

Western Society of Weed Science Annual Meeting 2013

Proceedings of the Western Society of Weed Science Volume 66

**San Diego, California, USA
11-14 March 2013**

Editors:

Bill McCloskey

**ISBN: 978-1-62748-885-3
ISSN: 0091-4487**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by the Western Society of Weed Science
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Western Society of Weed Science
at the address below.

Western Society of Weed Science
205 W. Boutz
Building 4, Suite 5
Las Cruces, New Mexico 88005

Phone: 575-527-1888
Fax: 575-527-8853

wsws@marathonag.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

POSTER SESSION.....	12
Project 1. Weeds of Range and Natural Areas	12
Identifying Areas Susceptible to Invasion by Rush Skeletonweed within the Frank Church Wilderness and Nez Perce National Forest.	12
Spring Applied Glyphosate and Imazapic for Medusahead Control.....	12
Investigating Herbicide Mixtures for Buffelgrass Management	13
Creeping Bentgrass Mitigation Program: Alternatives for Seed Head Reduction	14
Reclaiming Downy Brome Infested Oilfield Sites for Wildlife Habitat	14
Sublette Invasive Species Taskforce: Cheatgrass Survey and Treatments.....	16
Management of Austrian Fieldcress (<i>Rorippa austriaca</i>).	16
Feasibility of Solar Tents for Hydrothermal Inactivation of Weedy Plant Propagative Material.....	17
Aminocyclopyrachlor Gives Selective Control of Barb Goatgrass in California Annual Rangeland	18
The Effects of Litter on Demography of <i>Ventenata dubia</i>	18
Russian olive (<i>Elaeagnus angustifolia</i> L.) Control with HBT	19
Economics of Duncceap Larkspur Control with Aminocyclopyrachlor	19
Control of Giant Hogweed (<i>Heracleum mantegazzianum</i>) to Ensure Public Safety and Economic Efficiency in a Herbicide Restricted Region of Coastal British Columbia.....	20
Project 2. Weeds of Horticultural Crops	21
Prevalence of Metribuzin and Terbacil Resistant Redroot Pigweed (<i>Amaranthus retroflexus</i>), Powell Amaranth (<i>Amaranthus powellii</i>) and Common Lambsquarters (<i>Chenopodium album</i>) in Washington	21
Development of Vegetation Management Strategies to Rehabilitate Riparian Agricultural Sites in Western Oregon	21
Review of Flumioxazin use in Dormant Bermudagrass to Control Annual Bluegrass, Broadleaf Winter Annuals, Crabgrass and Goosegrass.....	22
Effect of Stale Seedbeds, Herbicides, and Flame on Cucurbits	22
Weeds as Sources of Inoculum for Tomato Spotted Wilt Virus in CA Vegetable Crops.....	23
Testing Herbicides for Weed Control and Crop Safety in Conifer Nurseries	24
Distribution of Glyphosate-resistant Junglerice (<i>Echinochloa colona</i>) in Perennial Crops of the Central Valley of California	24
Effects of Post-emergence Herbicides on Glyphosate and Paraquat-Resistant Hairy Fleabane Seed Production	25
Evaluation of C14-Glufosinate Translocation in Young Almond (<i>Prunus dulcis</i>) Trees	26
Fluridon a New Tool for <i>Orobanche ramosa</i> Control in Potato	26
Weed control options in organic vineyards	27
Multiple-resistance in <i>Lolium spp perenne multiflorum</i>	27

