

SAES-422 Dougher, Tracy

WERA 1013

Accomplishments:

- Made presentation to local growing groups at Forde Nursery, Great Falls, MT on Propagation to Enhance Plant Survival.
- Presented at a Turfgrass IPM workshop on identifying grasses and utilizing native grasses for turfgrass applications.

Short-term Outcomes: These presentations gave both commercial growers and home gardeners exposure to native plants.

Outputs: Master gardeners completed work on a native plant database for the MSU native plant garden. Signs for the research/demonstration garden were completed.

Activities:

- Supervised undergraduate project analyzing data from native and adapted fine fescue mowing height study relating to consumer preference, weed competition, and survival.
- Identified a graduate student to further research on the limitations and ranges of native plants in the built landscape.
- Worked with the Montana Master Gardener program to educate volunteers on the use of native plants

Milestones: Additions to the WERA 1013 website, particularly the plant descriptions database were made on a regular basis. This goal was set forth at the 2010 annual meeting.

Impact Statements:

- A graduate student is being funded through a combination of Teaching Assistantships and Research Assistantships to cooperate with Dr. Tracy Dougher on the limitations and ranges of native plants in the built landscape.

Publications: None

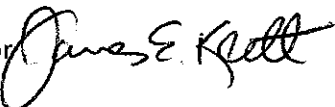
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Memorandum

Date: November 28, 2011

To: Tracy A. O. Dougher
Montana State University
PO Box 173140
Bozeman, MT 59717-3140

From: James E. Klett, Professor 

Subject: Station Report for WERA-1013

Remarks: I am sending some information from Colorado for the SAES-422 report for WERA 1013, please see below.

Accomplishments

- 1) Four members of WERA 1013 spoke on native plant research at the ProGreen Conference in Denver, Colorado in February, 2011. Presenters included: James E. Klett, Colorado; Larry Rupp, Utah; Karen Panter, Wyoming; and Steve Love, Idaho.
- 2) Plant Select® a program designed to seek out and distribute the very best plants for gardens from the high plains to the intermountain region introduced two new patented plants in 2011 and recommended five others. Plant Select® is a cooperative program administered by Colorado State University and Denver Botanic Gardens together with landscape and nursery professionals throughout the Rocky Mountain Region and beyond.

Short Term Outcomes

More than 1.25 million Plant Select® plants were sold and purchased by commercial companies and home owners in 2011, resulting in more satisfied gardeners since growing adaptable plants for this region.

Outputs

Two plant patents are pending for two of our 2011 Plant Select® introductions. A report of all WERA-1013 outputs was published and posted on our website.

Activities

Presentations by four members of WERA-1013 at the 2011 ProGreen Conference in Denver, Colorado to Green Industry personnel from throughout the Rocky Mountain Region.

Milestones

Cooperation planned for testing for salt tolerance with Texas WERA-1013 member on certain Plant Select® plants. Also, research protocols developed for evaluating future Plant Select® introductions for two research sites in Colorado.

Impact Statements

Plant Select® in Colorado received a Colorado Specialty Crops grant to help market Plant Select® throughout the intermountain west especially in Utah, Idaho, and Montana. Plant Select® talks were given in two of these states in 2011.

Publications

Klett, James E. (2011). Plant Select® for 2012 – Colorado State University Research Update, *Colorado Green*. 27 (5). 10-11.

Hayward, Pat (2011). What Makes a Great Plant Select® Plant. *Colorado Green* 27 (6). 24-26.

Klett, J.E., & Greb L. (2011). Touch and Proven Perennials for Colorado. *Colorado Green*, 27 (6). 12-13.

Klett, J.E., & Greb L. (2011). Under Used Perennials for Colorado. *CNGA LooseLeaf*, 29 (6). 20.

SAES-422

Report from Heidi Kratsch, University of Nevada Cooperative Extension (kratschh@unce.unr.edu)

Short-term Outcomes:

- Nevadans/Master Gardeners who attended local presentations are more aware of the value of using Great Basin Native Plants in their yards and gardens.
- Scientifically, we know more about the limits of roundleaf buffaloberry for landscape use and may have a hybrid to contribute that will meet with commercial success.
- Created interest in a Nevada Master Gardener Native Plants Club, which will cooperate and collaborate with the Nevada Native Plant Society.

Outputs:

- Developed a University of Nevada Cooperative Extension Special Publication: "Some Good Native Plants for Great Basin Landscapes."

