

Plant Science Says



Happy Valentine's Day!

Volume 16, No. 1

February, 2013

PSPP faculty Win MSU Awards

Phil Bruckner won a Vice President for



Photo courtesy
of Kelly Gorham

Research's Meritorious Technology/Science Award for his research, plant breeding expertise, student development and new varieties of wheat. Bruckner led a winter wheat breeding project that generated sales of 300,000 bushels and plantings of more than 250,000 acres in Montana and the region. In addition, varieties that were developed resulted in four licenses to two international seed companies.

Luther Talbert received a Meritorious



Photo courtesy of
Kelly Gorham

Technology/Science Award. A spring wheat breeding program led by Talbert has developed higher yielding and pest resistant varieties including the two leading spring wheat varieties planted in Montana. They have been grown on approximately 15 million acres in Montana since 2000.

Florence Dunkel received a President's Excellence in Teaching Award. A strong believer in collaborations and community involvement, Dunkel has developed discovery-based teaching that links MSU students with Mali, the Northern Cheyenne Indian Reservation and the Crow (Apsaalooke) Indian Reservation. She knows what students want from their education, demands high scholarship and teaches skills that students need to address critical needs. One of her former students went on to



President Cruzado, Cliff Montagne, Ada Giusti, Bob Diggs, and Florence Dunkel. Florence thanked Ada, Cliff, and Bob along with John Sherwood, Joseph Fedock, Lori Lawson, and all of her students for the "shared honor that we accomplished together". Photo courtesy of Jayson O'Neill.

become a Rhodes Scholar. Other highlights have included the establishment of an entrepreneurial incubator and the production of a film illustrating the intense teaching and learning that can take place between native cultures. She and her students also collaborated with a Malian village to eliminate malaria there.

The 2013 Montana/Wyoming Sugar Beet and Barley Symposium

The Montana/Wyoming Sugar Beet and Barley Symposium was held in Billings, Montana at the Big Horn Resort on January 9 and 10, 2013, and was attended by 250-275 growers and agribusiness people each day. This is a new convention facility and is perfect for groups of 300-400. The program on the 9th focused on malt barley production, irrigation, grain storage, corn genetics for dryland and irrigated growers, pulse crops and crop protection including managing



Andy Steiger from Western Sugar presents Dr. Barry Jacobsen with an award for his work with the Sugarbeet industry.



weed, disease and insect pests of corn, dry beans, and wheat grown in rotation with sugarbeets and barley. There were presentations by faculty from Montana State University including Ken Kephart, Mary Burrows, Kevin Wanner, Barry Jacobsen, Kent McVay, and Clain Jones. Presentations were also given by several faculty from the University of Wyoming, North Dakota State University, Kansas State University and a corn breeder from Pioneer Hi-Bred. There was also a trade show with 45 exhibitors and Miller Coors sponsored a social hour that night featuring several of their products.

Presentations on the 10th all focused on sugarbeet production including fertility, irrigation, new genetics, and new equipment, plus insect, weed and disease management. Ms. Ruthann Geib, Vice President of the American Sugarbeet Growers Association, presented a Washington update on use of Round Up Ready sugarbeets and other issues

affecting the future of the sugarbeet industry. There was a forum on control of *Rhizoctonia* crown and root rot with presentations by Lee Panella USDA/ARS, Ft. Collins, Steve Poindexter of Michigan State and Barry Jacobsen, MSU. Carl Strausbaugh, USDA/ARS, Kimberly, Idaho, gave a presentation on the effects of virus diseases on sugarbeet storage. Andrew Kniss made a presentation on weed management and Dr. Prashant Jha made a presentation on glyphosate resistant weeds. In this presentation, he presented evidence for glyphosate resistant kochia in Montana.

At noon on the 10th, Barry Jacobsen received an award from the sugarbeet industry for his "tireless commitment to the sugarbeet industry and support for the Montana/Wyoming Sugar Beet and Barley Symposium". Barry has served as program chair for this biennial symposium since 1995 and has edited a published proceedings for each Symposium.

