

Plant Science Says



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December, 2013

PSPP Departmental Christmas Party



The Departmental Christmas party will be on Friday, December 6, at 5:30 p.m. at the Bozeman Senior Center. Dinner will be at ~5:45 p.m.; Santa will be showing up around 7:00 p.m. and after that you will have the opportunity to play Bingo.

Please bring one of the following to share: Hors d'oeuvres, a vegetable or potato dish, salad or dessert. The meat, rolls, and drinks will be provided. Please join us! Note: They do not allow alcoholic beverages as it is a city owned facility.

Burgess is Newest Faculty Member



Our newest faculty member is Mac Burgess. He joined the Department on December 2.

Mac says, "I am thrilled to join the faculty of the Department of Plant Science and Plant Pathology as Assistant Professor of Small-Scale Agronomy/Horticulture. I am moving from Penn State, where I was a post-doctoral researcher and project manager for a large multidisciplinary project investigating the effect of diversity in multi-species cover crops on ecosystem services provided by a certified organic feed grain production system. This project was a natural extension of my PhD research in the LRES department at Montana State University involving cover crops and alternative crops for diversification of wheat-based cropping systems.

Before pursuing graduate education, I was involved in an education-focused Community Supported Agriculture (CSA) vegetable farm jointly run by the city of Arcata, California, and

Humboldt State University, where I taught classes in Soil Science and Community Agriculture. I am most excited to return to teaching at MSU, starting with the Field Crop Production class (AGSC 341) this spring.

After class this winter, I'll be teaching my younger son how to ski so he can keep up with his big brother, getting a little ice fishing in, and looking forward to gardening and bike-riding season. My family and I are happy to be setting down roots in Bozeman."

Welcome to the Department Mac!

PSPP Celebrates Fall 2013 Graduation By Jill Scarson

The College of Agriculture will host a graduation reception in 125 Linfield Hall from 4:00 to 6:00 p.m. on Friday, December 13, honoring all of the College's Fall 2013 graduates. Appetizers and refreshments will be served and all College of Agriculture faculty and staff are invited to attend. A program celebrating the graduates will begin promptly at 4:30 p.m.

Graduates from Plant Sciences and Plant Pathology will receive the following gifts: Landscape Design graduates- "The Artful Garden: Creative Inspiration for Landscape Design"; Crop Science and Sustainable Crop Production graduates- "Weeds of the West"; and Horticulture Science graduates- loupes (magnifying glass). All the graduates will receive a cowbell from the College of Agriculture, a coffee mug and a carabineer.

The Fall 2013 Commencement Ceremony will begin at 10:00 a.m. on Saturday, December 14, in the Brick Breeden Fieldhouse. The following are the names of the PSPP graduates.

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

Environmental Horticulture- Horticulture Science

Lori Saulsbury

Environmental Horticulture- Landscape Design

Robert Bourne
Austin Chapin
Tyler O'Leary
Hannah Pearce
Eli Pynch

Plant Sciences- Crop Science

Lindsey Cope

Sustainable Food & Bioenergy Systems- Sustainable Crop Production

Karen Page
Ben Shepard

Toothpicks are taking out weeds in Africa

By Terri Adams

Originally published in The Prairie Star 11/23/13

"There are several ways to kill weeds. One is by having 55 women in Kenya hoe them out," said David Sands. He is a professor of plant pathology at Montana State University and he is working so those women don't have to hoe so many weeds.

"They spend 80 percent of their hours hoeing weeds and trying to stay ahead of them. Here in the U.S. we say, oh, there's a better way than that and we spray everything with herbicide. The trouble is these people only have half an acre each. There is no way for them to wash their hands and no money to buy herbicides anyway. They can't afford them."

They can't afford to let weeds kill their crops either. One particular weed, Striga or witchweed, is well known in Africa and claims 30 to 80 percent of their corn, millet and sorghum before the crops even break the surface of the ground.

In Ekwanda, Sands said most of the women have lost their husbands due to HIV, malaria, dengue fever or other causes, leaving the women responsible for growing the crops that will feed their family. Yet, even with so much time trying to hand-control the weeds, their crops were struggling and dying. And the women and children were struggling with malnutrition right along with their crops.

So what does witchweed in Africa have to do with knapweed in America? Maybe a lot.

"It's hard to kill weeds," Sands said, "but if you hunker down and look around you will always find a nice little fungus that will kill the weed you're after."