Effect of Mustard Seed Meal Incorporation on Weeds and Cavity Spot in Carrot	28
Project 3. Weeds of Agronomic Crops	28
When Life Hands You Glyphosate Resistant <i>Amaranthus</i> , Make Something	28
Control of Italian Ryegrass with Flufenacet plus Metribuzin and Pyroxasulfone Systems ..	29
Common Lambsquarters Response to Glufosinate as Influenced by Humidity	29
Pea, Lentil, and Chickpea Affected by Pyroxulam and Florasulam in Prior Wheat Crop...	30
Weed Control with Corn Herbicides that Allow Rotation to Dry Bean and Sugarbeet	30
Long-term Dryland Organic Crop Rotation Effects on Weed Population and Biomass Production.....	31
Preemergence Residual Herbicides: A Valuable Tool for Weed Control in Glyphosate-Resistant Corn.....	31
Effect of Grain Type and Application Timing on the Safety of Small Grain Herbicides in Northern California.....	32
Feral rye (<i>Secale cereale</i> L.) Control in Winter Canola (<i>Brassica napus</i>) in the Pacific Northwest.....	33
Herbicide Resistant Wild Oat Occurrence in a Diverse Cropping System: A Case study	33
The Use of Safened Herbicides with Mesosulfuron Reduces Injury to Wheat	34
Effect of Pre-Harvest Desiccants on Canola Yield and Seed Quality	35
Evaluation of Pyroxasulfone for Crop Safety and Downy Brome Control in Winter Wheat	35
Does Fertilizer Nitrogen Influence Crop-Weed Competition and Weed Response to Herbicides?	36
Pyroxasulfone: Grass Weed Control and Winter Wheat Tolerance	36
<i>Arundo donax</i> Response to Preemergence and Postemergence Herbicides	37
Spring Wheat Response to Tank Mixing Fungicides with a Pyroxulam Formulation and 2,4-D	37
Control of Downy (<i>Bromus tectorum</i>) and Japanese (<i>Bromus japonicum</i>) Brome in Winter Wheat (<i>Triticum aestivum</i>) in Western Canada.....	38
Evaluation of Sulfentrazone plus s-Metolachlor for Weed Control in No-Till Sunflower ...	38
Performance of Glyphosate for Weed Control in Colorado Under Dry Weather Conditions when Mixed with Two Acidic AMS Replacements	39
Herbicide Programs for Weed Control in Clearfield® lentils	39
Dose-Response Analysis of Glyphosate-Resistant Kochia Populations in Greenhouse and Outdoor Conditions	40
Project 4. Teaching and Technology Transfer	41
BASF's On-Target Application Academy: Educating Growers	41
Extension Program Development for Weed Prevention.....	41
A Cost Calculation Model for Estimating Backpack Herbicide Treatment Using a Smart Wand, Slope, Weed Density, Weed Visibility, and Terrain.....	42

A Novel Microbially-Based Herbicidal Compound with Systemic Activity	42
Project 5. Basic Biology and Ecology	42
Physiological and Genetic Comparison and Host Assay of Purple Nutsedge (<i>Cyperus rotundus</i>) and other plant species in Response to the Southern Root-Knot Nematode (<i>Meloidogyne incognita</i>) and Nutsedge Root-Knot Nematode	42
Role of Fungal Endophytes in Locoweed Wound Response	43
Characterizing Shade Avoidance Responses in Sugarbeet.....	43
A Survey of the Distribution of Glyphosate-Resistance in Hairy Fleabane in California	44
Soil Moisture Effects on Viability of Physically Dormant Weed Seeds	45
Bioactivity and Dissipation of Pyroxasulfone Herbicide in Saskatchewan Soils	45
Is There a Cost of Herbicide Resistance?: Effects of Environmental and Biological Stressors on Herbicide Susceptible and Multiple Herbicide Resistant Wild Oat (<i>Avena fatua</i> L.) Biotypes	46
GENERAL SESSION.....	46
Presidential Address	46
WSSA and Regional Weed Science Societies & NDASH; Director of Science Policy Update	48
Two Centuries of Invasive Plants in Southern California	48
Setting Priorities and Building Partnerships: A Key for UC IPM Success in Challenging Times	49
Herbicide-Resistant Weeds Worldwide.....	49
PROJECT 1: WEEDS OF RANGE AND NATURAL AREAS	50
Influence of Plant Litter and Application Rate and Timing on Efficacy of Imazapic for Controlling Downy Brome	50
Crossing Yellow Starthistle and Meadow Knapweed to Determine if Hybrids Will Be Produced	51
Ecosystem Resiliency and Tamarisk (saltcedar, <i>Tamarix</i> spp.) Management	51
Logging Debris and Herbicide Treatments for Controlling Scotch Broom	52
Do Source-Sink Population Dynamics Explain the Distribution of <i>Anthriscus caucalis</i> within Canyon Grassland Systems of Idaho?	53
Sublette County Invasive Species Taskforce; Cheatgrass Control a Growing Problem	53
Aquatic Plant Management Challenges in Flowing Water Systems	54
Aminopyralid Research Summary for Aquatic Labeling	55
Prescribed Burning and Imazapic Control on Downy Brome under Rangeland Conditions	55
Does Spotted Knapweed Alter Pollinator Visitation in Native Plant Communities?.....	56
Integrating Imazapic and a Fungal Pathogen to Control Downy Brome (<i>Bromus tectorum</i>)	56
Restoration Species Tolerance to Herbicides	57