North American Mycological Association Award



Cathy Cripps received NAMA's 2012 "Award for Contributions to Amateur Mycology" at NAMA's annual meeting held this year in Scott's Valley, CA. This national award is given annually to someone who has made significant

contributions to amateur mycology. Cathy was the chief mycologist for three NAMA forays in Idaho, Colorado and Hinton (Alberta) and is a current trustee of the organization. Cathy has given many talks at NAMA forays and to local mushroom clubs in numerous states over the last 25 years. She contributes popular articles to *Fungi Magazine*, *McIlvainea*, and the *Inoculum* and has been featured in local newspapers. She leads the local mushroom club in Bozeman, Montana, and has participated in Bioblitzes in Yellowstone National Park and the North

American Prairie. On Montana Ag Live, she has appeared as a guest to answer questions on mushrooms. She was nominated by former student Dr. Todd Osmundson and a committee chooses the recipient of the award. Details of the award will be featured in the March-April edition of the Mycophile.

PSPP Celebrates Fall 2012 Graduation

On Friday, December 14, the Plant Sciences and Plant Pathology Department celebrated the first MSU fall commencement in more than 50 years. The College of Agriculture hosted the Fall 2012 graduation reception in the Bobcat Stadium Club with all College of Agriculture Departments attending. Dean Jacobsen spoke about the improving prospects in various ag-related job markets and congratulated all COA students for their many and varied accomplishments.



Attendees of the College of Agriculture reception. The poinsettias on the tables were started by David Baumbauer in the greenhouse at the end of August. Photo courtesy of Tamara Moe.



Dean Jeff Jacobsen speaking at the College of Agriculture Reception. Photo courtesy of Tamara Moe.



Kristopher Shampeny and William Chandler receive their diplomas from Dean Jeff Jacobsen. Photo courtesy of Kelly Gorham.

Our graduates received the following books: Landscape Design graduates- "The Artful Garden: Creative Inspiration for Landscape Design"; Crop Science and Sustainable Crop Production graduates- "Weeds of the West"; and Plant Biotechnology graduates- "The Genetic Manipulation of Plants". Horticulture Science graduates received loupes (magnifying glass). All the graduates received a cowbell from the College of Agriculture, a coffee mug and a carabineer.



Photo courtesy of Kelly Gorham.

Following are the names of all those who received diplomas.

PSPP Graduates:

Erin Lonergan - MS in Plant Science

Jankiben Patel - B.S. in
Biotechnology- Plant Systems

Kristopher Shampeny - B.S. in
Environmental Horticulture-
Horticulture Science

Tyler Schroeder - B.S. in
Environmental Horticulture- Landscape
Design

William Chandler - B.S. in Environmental
Horticulture- Landscape Design

Russell Stebbins - B.S. in Plant Science -
Crop Science

Nicholas Alba—B.S. in Sustainable Food &
Bioenergy Systems- Sustainable Crop
Production

Forrest Lintner - B.S. in Sustainable Food &
Bioenergy Systems- Sustainable Crop
Production

*Congratulations to each of you and we
wish you the best in all of your future
endeavors!*

Triticeae CAP activities in San Diego By Jamie Sherman

Members of the nationwide Triticeae CAP (TCAP) met in San Diego at the Plant and Animal Genome (PAG) meetings. TCAP, a nationwide grant funded by USDA-NIFA, focuses on the improvement of wheat and barley and on the education of students. The goal of the PAG meeting was both to report the progress of the grant to stakeholders as well as plan 2013 activities. Prior to the PAG meetings, graduate students participated in a workshop to strengthen their leadership and communication skills which was supported by the participation of an industry panel representing Pioneer, Bayer, Monsanto, and Limagrains. A working group, led by Luther Talbert, also met to



TCAP Participants at the Plant and Animal Genome meetings in San Diego Jan 2013. Photo courtesy of Jamie Sherman.

