central Regional Integrated Pest Management Committee and on the Research Committee of the National Sunflower Association, and is an original member of the Western Regional Committees on Biology and Control of Winter Annual Grass Weeds in Wheat, and Managing Invasive Weeds in Wheat. Phil petitioned for entry of Kansas in the Western Society of Weed Science in 1985. During the twenty-one years since, he has attended all but three of the WSWS annual meetings. Phil has served the WSWS as President, Vice-President, Research Section Chair, and is currently CAST representative. He also served on nine committees in WSWS including the Graduate Student Contest, S.E.E.P., Program, Distinguished Achievement Awards, Publications, and Nominations. He was Agronomic Crops Section Chair, served on the Member Survey Committee, and chaired the search committee for WSWS Business Manager/Treasurer. Dr. Stahlman has authored 52 papers/posters and 14 Research Reports for the WSWS. In 2001, Phil received the WSWS Outstanding Weed Scientist – Public Sector award.

ROB HEDBERG – HONORARY MEMBER

Rob Hedberg was chosen as an Honorary member by the Board of Directors. He is currently the Science Policy and Legislative Affairs Advisor for the Office of the Administrator at Cooperative State Research Education and Extension Service (CSREES) in the United States Department of Agriculture. In this role he provides an interface between CSREES, Congressional offices and other Federal agencies regarding agricultural research, education and extension.

Prior to assuming this role, Rob had been Director of Science Policy from 1999 to 2005 for the Weed Science Society of America and the regional Weed Science Societies, including the Western Society of Weed Science. His primary responsibilities were to strengthen communication between federal policy makers and the members of these societies, to increase awareness of the discipline of weed science, and to help improve federal weed research and management efforts.

An important area of accomplishment was Rob's ability to raise the profile of Weed Science organizations within Congress and the Executive Branch, resulting in Weed Scientists being invited to advise Congress and the Administration to a much greater extent than ever before. He was also instrumental in increasing Weed Scientists involvement with EPA for example with input in the IR4 program and with aquatic herbicide registrations. Concurrently, he was instrumental in explaining to the membership of the Weed Science Societies the importance of active participation in interacting with congressional staff and bureaucrats in relevant federal departments and agencies. This resulted in several members taking part in congressional and departmental briefings on items of importance to agricultural research, crop production, and management of invasive plants in natural areas, rangeland, forestry and aquatic ecosystems.

In one of the support letters the author wrote, "As a Co-Founder of NIWAW (National Invasive Weed Awareness Week), I can verify the very important part that Rob played in planning these annual forays into Washington DC and in getting a number of tasks done in a timely fashion. NIWAW has grown from about 30 people coming in from the Intermountain West to a registration of 175 in 2006. The success of NIWAW can be measured by the high level of administrative managers who address NIWAW and interact with delegates, and by the seriousness with which congressional aides listen to our messages. The passage of PL108-412 for support of invasive weed management through CWMAs (Cooperative Weed Management Areas) is a highlight of NIWAW's success."

Another example of Rob's work came from a separate support letter, "Rob led the charge for weed science during the atrazine re-registration process. WSSA submitted comments to EPA under Rob's guidance to suggest that they consider a site-specific analysis to identify vulnerable watersheds where use would be disfavored while protecting use of atrazine by growers in other locations as opposed to the one-size-fits-all approach that often is used by this federal agency. EPA adopted the suggestion. "

As a AAAS (American Association for the Advancement of Science) member working on the Senate Agriculture Committee in 1995/96, Rob participated in the passage of the 1996 Federal Agricultural Improvement and Reform Act (The Farm Bill) and the Food Quality Protection Act (FQPA) of 1996. He also worked as a member of the COFARM (Coalition for Agricultural Research Mission) and NCFAR (National Coalition for Food and Agricultural Research) coalitions whose goals are to increase the degree of federal funding for agricultural research.

Rob also has broad practical experience in multiple aspects of agricultural business, research and education. This experience includes positions as Regional Agronomic Business Manager and Manager of Crop Protection Research for Agway, Inc. a large farm cooperative in the Northeastern US; as owner of New England Crop Advisory Services, a technical consulting and contract research firm and as a Regional Agronomy Agent specializing in field crops and maple syrup production for the University of Vermont Extension Service.

Rob's education includes a Bachelor's degree in Crop and Soil Science from Michigan State University, a Master's degree in Plant Science from the University of New Hampshire and a Certificate of Graduate Studies in Management and Administration from the Harvard University Extension School.

Fellow Award - Bill Cobb and Phil Stahlman

Honorary Member - Rob Hedberg

Outstanding Weed Scientist, Public Sector- Rodney Lym, North Dakota State University.

Outstanding Weed Scientist, Private Sector- John Fenderson, Monsanto Company.

Outstanding Weed Manager- Jim Freeman, Cascade County Weed District.