Activities:

- Kratsch presented at the Idaho Nursery and Landscape Association Conference in Boise, ID, January 21, 2011 on "New Plants for Native-Inspired Landscapes."
- Modified our Master Gardener curriculum to include a class on "Native Plants in Water-Efficient Landscapes."
 - Presented a talk during "Nevada Landscaping that Works" series on "Bloom Where You are Planted: Living in Balance with Nature."
 - Started a Nevada Master Gardener Native Plants Club.
 - Completed research on the ecophysiology of *Shepherdia rotundifolia* (roundleaf buffaloberry) and have created a hybrid with *Shepherdia argentea* to foster landscape success.
 - Worked with Dayton Valley Conservation District on native plant recommendations for the demonstration garden in front of their building in Dayton, NV.

Impact Statements:

Northern Nevadans are late adopters of the use of native plants in their home and commercial landscapes because of the efforts of other local programs to educate homeowners about wildfire safety. Cooperating with these groups in developing a common message has increased understanding of native plant conservation and wildfire issues, and has changed attitudes about native plants and their value.

Publications:

Kratsch, H. 2011. Water-Efficient Landscaping in the Intermountain West: a professional and do-it-yourself guide. Utah State University Press, Logan, UT.

Report submitted to WERA 1013
Prepared by Genhua Niu

Salt tolerance of ornamental chile peppers

High quality irrigation water for green industry is becoming increasingly limited. Alternative water source such as municipal reclaimed water is being used for irrigating landscapes in some areas in the Southwest. Ornamental chile peppers are popular for container-grown plants as well as bedding plants providing unique foliar and fruit colors. However, information in the responses of ornamental plants to irrigation water with elevated salts is limited. This study quantified the responses of 11 ornamental chile peppers (NuMex Twilight, NuMex Centennial, NuMex Christmas, NuMex April Fool's Day, NuMex Cinco de Mayo, NuMex Valentine, NuMex Easter, NuMex Halloween, NuMex St. Patrick's Day, NuMex Memorial Day, NuMex Thanksgiving) to elevated salinity. Our results indicated that most cultivars were moderately tolerant to salinity with little or no foliar salt injury, although growth is reduced at elevated salinity. 'NuMex Memorial Day' was most sensitive among the 11 tested cultivars with foliar damage and significant growth reduction.

Salt tolerance of more bedding plants evaluated

Bedding plants are extensively used in landscapes in the United States. As high quality water supply becomes limited in many parts of the world, recycled water is being encouraged to irrigate landscapes. The relative salinity tolerance of additional bedding plants, which were previously proved to be acceptable or excellent in semi-arid environment, was evaluated. Seedlings were irrigated with saline solutions at various salinity levels and salinity tolerance was determined according to their growth, visual quality, and physiological responses. Results indicated that petunia, Gomphrena, and angelonia cultivars were moderately tolerant to salinity while zinnia and marigold are moderately sensitive and should not be irrigated with saline water.

Impact statements

High quality water will be conserved by using alternative water sources for irrigating nursery crops. By providing quantitative information on plant responses to saline water irrigation, salinity threshold, and salinity of substrate, stakeholders can make better decisions.

Publication list

1. Niu, G., D. Rodriguez, and M. Gu. 2011. Response of *Sophora secundiflora* to nitrogen form and rate. HortScience 46(9):1303–1307.
2. Niu, G., D.S. Rodriguez, M. Wang, T. Starman, and D. Zhang. 2011. Response of zinnia to saline water irrigation. Acta Horticulturae (in press).

3. Niu, G. and D.S. Rodriguez. 2011. Salt Tolerance of Selected Bedding Plants. *Southern Nursery Association* 56:146-151.
4. Niu, G., D.S. Rodriguez, and C. McKenney. 2011. Salt tolerance of five wildflowers. 56:152-156.

Participant Report October 2010 – September 2011
WERA-1013, Intermountain Native Plants
11 November 2011
Karen Panter, University of Wyoming

Participant: Panter, Karen L., kpanter@uwyo.edu, Department of Plant Sciences, University of Wyoming

Accomplishments: During FY 2011 I was involved in two major events related to this project. The first was a panel discussion involving four of us in this group: Dr. Jim Klett (Colorado State University), Dr. Larry Rupp (Utah State University), Dr. Stephen Love (University of Idaho), and me, who spoke at the annual ProGreen Expo horticultural conference in Denver, Colorado on 10 February 2011. The title of the panel presentation was “Native Plants from Intermountain and Rocky Mountain Areas” and was heard by over 200 participants. We each spoke about our current projects involving production and evaluation of native plants.