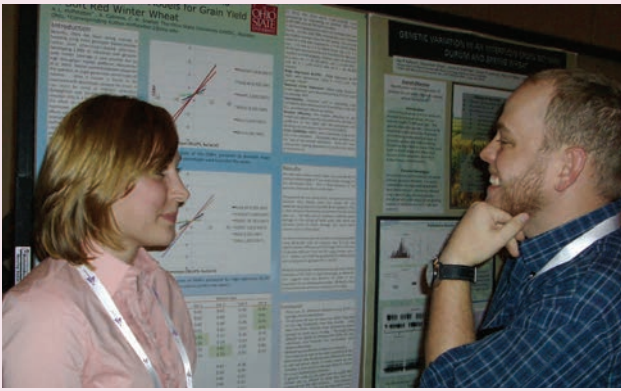
discuss challenges and solutions for the use of a new phenotyping tool that uses reflective light from the plant as a proxy indicating the status of the plant. A highlight of the meeting was the poster session, where 30 TCAP graduate students, including Jay Kalous and Duke Pauli, shared their current research projects. This session provided students with an opportunity to network with scientists from around the country, including industry representatives.



Nancy Blake and others at the phenotyping working group meeting. Photo courtesy of Jamie Sherman.



Industry Panel Representatives Fred Bliss and Marla Hall with Education Coordinator Jamie Sherman. Photo courtesy of Jamie Sherman.



Jay Kalous enjoys Amber Hoffstetter's poster. Photo courtesy of Jamie Sherman.



Pioneer representative, Tabare Abadie, visiting with a student. Photo courtesy of Jamie Sherman.

Crop and Pest Management School By Kevin Wanner

Thanks to everyone involved, the 2013 Crop and Pest Management School held on campus January 2-4 was a success with a full enrollment of 60 students. This year the topic again focused on small grain crops with MSU speakers from four different departments that included the Northwestern Ag Research Station. We were pleased to have four guest speakers participate. Dr. Tim Murray, with more than 20 years of experience in small grains pathology, joined us from Washington State University while Dr. Héctor Cárcamo with Agriculture and Agri-Food Canada drove down from Lethbridge, Alberta to talk about trap crop strategies for managing insect pests. Steve Becker with the Montana Wheat and Barley Committee kicked off the workshop with an overview of small grains issues in Montana and the region, and Dr. Brett Allen a Research Agronomist with the USDA-ARS lab in Sidney discussed dry land cropping systems. An interactive session by Mary Burrows and Fabian



Mary Burrows leading an interactive session on "Understanding and managing pest complexes."



Héctor Cárcamo from Agriculture and Agri-Food Canada in Lethbridge Alberta, talking about "Trap crops as an IPM tool". Below David Weaver from LRES provided an update on the wheat stem sawfly, always a topic the audience wants to hear about. Photos courtesy of Kevin Wanner.



Menalled on understanding and managing pest complexes was a popular change from the standard lecture format.

If I have learned one thing about organizing a 2.5 day workshop, it is to keep the participants well fed and watered! The class was a great mix of producers, crop consultants and commercial and government agriculturalists and county agents. I started the tradition of bringing Granny's donuts on the morning of the second day – how can that not be a hit? Because we needed a larger venue, the workshop is now held in the Burns Technology Center, where they have many cool gadgets in the classroom. Overall, everything went remarkably smooth. Of course, you will notice that the name of one speaker on the schedule is rather odd, "TBD". Next coffee break you will have to ask Alan Dyer why he insisted on that odd title, and its significance. I guess those pathologists are just a bit quirky!

Again, I would like to thank everyone who took the time to speak at the workshop this year. The quality and diversity of speakers makes the program a success. Special thanks to Peggy Bunger in my lab who makes sure that I pull it all together!

Candidates for New Tenure Track Faculty Position

In February, four candidates will be interviewing for the position of Assistant/ Associate Professor of Small Agronomy/ Horticulture.

Aaron Fox – Feb 12 and 13 – Tuesday, Wednesday

Kathy Hilimire – Feb 14 and 15 – Thursday, Friday

Megan Schipanski – Feb 19 and 20 – Tuesday, Wednesday

Randa Jabbour – Feb 21 and 22 – Thursday, Friday

Please make every effort to attend the seminars and small group meetings that pertain to you. Their seminars are at 9:30 February 12, 14, 19, and 21.