An Ecologically Based Integrated Management approach to Control Sericea Lespedeza (<i>Lespedeza cuneata</i>) in Native Rangeland	57
Response of Duncesap Larkspur and Associated Vegetation to Aminocyclopyrachlor	58
Effects of Integrated Downy Brome Management Two Years After Treatment	58
The Impact of Tall Buttercup (<i>Ranunculus acris</i>) on Plant Diversity and Productivity	59
The Use of Herbicides to Reduce Fuel Loads from Weedy Annual Grasses in Central Oregon	59
Factors Affecting Herbicide Selection and Use in Plant Community Restoration Programs	60
Do Soils Impacted by <i>Tamarix</i> spp. Affect the Success of Restoration Projects Through Altered Soil Chemistry and/or Plant-Soil Feedbacks?	61
Aminopyralid Plus Clopyralid for Mesquite Control: Second Year Research and Individual Plant Treatment Update	61
Two-year Effects of Aminopyralid on an Invaded Meadow in the Washington Cascades...	62
Invasive Weed Control with Aminocyclopyrachlor in North Dakota	62
Effectiveness of Glyphosate Tank Mixtures with Clethodim or Imazapic for Control of Buffelgrass (<i>Cenchrus ciliaris</i>)	63
Rangeland Weed Control with Aminocyclopyrachlor	64
Efficacy of Indaziflam for Weed Control on Roadsides and Rail in the West.....	64
Prioritizing Invasive Plant Inventory Targets: San Diego National Wildlife Refuge Inventory Outcomes	65
PROJECT 2: WEEDS OF HORTICULTURAL CROPS	66
Efficacy of Granular Preemergence Herbicides to Control <i>Chamaesyce</i> spp. in Nursery Containers	66
Preemergence Herbicide Trials in California Bell Peppers.....	66
Effects of Glyphosate Carryover in Seed Potato Tubers	67
Chemigating Pronamide With Split Applications on Lettuce	68
Weed Control in Grape Vineyards with Flazasulfuron	68
Evaluating Mesotrione for Crop Safety and Weed Control Efficacy in Grape and Walnut .	69
Herbicide Evaluation for Dahlia in Western Washington	70
The Effect of Combined Solarization and Destabilized Green Waste Composting on Weed Seed Mortality and Soil Biology	70
What's The Fit For Roundup Ready Alfalfa?	71
Dry Bean Tolerance to Flumioxazin	71
Rotational Crop Response to Fomesafen Soil Residues one Year after Application	72
Meadowfoam Seed Meal Effects on Weed and Soil Microbial Communities.....	72
Dithiopyr: New Developments for Post Emergent Crabgrass Control in the Western and Southern U.S.....	73

