PSPP - Plant Science Says *May, 2017*

Graduation Spring 2017
By Jill Scarson

On Friday, May 5, the Plant Sciences and Plant Pathology Department will hold a reception and awards ceremony for our graduates in 108 PBB/Mathre Courtyard. The graduates will receive the following gifts: Landscape Design graduates - "The Artful Garden: Creative Inspiration for Landscape Design"; Crop Science, Plant Biology and Sustainable Crop Production graduates - "Weeds of the West"; Horticulture Science graduates will receive loupes (magnifying glass). All the graduates will receive a cowbell and MSU tassel bead from the College of Agriculture, as well as a coffee mug and geranium from the Department.

Following are the names of all those that will receive diplomas and awards.

Graduate Students
Martha Jenkins - M.S., Plant Sciences
Ashish Adhikari - M.S., Entomology
Erin Burns – Ph.D., Plant Sciences - Plant Pathology

Undergraduates
Environmental Horticulture - Horticulture Science
Rory Delaney - B.S.
Toni Koontz - B.S.
Matthew Schumacher - B.S.
Jessica Tesch - B.S.

Environmental Horticulture - Landscape Design
Erin Barker - B.S.
Haley Craven - B.S.
Neil Strauss - B.S., Honors

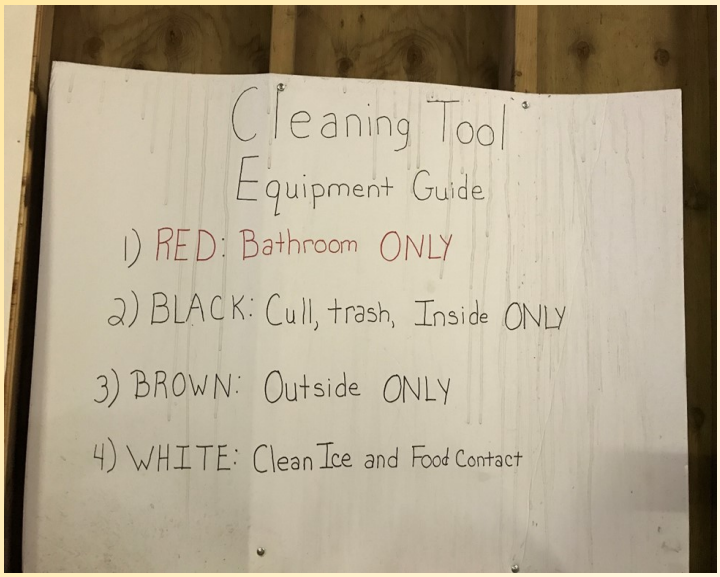
Plant Sciences - Crop Sciences
Kyle Campbell - B.S.
Joel DeVries - B.S.
Benjamin Fischer - B.S.
Titus Hendricks - B.S., Honors
Connor Hodgskiss - B.S., Honors

Plant Sciences – Plant Biology
Hannah Lewis - B.S., Honors

Sustainable Food & Bioenergy Systems - Sustainable Crop Production
Tiffani Eccleston - B.S.