2012 Forage Legacy Scholarship

Justin Berg received the "2012 Forage Legacy Scholarship" December 10, 2012. Justin is a junior majoring in Crop Science.

The 2012 Forage Legacy Scholarship is given to the student who develops the best ranch plan as part of an exercise applying the knowledge gained in their AGSC 342 class to improve the productivity of a farm or ranch. The competition is a part of a class term project assignment. AGSC 342 is offered through this Department.

The scholarship is funded by royalties from the sale of protected forage cultivars released from the Montana Agriculture Experiment Stations, College of Agriculture.

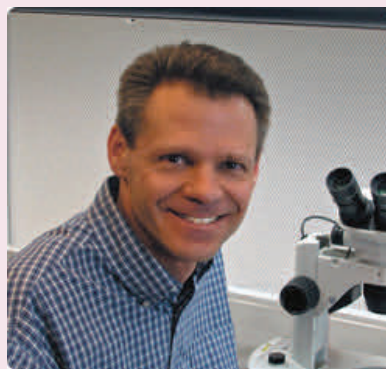
Congratulations Justin!



Larry Holzworth presenting Justin Berg with the Forage Legacy Scholarship.

Course Focus

Bill Hoch - HORT 231– Woody Ornamentals



Woody Ornamentals (HORT 231) is a pleasure for me to teach, as woody landscape plants have always been one of my primary interests and are at the center of

most of my research. First and foremost this course must instill the fundamentals that are requisite to a competent



Rod Walters, MSU Arborist, demonstrates the use of a truck-mounted tree spade to the HORT 261 class.

professional in the green industry, specifically, knowing the identity, culture and uses of common woody plant species. However, I also use this course as a vehicle to teach concepts of plant ecology, physiology and pathology, and how these apply to plants growing in the landscape.

This course meets three times each week for two hours, organized into weekly cycles: a lecture to introduce new plants and address each plant's ornamental features, landscape uses, cultural requirements, diseases and insect problems; plant walks to review information and familiarize students with multiple specimens of each plant; and a test. Repetition is central to this course, as all information is randomly tested multiples times throughout the semester, building the information pool as the semester progresses. This course also provides three teaching assistants with valuable teaching experience and the opportunity to refresh and broaden their knowledge of woody plants.

I continue to augment the content each year, and this past year I added a pruning lecture and lab that gives students experience with the important concepts underlying the training and maintenance of long-lived woody plants. I now also organize interested students into a study group that prepares for the Montana Nursery and Landscape Association's Certified Plant Professional examination. While this course instills the fundamentals of identifying, using and maintaining woody landscape plants, I think my most important goal is to have every student

leave this course appreciating woody plants as much as I do!

New Graduate Student Carmen Pol - Mary Burrows, Advisor



I completed my Bachelors degree in agricultural science at the University of Western Australia in November 2011. It was during my time as an undergrad that I first came to Bozeman. It was 2010, and I wanted to try something

new, so I signed up for a year of international student exchange and left my hometown in Western Australia, Perth.

It didn't take me long to fall in love with Bozeman because of the beautiful mountains, snow and the friendly people. In 2011, I returned to Australia to complete my degree and finish my honor's project working with sheep pasture for saline land. I returned to Bozeman in 2012.

It was during this time that I had the great opportunity to work in the PSPP department. In addition to working in Mike Giroux's lab, I also worked for David May, Phil Bruckner's graduate student, during the summer. Many people at MSU encouraged me to consider graduate school, and I decided it was another opportunity I couldn't pass up. I will primarily focus on wheat streak mosaic virus, conducting greenhouse and field trials.

In my free time, I enjoy skiing, hiking, camping, fishing, reading, going to the beach, snorkelling and body boarding.

Invited Speakers

Gary Strobel was invited to speak at the "How Microbes Can Help Feed the World" Colloquium December 4, 2012. The Colloquium was sponsored by The American Academy of Microbiology.

Michelle Flenniken presented her research on the honey bee immune response to

viruses at the American Beekeeping Federation (ABF) Research Conference in Hershey, Pennsylvania, January 9-14.

Also, Michelle was elected to serve as a 2013 Board Member for the American Association of Professional Apiculturists (AAPA).