Performance and Efficacy of Amicarbazone and Methiozolin for <i>Poa annua</i> Management in Desert Turfgrasses	74
New Approaches to Manage Difficult to Control Turfgrass Weeds in Hawaii.....	75
Advances in Control of Diuron Resistant Annual Bluegrass (<i>Poa annua</i>) in Cool Season Grasses Grown for Seed	75
PROJECT 3: WEEDS OF AGRONOMIC CROPS.....	76
Fertility of Wheat x Jointed Goatgrass (<i>Aegilops cylindrica</i> Host.) First Generation Backcross Progenies	76
Investigating the Mechanism of Glyphosate Resistance in Nineteen Giant Ragweed Accessions	76
Weed Control in California Rice with Imazosulfuron plus Thiobencarb (League MVPTM).....	77
Efficacy of Penoxsulam and Oxyfluorfen on Problematic Weed Species in Tree Nuts	77
Effects of pH on Pyroxsulam Adsorption and Desorption in Inland Pacific Northwest Silt Loam Soils	78
Corn Response to Nitrogen Rates and Timing of Weed Control	78
Broadleaf Weed Control in Field Corn with Preemergence Followed by Sequential Postemergence Herbicides.....	79
Sheep Fescue (<i>Festuca ovina</i> L.) Response to Herbicides and Environment.....	79
Glyphosate-Resistant Kochia Control in Corn-Sugarbeet Rotations	80
Integrated Herbicide Programs for Weed Management in Glyphosate-Resistant Sugar Beet	80
Sainfoin (<i>Onobrychis viciifolia</i>) Tolerance to Postemergence Herbicides	81
What's Old is New Again: Fiber and Oilseed Flax Production in the Willamette Valley of Oregon?	82
Use of Maleic Hydrazide for Volunteer Chicory Management in Spring Wheat	82
Effect of Wheat Population on Wheat Yield and Yield Parameters: A Case for Increasing Planting Rates	83
Management of <i>Avena fatua</i> L., <i>R. Dentatu</i> L., <i>Helianthus annuus</i> L., <i>Triticum aestivum</i> L. and <i>Zea mays</i> L. by Exploiting <i>Carica papaya</i> L. Allelopathy, as Bio-Herbicide	84
Discovery of Glyphosate Resistant Palmer Amaranth in Arizona	84
Evaluating the Interaction Between Herbicide and Fertilizer Application Timing to Improve Italian Ryegrass Control, Grain Quality, and Yield in Oklahoma Wheat Production.....	85
Weed Control with Postemergence Herbicide Combinations in Dry Bean.....	85
Dry Bean Response to Preemergence Flumioxazin	86
Dry Bean Response to Preemergence Sulfentrazone Plus S-Metolachlor	86
Cross Spectrum Efficacy of Pyroxsulam on Grasses and Broadleaf Weeds in California and Arizona Cereals	87
Management of Multiple Resistant Italian Ryegrass in Winter Wheat with Pyroxasulfone. 88	88