Comparing pathogens to pimples on plants, Sands went on to say, "if you find a fungus that is causing dimples or pimples and you are selective with that fungus, you can develop one that will knock the plant down completely."

That's what they did in Africa. They found a fungus that selectively caused some problems for witchweed but did not affect any other plant. "Then we found a way to enhance the virulence of that specific fungus and make it meaner," he said.

That is a type of bio-control that works. "With herbicides you can kill lots of different kinds of plants. With bio-control you have to be able to kill one specific plant. This fungus only attacks one plant. It's very specific, too specific almost, but we found a way to make it meaner...turn it into a Striga serial killer."

In three years he got his idea to work. "Now I could probably develop a meaner fungus in three months. When you do something over and over again, you get better at it. It's like changing a diaper," he laughed. "The first time I did, it took forever. Now I can change them very fast."

But once Sands developed a mean fungus that was ready to kill the weeds he needed to develop an inexpensive way to get it to the people in Africa.

He turned to toothpicks.



Two implementers planting in a field trial their boiled rice infected with fusarium to control striga.

It involved growing the fungus in a petri dish. "After three days, it's fungal paradise," Sands said. Then he placed wooden toothpicks in a petri dish so they were coated by fungus. After three days, he removed the toothpicks and set them aside to dry.

The coated toothpicks will last five years if they stay wrapped. Then, all Sands had to do was give the women a toothpick and teach them how to grow their own fungus.

"It's simple. All they have to do is drop the toothpick into a bowl of cooked rice, put a cover on it and in three days they have enough fungus to fight Striga," explained Sands. The women just place some of the fungus-covered rice in a hole and drop their plant seed on top of the rice, cover it with dirt and let nature go to work.

And, so far, nature has done a great job of helping the fungus kill Striga and increase crop yields.

Yet, another benefit has come about in addition to crop yields. Sands said the women now see that knowledge and learning and looking at agriculture with a scientific eye can help. "They will be more likely to try something new in the future. Now they may try planting a hybrid or using a fertilizer. Because they have seen this work, they are learning that they can take steps to better control their own future."

Recently those tiny, coated toothpicks and Sands' work attracted the attention of the international Gates Foundation. On November 20, the Gates Foundation announced that Sands was the winner of a \$100,000 Grand Challenges Explorations Grant to pursue his tests in a wider area.

"This grant is to help show them that it works safely, which we will. We've worked on it for five years. Up until now we've just done a beta test. We have done it on a few farms, now we will be able to get five hundred to a thousand farms testing it next year and get some real data on it," said Sands.

"If this works the way we hope it will, I think this is the way everyone will grow their own inoculants in the future. They will get it fresh and wild, mean and active; not freeze-dried and sitting on some shelf."

Sands went on to say that "what we've done is found a way to take almost any pathogen and make it mean enough to compete with

any herbicide. We just have to get people to understand that bio-control has a future. There are plenty more weeds out there," he finished.



Clockwise from upper left: Sila Nzioki, Ben Kanyanji, John Sands, and David Sands setting up the lab to make one million toothpicks. Photo courtesy of David Sands.

Added note from David Sands regarding the photo above: Sela Nzioki is a plant pathologist trained at Kansas State who now works with the USDA equivalent in Kenya—KARI. He is the lead pathologist for the project. Ben Kanyanji is a sorghum breeder at KARI and his interest is in striga on sorghum. John Sands has passed away, but he saw the need for this project and set up the contacts with the Kenyans. Eventually the goal of the project is to turn over the entire project to the Kenyans who will hopefully distribute this biocontrol agent throughout Africa.

Miller Dining Hall Tries Land Shrimp at Halloween Event By Florence Dunkel

October 30, 2013, was a big day for the Miller Dining Hall staff and students. The dining room was transformed into a western cowboy town. Staff donned costumes appropriate for the theme. The ingredients, all local (except for the land shrimp which were flown in live from Fluker Farms in Baton Rouge LA) were used in a series of invented-by-the-staff recipes. According to Dunkel and her students, it was not like any dorm food they had experienced before.

Miller Dining Hall services 1,100 MSU students and is located between North and South Hedges Dormitories. Organized by Toots Taszut, the MSU Food Safety Officer,



MSU Food Safety Officer and organizer of the Miller Dining Room event, Toots Taszut, with MSU students serving her original recipe, Fruity Acheta.