Days to Maturity **By Toby Day, Extension Horticulture** **Associate Specialist**

January and February are the months that gardeners are inundated with seed catalogues for vegetables. Before growing vegetables or starting vegetable transplants indoors for our area, there are a couple of things to ponder before purchasing vegetable seed.



The first thing to think about is your growing season. Compared to much of the country, our growing season is quite short. The way to find the length of a growing season is to count the number of days from the average last killing frost in

the spring to the first killing frost in the fall. Taking into account the climate information on campus at Montana State University-Bozeman, the average last frost in the spring is May 24 and the average first frost in the fall is September 16. The growing season at MSU has traditionally had 115 growing days. Therefore, it could be deduced that it would be possible to grow that 110 day watermelon you see in the new seed catalogue.

However, there are a few things to consider before purchasing such seed. First, although the average last frost for MSU is May 24, any seasoned gardener in the Gallatin Valley will tell you not to plant tender or very tender vegetables until June 1 or even later – let's say June 10. The

most common problem with gardeners trying to get their crop in the ground too early is the temperamental spring weather. Too many seasoned gardeners have been bit by a late frost. And, as many gardeners (and plant pathologists) will tell you, it is better to wait for warmer temperatures anyway.

The second item to consider is that not all of the days during the growing season at MSU are conducive to growing warm-season vegetables such as tomatoes, peppers, melons, or corn. These vegetables require warmer temperatures, especially at night. Now, take into account that the days to maturity for those warm-season crops, such as watermelon, are the number of days it takes from seed to harvest under proper growing conditions *for that melon*. In the Bozeman area, it may take 145 days with our cold nights to get that melon to maturity. I have only grown one watermelon to maturity. It was the growing season of 2011 in which the first killing frost didn't come until late in October. Otherwise, I would not have been successful, even though the seed package said it was a 90 day watermelon.

Finally, understand that the days-to-maturity on a seed package is the number of days from seed *or transplant* to harvest. The days-to-maturity for many of the vegetables we can grow are the number of days *from transplant* to harvest. These are vegetables such as tomatoes, peppers, and many of the cole crops such as broccoli, cabbage and cauliflower. The rule of thumb is, if you see transplants in a garden center or nursery, the days-to-maturity is the time from transplant to harvest, and not from the time that it was seeded.

If you would like to learn more about when to seed or start your vegetable transplants given your growing season, MSU Extension offers two great MontGuides: "Can I Grow That Here? Vegetable Seed Transplant Schedules for Garden or Container," and "Planting a Successful Home Vegetable Garden." These can be found online at the Publications/Store link at www.museextension.org

A Recipe of the Month

Extreme Chocolate Cake

2 cups white sugar
1 3/4 cups all-purpose flour
3/4 cup unsweetened cocoa powder
1 1/2 teaspoons baking soda
1 1/2 teaspoons baking powder
1 teaspoon salt
2 eggs
1 cup milk
1/2 cup vegetable oil
2 teaspoons vanilla extract
1 cup boiling water



3/4 cup butter
1 1/2 cups unsweetened cocoa powder
5 1/3 cups confectioners' sugar
2/3 cup milk
1 teaspoon vanilla extract

Preheat oven to 350. Grease and flour two 9 inch cake pans. Stir together the sugar, flour, cocoa, baking soda, baking powder, and salt. Add the eggs, milk, oil, and vanilla, mix for 3 minutes with an electric mixer. Stir in the boiling water by hand. Pour evenly into two prepared pans.

Bake for 30 to 35 minutes. Cool for 10 min. before removing from pans to cool completely.

To make the frosting, use the second set of ingredients. Cream butter until light and fluffy. Stir in the cocoa and confectioners sugar alternately with the milk and vanilla. Beat to a spreading consistency. Split the layers of cooled cake horizontally, cover the top of each layer with frosting, then stack them onto a serving plate. Frost the outside of the cake.

February Birthdays

Jeffrey Johnston	2
Linnea Skoglund	10
Norm Weeden	12
Alan Dyer	15
Phil Bruckner	17
Aryal Niranjana	22
Pam Szelmezka	23