Does Pyroxsulam Provide Effective Control of Persian Darnel, Green Foxtail, and Yellow Foxtail?	88
Performance of Thiencarbazone-methyl + Pyrasulfotole + Bromoxynil in Wheat in the Northern Plains	89
Effect of Droplet Size on Weed Control with Dicamba and Glyphosate Tank-Mixtures Applied with Commercial Sprayers	89
Why I Cannot Use Tillage To Control Weeds	90
Kochia Management Without Glyphosate in Montana	91
Glyphosate-Resistant Kochia on the Canadian Prairies	91
Prevalence of Glyphosate-resistant Kochia in Kansas and Effectiveness of Alternative Management Practices	92
Preemergence Dicamba Dose Response Curves For Kochia Control Followed by Paraquat Tank Mixes	92
Management of Glyphosate Resistant Kochia in Fallow using Isoxaflutole, Pyrasulfotole and Tembotrione based programs.....	93
Glyphosate-Resistant Kochia: Herbicide Solutions for a Growing Problem	94
PROJECT 4: TEACHING AND TECHNOLOGY TRANSFER	95
Efficient Weed Research Management with ARM 9	N/A
Trial Reporting Capabilities of ARM 9	N/A
Field data collection: proven methodology	N/A
PROJECT 5: BASIC BIOLOGY AND ECOLOGY	95
Evolution and Spread of Glyphosate Resistance in Horseweed and Hairy Fleabane in California Orchards and Vineyard.....	95
A Growing Degree Day Model for Phenological Development of Hairy Fleabane (<i>Conyza bonariensis</i>).....	95
Effect of Height and Seeding Rate on Spring Wheat - Wild Oat (<i>Avena fatua</i>) Interaction. 96	
Eco-Efficiency of Herbicide Treatments in Conventional and Glyphosate-Resistant Sugarbeet Production.....	96
The Evaluation of Simulated 2,4-D and Dicamba Drift on Winter Canola in Oklahoma.....	97
Using Climate Modeling to Project Development of <i>Bromus tectorum</i> in the Pacific Northwest.....	98
Evaluating Tree Response to Aminocyclopyrachlor Ground Application	98
Impact of Cover Crop Termination Through Sheep Grazing on Weed Community Structure	99
Regional and Whole Plant EPSPS Gene Amplification in Glyphosate Resistant Kochia	99
EDUCATION & REGULATORY SECTION	100
Organizing plant photographs using Adobe Lightroom	100
A Generalized Framework for Teaching and Interpreting Plant Invasion and Management	100

Does Acidic AMS Replacement Adjuvants Condition Water?.....	101
Prospects for Biofuel Feedstock Crops in California	101
Agronomic Aspects of Growing Switchgrass and other Cellulosic Biofuel Crops in California.....	102
Weed Control Research and Challenges in California Biofuel Crops.....	103
Risk Assessment of the Potential for Biofuel Crops to Become Weedy Invaders in California	103
DISCUSSION SESSIONS	105
Project 1 Discussion Session: Weeds of Range and Natural Areas	105
Project 2 Discussion Section: Weeds of Horticultural Crops.....	113
Project 3 Discussion Section: Weeds of Agronomic Crops	P IC
Project 4 Discussion Section: Teaching and Technology Transfer.....	117
Project 5 Discussion Session: Basic Biology and Ecology.....	P IC
WESTERN SOCIETY OF WEED SCIENCE NET WORTH REPORT	119
WSWS CASH FLOW REPORT	120
WSWS 2013 FELLOW AWARDS.....	121
Tim Miller	121
Tom Lanini	122
WSWS 2013 OUTSTANDING WEED SCIENTIST, PRIVATE SECTOR – Mary Halstvedt	123
WSWS 2013 OUTSTANDING WEED SCIENTIST, EARLY CAREER – Jane Mangold	124
WSWS 2013 WEED MANAGER AWARD – Tim D’Amato	125
WSWS 2013 PROFESSIONAL STAFF AWARD – Joan Campbell.....	126
WSWS 2013 PRESIDENTIAL AWARD OF MERIT – Phil Banks.....	127
WSWS 2013 STUDENT SCHOLARSHIP RECIPIENTS.....	128
WSWS 2013 GRADUATE STUDENT PAPER AND POSTER AWARDS.....	129
Oral Paper Contest Awards – Range and Natural Areas & Basic Biology and Ecology	129
Oral Paper Contest Awards – Weeds of Agronomic Crops & Weeds of Horticultural Crops	130
Poster Presentation Awards – All Sections.....	131
Poster Presentation Awards – Undergraduate Poster	132
WSWS 2013 ANNUAL MEETING NECROLOGY REPORT.....	133
WSWS ANNUAL MEETING ATTENDEES – San Diego 2013	135
WSWS ANNUAL MEETING – AUTHOR INDEX	146
WSWS ANNUAL MEETING – KEYWORD INDEX	155
WSWS ANNUAL MEETING – (ABSTRACT NUMBER), PAGE NUMBER INDEX.....	165

2012-2013 WSWS Standing and Ad Hoc Committees (*board contact*) 167