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

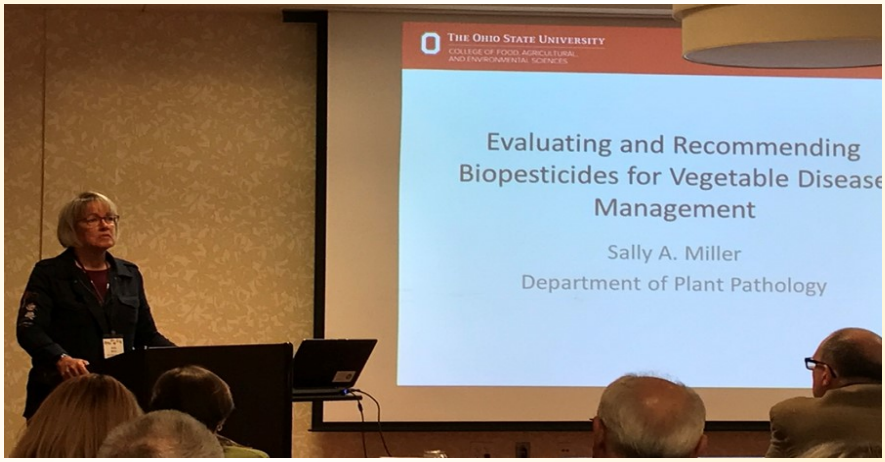
IR-4
By Mary Burrows
Western Region IR-4 State Liason Representative Meeting, Fort Collins, CO
In April, Mary Burrows attended the IR-4 Western Region SLR meeting in Fort Collins, CO. The IR-4 project helps facilitate pesticide registrations on minor crops. In Montana, minor crops include quinoa, industrial hemp, camelina, cherry, mint, apples, and many more. This meeting was particularly large this year. In addition to the business meeting, there was a 1.5 day biopesticide



Part of compliance with food safety standards

Plants close to harvest. The lights are very intense and high levels of CO2 made it somewhat difficult to breathe in this room.

Each of these plants is worth approximately $4000. They take ~14 days to dry to 10-13% moisture after which they are hand-harvested, tested for THC and microbials (bacteria, mold spores) before sale. This room is turned over every 4-6 weeks with a new harvest. The company had 3 warehouses in Fort Collins and one in Las Vegas. Prior to entry, our host said we could take photos but had to turn our phones on airplane mode so the site could not be identified.



Sally Miller talking about biopesticides in vegetable crop production.

workshop covering regulation of biopesticides, new products and modes of action for biopesticides for plant disease, insect and weed control. One featured speaker was familiar to many of us, Sally Miller from Ohio State. She is the current past president of the American Phytopathological Society and gave an excellent talk about her experiences with biopesticides in vegetable crop production. The last day included a tour of Sakata Vegetable Farms,

where Robert Sakata shared his struggles with increased regulation for food safety and farming in an increasingly urban environment. This includes having to pick plastic bags from a field adjacent to Wal-Mart before doing operations and spikes in E. coli in surface water used for irrigation due to the surrounding housing developments. It sounded like the water and food safety issues, regulations and expense of complying with them, is going to drive smaller, local vegetable producers out of business in the United States. We visited the Adams County Extension center and learned about weed management including organically approved chemicals as well as steam and flame weeders, and got a talk from PureHemp Technologies about the business of growing industrial hemp, with an introduction to the jargon and lingo of 'hemp' vs. 'cannabis' and how CBD (cannabidiol) content is measured and extracted. Colorado Cultivars showed us some proprietary processes for processing hemp into oil, as well as using the stalks to make paper and insulation for Audi and Mercedes, and even a roll of toilet paper they had made from hemp. The last tour was the one we were all there for – Good Chemistry showed us their industrial facility for medical and recreational cannabis production. They are using a variety of biological controls including predatory mites and approved pesticides for control of spider mites, powdery mildew and botrytis. We learned about how plants were propagated, the variation in the effects and uses of the different varieties, and about the volatility of the industry.

Faculty - Promotion and Tenure

Cathy Cripps, Michelle Flenniken, Ryan Thum, and Mac Burgess recently went through the Promotion and Tenure process. Michelle, Ryan, and Mac were granted retention and Cathy was promoted to Professor. Congratulations to all of you!

Cathy Cripps

Michelle Flenniken

Mac Burgess

Ryan Thum

Emerging Scholars

Erin Barker, (advisor Rebekah VanWieren) and Chance Noffsinger(advisor Cathy Cripps) received MSU Presidential Emerging Scholar Grants, Spring 2017.

President Cruzado, Erin Barker, and Rebekah VanWieren.

Chance Noffsinger, President Cruzado, and Dr. Cathy Cripps.

2017 Field Days
Summer 2017 field days include:
Northern Agricultural Research Center, Thursday, June 29: The field day begins at 4 p.m. with tours before and after dinner. The center is located about seven miles southwest of Havre on U.S. Highway 87. (406) 265-6115.