Outstanding Professional Staff- Carl Libby, Washington State University

Graduate Paper Contest: Weeds of Agronomic Crops
Michael Duff (1st), Kansas State University and Joanna Sciegienka (2nd), Montana State University

Graduate Paper Contest: Weeds of Horticultural Crops and Weeds of Range&Forest
Luke Samuel, 1st, North Dakota State University
Matt Williams 2nd, Washington State University (not pictured)

Presidential Award of Merit
Tim Miller, Washington State University

Graduate Student Poster Contest
Dirk Baker (1st), Colorado State University,
Maria Zapiola (2nd), Oregon State University, and Seth Gersdorf , (3rd), University of Idaho

Necrology

Ken Dunster was born on November 2, 1936 and died on January 18, 2007, at 70 years of age. He was one of the Giants of Weed Science in the Western United States.

Ken Dunster was at the forefront of research and development of crop protection chemicals since he first joined the agrichemical industry in 1960. His work led to the registration and success of numerous products on a large diversity of crops over a wide geographical area. Among these were the successful development of bromoxynil for weed control in small grains and seedling alfalfa, additional development of several phenoxy formulations for perennial weed and brush control in rangeland, and the development of pyramin herbicide in sugarbeets. Later, his emphasis shifted more toward plant growth regulators, including the development of ethephon programs on tomatoes, grapes, walnuts, peppers, pineapple, sugarcane, and cotton. Ken worked in research and development in Montana, Colorado, California, Arizona, Nevada and Hawaii. Before retirement, he worked for Amchem, UnionCarbide and Rhone-Poulenc, during a succession or mergers and acquisitions.

Ken was a mainstay in WSWS since the beginning of his professional career. He served on numerous committees and in various offices, advancing through the President-Elect, President, and Past-President steps. He received the WSWS Fellow Award in 1978 and the Outstanding Weed Scientist Award for the Private Sector in 1992

Besides his contributions to WSWS, Ken served as President of the Montana Weed Control Association, President of the California Weed Conference, and President of the Western Plant Growth Regulator Conference.

Ken Dunster served as an excellent example of what a good, private sector weed scientist should be. He had been not only highly competent in his professional career, but had been unusually willing to share his time and knowledge with others in many societies. He earned our respect and gratitude. Ken always had a smile, and a willingness to help and assist, to encourage young people to get and remain involved in the Weed Science Societies. Ken was responsible for persuading Wanda to become the Treasurer/Business Manager of the California Weed Conference and WSWS. A quote from Wanda Graves, who was his Administrative assistant for over 25 years, sums it up well - “I will always remember his love and concern for the WSWS over the years that I worked with him.”

Dr. Thomas J. Muzik died peacefully on January 26, 2006, near Spokane, WA. Dr. Muzik led a wonderful, long and adventurous life. Born on December 21, 1919, he grew up in Berwyn, Illinois. Fascinated by trees and other plants, he first studied forestry at the University of Michigan, in Ann Arbor, Michigan, and then majored in Botany. He was a proud member of the Society of Les Voyageurs, a University society promoting intellectual intercourse and interest in outdoor life and nature. During WWII, Tom’s studies took him to Liberia, West Africa, from 1942 to 1947, where he conducted research on rubber trees for Firestone Company for five years. Returning briefly to Michigan in 1945 to marry his wife, Peggy, she then joined him in Africa, and gave birth there to their first son, Steven Thomas. Upon returning to Michigan to complete his studies, his second child, Katherine Margaret, was born in 1948, and he obtained a Ph.D. in Botany in 1949. In 1956, upon receiving a job offer as a Plant Physiologist in the Agronomy Department at Washington State University, Tom moved with his family to Pullman, Washington. There his third child, a son, Wesley Nicholas, was born, in 1957. While at Washington State, Tom published numerous scholarly papers on weed science, with special attention to herbicides and plant hormones, focusing on the weeds in wheat fields of the rolling Palouse Hills. In 1970, he wrote and published an important book, *Weed Biology and Control*, which is still timely and pertinent to the field. Upon early retirement from WSU in 1981, Dr. Muzik received an invitation to be a Research Advisor for Bechtel Company, in Bahrain, Saudi Arabia, where he spent two years, again with his wife Peggy. During these years and after finally retiring in 1983 to live in Sandpoint, Idaho, he and Peggy traveled all around the world, including Hong Kong and China, Okinawa, Greece, Italy, Alaska, Hawaii, the Caribbean and Bulgaria. He was especially fond of his weekly “Tertulia” discussion group, bowling, gardening, playing bridge, and as ever, fishing.

HONORARY MEMBERS

1976	Dick Beeler	1989	Gary A. Lee	2001	Darrell Hanavan
1978	Dale W. Bohmont	1990	Earl Spurrier	2002	Senator Larry Craig - Idaho
1982	R. Phillip Upchurch	1992	Bruce Ames	2003	Roy Nishimoto
1983	Virgil H. Freed	1993	Jerry Caulder	2004	Doug Schmale
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