The second was a large collaborative project on the University of Wyoming campus. The Berry Biodiversity Conservation Building was dedicated in January 2011. One of its most notable features is a green roof planted exclusively with natives from the Rocky Mountain region. It is designed to mimic the native prairie surrounding Laramie, Wyoming. Sixty different species are represented on the roof and I was in charge of growing 26 of them from seeds. These seeds were sown in February 2011 and all but eight were successfully grown and transplanted to the green roof during the summer of 2011. The other eight are being re-sown and hopefully will be ready for transplanting on the roof in June 2012.

Short-term Outcomes: Outcomes from the talk included over 200 people in the audience who wanted to ask far more questions of the panel than there was time for. Several in attendance were from Wyoming greenhouses and nurseries. Attendees learned about potential new plants for niche markets.

Regarding the Berry Building green roof, outcomes have already included numerous tours for school children, extension educators, and on-campus classes, most notably my PLNT/AECL 2026 Horticultural Science Lab which used it for part of our landscaping assignment. Those who have toured the green roof have learned more about the diversity of plant life in our area. They have also learned that many of these plants are already in the trade, either in plant form or seeds, and can be grown successfully.

Outputs: The presentations from the 2011 ProGreen native plant panel generated four new files for educational and extension purposes. At one time ProGreen posted presentations on their web site (www.progreenexpo.com) but I have been unable to find them there.

The Berry Building green roof project has generated numerous outputs (although I cannot take credit for all of them) including a brochure available at the gate to the roof, a web site (<http://www.uwyo.edu/berrycenter/greenroof/>), a blog (<http://berryprairie.blogspot.com/>), and an entry in my own blog (<http://karenpanter.wordpress.com>).

Activities: The ProGreen panel activity was a one-hour presentation plus question/answer period on 10 February 2011.

The Berry Building green roof has been a collaborative effort involving a campus-based committee, landscape designers, and the green roof consultant. We all worked together to determine

plants species for the roof. The landscape designers located the plant material and seeds, and I was in charge of growing 26 species from seeds to planting on the roof.

Milestones: The next logical milestone for the native plant panel will be a follow-up talk at ProGreen on the species we discussed in February. I am hoping this next talk will occur at the 2013 ProGreen Expo.

The major milestone for the green roof was planting the vast majority of the plant material in the summer of 2011. The roof is open to the public and anyone can view it at any time.

Impact Statements: Long-term impacts for the native plant panel include future talks and discussions about the native plant material on which we are all currently working. Growers, retailers, and landscape design and maintenance professionals will all have several new species to add to their lists for sales and utilization. This will bring in additional income over the years which may potentially translate to additional hires.

Long-term impacts for the green roof include a huge educational aspect for campus visitors, industry personnel, extension educators, and anyone interested in learning more about growing and using native plants in the landscape. The roof will also be monitored and utilized as a tool for enticing pollinators such as bees. It is and will be a major research center for determining long-term survival and increase of native plants on the roof. A botany graduate student is already using the plants on the roof for his master's thesis work.

Publications:

“Berry Prairie” Green Roof, <http://www.uwyo.edu/berrycenter/greenroof/>, accessed 11 November 2011.

The Berry Prairie, <http://berryprairie.blogspot.com/>, accessed 11 November 2011.

First Blog Ever, <http://karenpanter.wordpress.com/2011/08/08/first-blog-ever/>, accessed 11 November 2011.

More Green Roof Plants, <http://karenpanter.wordpress.com/2011/08/17/more-green-roof-plants/>, accessed 11 November 2011.

**Utah Agricultural Experiment Station
Multistate Research Project/
Multistate Coordinating Committee and Information Exchange Group
Annual Meeting Response Form**

As an **official participant** and with the **prior approval** of the Utah State University - Utah Agricultural Experiment Station (UAES), financial support for travel expenses associated with the annual meeting for the multistate or coordinating committee activity are authorized. Upon return from the annual meeting and prior to processing the travel claim, the participant must complete the following Annual Meeting Response Form, in its entirety, and submit via email to hwaters@uidaho.edu