At the Wild West Miller Dining Hall event, Florence Dunkel offers Tenebrio Cornbread, a new recipe from MSU Food Safety Officer to students as they wait in line for Whiskey Marinated Steaks.

the event was great fun. It was not a spur of the moment event, but had been in the planning for almost a year. In February, Toots contacted Dunkel to provide advice on the process of wrangling food insects. After doing the Bug Buffet in the Plant Growth Center February 2013, MSU catering

learned many lessons on cooking and baking with land shrimp from Dunkel who also shared her traditional Bug Buffet recipes with the staff.

For the Wild West Halloween event, Toots created her own recipes with land shrimp and simply invited Dunkel and her AGSC 465R students to join her in providing on the spot entomological information for interested students. The event lasted three hours and there were just a few leftovers. Dunkel preferred the Tenebrio cornbread cubes. The students liked the Acheta fruit bars and the chocolate crickets best.

What are land shrimp? They are arthropods and so are close cousins of ocean shrimp.

With just a little sea salt, land shrimp taste a lot like ocean shrimp. Some folks call land shrimp insects.

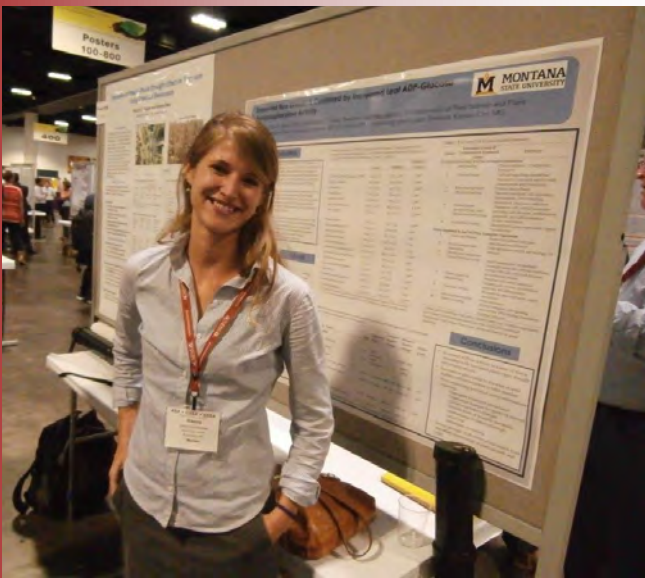
If you are allergic to ocean shrimp, you will likely be allergic to ocean shrimp, so be careful.

ASA, CSSA, & SSSA Annual Meetings David May's perspective:

I attended the ASA, CSSA, & SSSA International Annual Meetings from November 3-6 in Tampa, Florida. Also in attendance were Drs. Mike Giroux and Tom Blake, as well as Steve Hystad, Andy Hogg and Alana Schlosser from Mike's lab. The weather was beautiful and the venues were located bayside – a welcome contrast from the muddy browns and greys of a Bozeman November. The theme of this year's conference was "Water, Food, Energy & Innovation for a Sustainable World" and many of the presentations given at the meetings were true to this motto. Topics of discussion included the development of perennial grains for sustainable agriculture, plant breeding and climate change, the validation and utilization of QTL in breeding, and yield gains through genetics and breeding. During the latter, Tom Blake gave a quick talk about the changes in barley production and breeding over the last several decades. Alana, Andy and I presented posters at a general poster session, and Steve Hystad entered a poster in the graduate student competition, placing second in his division. Way to go, Steve!



David May with his poster, "Breeding for Root Lesion Nematode Resistance in Montana Winter Wheat".



Alanna Schlosser with her poster, "Enhanced Rice Growth is Conferred By Increased Leaf ADP-Glucose Pyrophosphorylase Activity".



Steve Hystad with Dr. Robert Graybosch, one of his collaborators from the University of Nebraska.



Andy Hogg with his poster, "Improving Durum Wheat Quality Via Mutagenesis of Starch Synthase IIa".