The MSU Arthur H. Post Agronomy Farm , Thursday, July 7: The Post Farm will begin tours at 8:30 a.m. followed by lunch. The Post Farm is located eight miles west of Bozeman on U.S. Highway 191. (406) 586-6819.

Central Agricultural Research Center, Wednesday, July 12: The field day starts at 9 a.m. and includes a free lunch. The center is located 2.5 miles west of Moccasin on U.S. Highway 87. (406) 423-5421.

Northwestern Agricultural Research Center, Thursday, July 13: The field day begins at 2 p.m., with dinner following the tour. NWARC is located near Creston on State Highway 35. (406) 755-4303.

Eastern Agricultural Research Center, Wednesday, July 19: The field day begins at 9 a.m. The center is located one mile north of Sidney on State Highway 200. (406) 433-2208.

Western Agricultural Research Center, Thursday, July 27: The field day starts at 4 p.m. with dinner at 5 p.m. and a tour following. WARC is located at 580 Quast Lane, Corvallis. (406) 961-3025.

Montana Ag Live Spring Schedule
May 7 - Bob Quinn, Organic producer from Big Sandy, "Organic production in Montana - transitioning from traditional to organic production".

May 14 - Jeff Littlefield, Biological control specialist at Montana State University, "The success of biological weed control efforts in Montana and how Montanans can utilize this technology to help with their weed control efforts".

May 21 - Myles Watt, retired Montana State University economist, "The effect of public debt on Montana's economy including the agricultural sector".

MSU's Honey Bee Research Site and Pollinator Garden—2017 Volunteer Days

Friday May 19th 1 - 5pm
Friday June 16th 8 - 11 am

LOCATION: MSU Horticulture Farm, turn west off of 19th onto Garfield, take left off of Garfield near white sign for MSU Hort Farm, continue on gravel road until you see Towne's Harvest Garden - the Pollinator Garden is east of that sign.

RSVP: please email Michelle Flenniken (michelleflenniken@gmail.com), so that she knows how many people to expect, or feel free to "just show up" without RSVPing.
Thank you for your help!

Pam Szelmeczka Retires

Pam Szelmeczka retired from MSU on April 30. Following are a few thoughts from Pam.

"Farewell to my Plant Science family. I say that because I have spent more than half of my life here, 32 years! I came to MSU as a student in 1985 and majored in Horticulture. I started working for professors in the department in 1988. I was here before the Plant Growth Center! I have seen a great deal of changes at MSU and hundreds of people come and go in our department. I want to thank you all for your friendship, your advice, and expertise. I have thoroughly enjoyed all of my time here and learned so much. If you don't already know I started taking classes through the Gallatin College two years ago in Medical Coding. Next week I will be finishing up this curriculum and looking for a new job in the medical field. I am not leaving Bozeman, so I hope to see you around town, around

campus and in the back country. The best of luck to all of you in your research!"

New Employees

Fernando Guillen-Portal, Ph.D - (Budak Lab)

I will be assisting with Dr. Hikmet Budak's research program. I will be responsible for the implementation and management of greenhouse, growth chamber, and field experiments, and all applied breeding activities in wheat and barley. I will also be in charge of the statistical treatment of data and interpretation from these studies. In addition, I will take part in training/supporting undergrad and graduate students as needed.

New Grad Students

Megan McGill

Hello, my name is Megan McGill and I am a new PhD student studying in Dr. Hikmet Budak's lab. I graduated from MSU last semester with a Bachelor's degree in Plant Science (Plant Biology). Before transferring to MSU, I studied Agriculture at Los Angeles Pierce College. I am especially interested in plant physiology and the role that genetics plays in physiological responses of plants to pests and pathogens. I am excited to use my research to help solve some of the problems facing farmers and producers in Montana.

Outside of school I enjoy reading, cooking, hiking and camping. When I have time , I like to check out new hiking/camping spots and add to my field journal. There are tons of great places to explore near Bozeman!