QUESTION	RESPONSE
Multistate Project/Committee Designated Number (i.e., WERA-089)	WERA-1013
Title:	Intermountain Regional Evaluation and Introduction of Native Plants
Annual Meeting Location and Date(s):	Fort Collins, Colorado October 7-8, 2011
Duration of Project/Committee:	
Utah Researcher Name:	Larry Rupp
Percent Research, Extension, Teaching Appointment(s):	55% Teaching, 40% Extension
List Project Objectives:	<ol style="list-style-type: none"> 1. Identify superior accessions of native plants for use in water conserving landscapes 2. Develop vegetative propagation protocols for native plant accessions 3. Disseminate information about native plant production to growers in Utah
Relevant Expertise and Emphasis of Idaho Researcher (s): <i>(short statement)</i>	Larry Rupp is a Extension Specialist who has worked in the area of landscape water conservation for many years. He currently participates in the USU Center for Water Efficient Landscaping. He has also taught plant propagation for 27 years. This project brings these disciplines together with the goal of making native plants more accessible to Utah landscapers.
Utah Research Update: <i>(Describe in 10 sentences or less the UAES contribution to and outcomes of its participation in the project or committee)</i>	During 2011, information was contributed on the propagation of several native woody plants using mound layering techniques. Further information was also shared on evaluation of selected native bigtooth maple for landscape use, propagation of Utah juniper as rooted cuttings, and an <i>Epilobium</i> breeding program at the Utah State University Botanical Center. Outcomes of participation include collaboration at various levels with Steve Love (UI), Heidi Kratsch (UNR) and others. Participation has also allowed the presentation of Utah information on the WERA-1013 website, and venues such as the Hort Expo in Denver, Colorado. A significant goal is the development of a standard plant evaluation protocol by all members of the working group that would benefit the native plant industry throughout the nation.
Utah Research, Extension or Education Impact(s): <i>For each impact include 1) impact title, 2) issue (who cares and why), 3) what has been done, and 4) impact (include economic, environmental, social and or impact on discipline) Remember that impact can be defined as the quantifiable difference a program makes in the condition or the quality of life for its clients and general citizenry; or the change in understanding within a discipline.</i>	<p>Title: Selection and propagation of native woody plants for water conserving landscaping.</p> <p>Who cares: Utah is seeing an increasing interest in the use of native plants for low-water landscaping. Often these plants are of inferior quality as compared to cultivars used in the nursery industry. Selecting superior plants and developing means of propagating them will allow Utah growers to produce and market such plants.</p> <p>What has been done: Multiple accessions of a number of woody plant species have been selected and means of propagation have been developed for several species, the most extensive work has been done with bigtooth maple. Workshops, presentations, factsheets, and a thesis have been published to benefit the industry.</p>
Relevant Utah Publications:	Croft, A., Rupp, L. A., Kratsch, H. (2011). Landscape Maintenance Water-Efficient Landscaping in the Intermountain West. Utah State University Press.

	<p>Rosenberg, D. E., Kopp, K., Kratsch, H., Rupp, L. A., Johnson, P. G., Kjelgren, R. K. (2011). Value Landscape Engineering: Identifying Costs, Water Use, Labor, and Impacts to Support Landscape Choice. Journal of the American Water Resources Association, 47(3), 635–649.</p> <p>Rupp, L. A., Varga, B. A., Anderson, D. 2011. Selection and Vegetative Propagation of Native Woody Plants for Water-Wise Landscaping Proceedings of the 16th Wildland Shrub Symposium.</p> <p>Cook, S and L.A. Rupp, 2011. Drought Tolerance: A Database of Irrigation Requirements of Woody Landscape Plants of Northern Utah. Utah State University Extension Factsheet. http://extension.usu.edu/files/publications/publication/Horticulture_Drought_2011-01pr.pdf</p> <p>Richards, M.R. and L.A. Rupp. 2011. Propagating Bigtooth Maple. Utah State University Extension Factsheet. http://extension.usu.edu/files/publications/publication/Horticulture_Trees_2011-03pr.pdf</p>
<p>What issues of strategic importance (including those identified by stakeholders) were addressed by the multistate project or activity?</p>	<p>The primary interest is that of landscape water conservation. Using native plants in landscaping will conserve water used for irrigation. Being able to conserve water while preserving the quality of life obtained through landscaping will be a significant contribution to society.</p>
<p>What needs of underserved and underrepresented populations for the state(s) were addressed by the multistate project or activity?</p>	<p>This project is designed to assist all populations and is not directed toward any specific group.</p>