Steve Hystad's Perspective

Right as the first arctic air front was about to descend upon Bozeman in the first week of November, Andy Hogg, Alanna Schlosser, Mike Giroux and myself escaped winter's icy grip and absconded to the annual Crop Science Society of America (CSSA), Agronomy Science Society of America (ASSA) and Soil Science Society of America (SSSA) annual meeting in sunny Tampa Bay, Florida. The convention itself was a series of symposiums featuring talks and poster presentations ranging from the use of remote sensing to measure abiotic stresses to the popular genotyping-by-sequencing for plant breeding and marker discovery. For myself, it was an invaluable opportunity to listen and network with professors in plant breeding programs at other universities while I consider pursuing my PhD in a theoretical "life outside MSU". The first

day of the meeting featured a career fair for graduate students with a few notable large Ag companies such as Monsanto, Dow, DuPont, and Syngenta in attendance. In my experience, attending the career fair hosted here at MSU has been extremely limited with respect to agriculture students. Hence, this career fair presented a terrific opportunity to finally speak with representatives and recruiters from these notable companies.

In the evenings, the daily symposiums ended with rather large poster presentations (number in the 1000's) featuring the works from fellow CSSA, ASSA, and SSSA members. I had decided to enter my research project in the crop breeding and genetics graduate student competition. The judges in my category were soybean breeders from DuPont, Pioneer and a few other wheat breeders from Colorado State University and North Carolina State University. In the end, I was unexpectedly asked to give a one minute summary of my research to all of the judges. I could still feel my heart pounding in my chest after finishing. "Time for a Beer!" I exclaimed. With the competition ending, Alanna, Andy, Mike and I met with Devon See, a USDA research geneticist and his wife, Tong, for Thai food and later on in the convention, Greek food.

Knowing it was quite cold back home in Montana, our lab decided to seize the opportunity one morning to drive to the beach for a few hours to feel the sand in our feet. The beach brought on an overwhelming feeling of warmth and relaxation which didn't last long with Andy serving as "vehicle navigator". Later in the trip, our lab met up



Andy Hogg, Alanna Schlosser, and Steve Hystad enjoy a few hours at the beach.

with fellow graduate student David May who had promised us a food and cultural experience as he has relatives in Tampa and knew of a few "hole in the wall" places for food. In my experience, the most fantastic Mexican food I have ever eaten came from such a place with a dirt floor and broken white plastic patio furniture for tables and chairs. David did not disappoint as he led us to a small Cuban restaurant in a derelict strip mall. The collard green soup, fried

plantains, and Cuban sandwiches we had were excellent. Following the 2nd day of the meeting, I was informed that I had placed 2nd out of 49 other graduate students in my poster competition.

Overall the meeting itself was a wonderful opportunity to meet with industry experts, learn a few things about genotyping by sequencing, and encounter a new environment with amazing food. On our way home as our plane reached cruising altitude, the smell of roasted pork and sweet relish filled the air. As I turned around to investigate, I saw Mike enjoying another Cuban sandwich which served as one final reminder of the fantastic meeting that had just taken place. For myself, I was stuck with peanuts; I clearly have a few more things to learn.

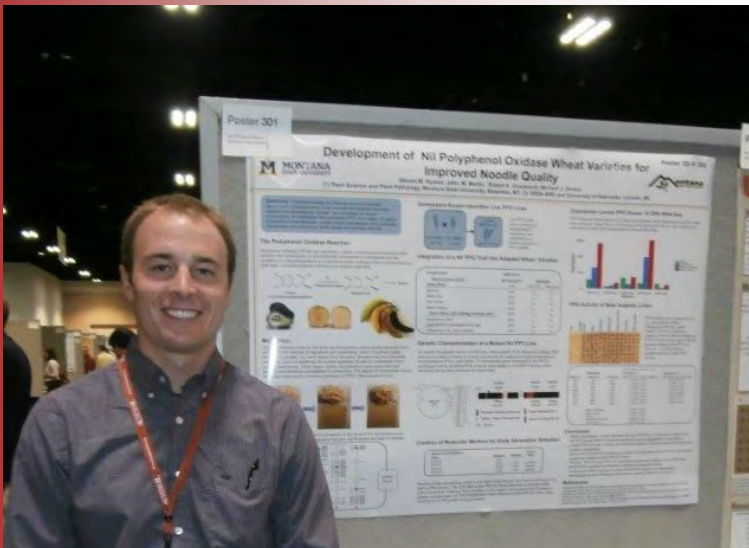
Proposed Endowed Chair for PSPP By Jenny Lavey

Plans and funding are in the works for a proposed Endowed Chair for Plant Sciences Plant Pathology.

Funded entirely by Montana producer dollars, the first \$1 million has been raised toward the new Montana Plant Sciences Chair in MSU's College of Agriculture. When the fundraising is complete, it will be the first chair established in the history of the College of Agriculture at MSU. Dale Schuler, president of the Montana Grains Foundation, presented a \$1 million check to President Cruzado during the COA's Celebrate Ag weekend in October. With the first million secured, producers plan to achieve a \$5 million endowment goal by 2018.