Invited Talks

Jamie Sherman, National Brewer's Conference, "Hitting the Sweet Spot: Breeding for Stable Quality", Washington D.C., April 11, 2017.

Erin Barker and Rebekah VanWieren. Montana Water Environment Association Conference. "Residential Landscape Design for Water Conservation in the Middle Rockies." April 20, 2017.

Michelle Flenniken, Pacific Branch Entomology Association meeting, "Honey Bee Research", April 4, 2017.

Hikmet Budak, Plant Biology and Biotechnology conference in Kiev, Ukraine "Application of CRSPR/Cas9 genome technology to in wheat and barley". May 13, 2017.

Grants

Mary Burrows, United States Department of Agriculture, "AWaRe: a decision tool for Assessment of Wheat streak Mosaic Risk".

Mike Giroux, United States Department of Agriculture, "Wheat Adaptation, Yield, and Growth Effects of Novel Semi-Dwarf Alleles".

Publications

Bujak CM, Dougher TAO. 2017. Classification of seed dormancy and treatment of gibberellic acid to improve germination of arrowleaf balsamroot. Native Plants Journal 18(1):32–41.

Bujak CM, Dougher TAO. 2017. Improved germination of silverleaf phacelia (*Phacelia hastata* Douglas ex Lehm. var. *hastata*). Native Plants Journal 18(1):42–49.

Burcu Alptekin, Bala A Akpinar, Hikmet Budak, "A Comprehensive Prescription for Plant miRNA Identification". Front. Plant Sci. 7:2058. doi: 10.3389/fpls.2016.02058

JJ Homola, CR III Ruetz, SL Kohler, RA Thum, "Complex postglacial recolonization

inferred from population genetic structure of mottled sculpin Cottus bairdii in tributaries of eastern Lake Michigan", U.S.A. Journal of Fish Biology.

Homola, J.[1], Ruetz III, C., Kohler, S., Thum, R.A. (2016). Complex post-glacial recolonization inferred from a sedentary fish: mottled sculpin Cottus bairdii in western Michigan, U.S.A. rivers. Journal of Fish Biology, 89, 2234–2250.

COVER PHOTO for Volume 73,Number 4 2017: The buttress roots of a large tropical tree in the Indio Maiz tropical biological reserve of Nicaragua. The area is on the San Juan River forming the border with Costa Rica. This is one of the best protected and beautiful biological reserves in all of Central America. The enormous biological diversity of macro life species is nicely paralleled by the diversity of microbial forms including the recent discovery of a novel endophytic Muscodor sp. Photo courtesy of Gary Strobel, Dept of Plant Sciences Montana State University, Bozeman, Mt. 59717

May Birthdays

Heather Rimel	12
Chaofu Lu	16
Faye Jorgensen	23
Charlemagne Lim	25
Durc Setzer	28
Deanna Nash	31

Recipe of the Month

Greek Salad

1 cup olive oil
3 tablespoons red wine vinegar
3 tablespoons grated Parmesan cheese
2 tablespoons lemon juice
2 tablespoons finely chopped garlic
2 tablespoons dried oregano, or to taste
1 1/2 teaspoons dried basil
1 teaspoon salt, or to taste
freshly ground black pepper to taste
2 heads romaine lettuce, chopped
2 large tomatoes, cut into wedges
1 large cucumber, cut into matchsticks
1 red onion, sliced
1 cup black olives
1/2 pound feta cheese, crumbled

Directions

Blend olive oil, vinegar, Parmesan cheese, lemon juice, garlic, oregano, basil, salt, and black pepper together in a food processor until smooth.

Combine romaine lettuce, tomatoes, cucumber, red onion, black olives, and feta cheese together in large bowl. Drizzle dressing over vegetable mixture; toss to coat.

Faculty Participate in "March for Science"

Bruce Maxwell (LRES), John Sherwood, and Matt Lavin at "March for Science" on April 22, 2017.