Montana is the highest quality wheat producer in the nation. However, threats by the yield-ravaging wheat stem sawfly and constant drought issues continue to plague producers. The proposed endowed chair will likely lead research in regard to the biggest threats to Montana's agricultural production. Schuler said that while the wheat stem sawfly is still the most critical challenge for Montana grain growers, it was important to design the Montana Plant Sciences Chair with flexibility.

"The chair will have an advisory council, with producer representatives who are leaders in their field," he said. "The council will continually evaluate the 'greatest need' for Montana's crops industry and the chair will be expected to focus on that need." In addition, the advisory council and the COA



Steve Hystad with his poster, "Development of Nil Polyphenol Oxidase Wheat Varieties for Improved Noodle Quality" which won 2nd place in the poster competition for his group.

will report back research developments to growers.

For more information about the Montana Plant Sciences Chair, contact Lori Cox, MSUAF, at lori.cox@msuaf.org.

Course Focus
HORT 225: Landscape Graphics I
By Rebekah VanWieren

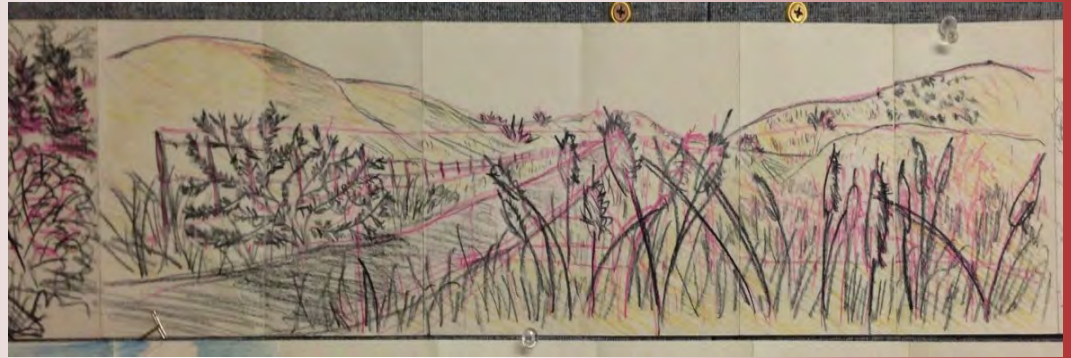


The last words I include in this course's syllabus are "Be fearless." This course is the introductory course to the Landscape Design major and challenges students to learn and apply hand drawing and drafting skills needed to, ultimately, create spaces that bring out the best in people and our planet. However, more importantly, my goal for

this course is that students gain motivation to explore, take risks, and be fearless in their endeavor to develop their own unique graphic representation styles.

The course begins by looking at the diversity of work that the landscape design field encompasses and the design process that landscape designers utilize. The majority of the course is spent learning and exploring the various graphic communication tools used to visualize and represent physical design ideas, from early brainstorming and inquiry through realization. Although graphics are not design in and of themselves, this course teaches the fundamental ways to begin thinking and working like a landscape designer. HORT 225 Landscape Graphics I focuses on hand graphics, while HORT 226 Landscape Graphics II complements this course by introducing digital graphic techniques. Today, much of the graphics used in the landscape architecture field are produced digitally; however, traditional hand graphics still play a crucial role especially in the early stages of design, including site analyses, schematic design sketching, and illustrating design proposals. Next year, I plan to incorporate some tradigital (traditional + digital) techniques that highlight the character of hand graphics along with the efficiency and accuracy of digital representation.

In this studio-based course, students also begin to establish the work habits of the design field. The format incorporates a variety of methods, including in-class lecture, tutorials, individual and group exercises, outdoor sketching, sketchbooks, and critiques. One of the



Sketch Crawl drawing by Doug Kremer



Landscape Design students sketching during Sketch Crawl

assignments this semester was a sketch crawl, in which students applied perspective drawing and rendering (that's a fancy word designers use for coloring) skills to representing the experience of the Main Street to Mountains trail system.

For the final course project, students illustratively represented the landscape and site plan for a new, expanded parking and plaza space at Bozeman's main Co-op location. You are welcome to check out their work, as well as their course portfolios, at our final review: Thursday, December 12, 9:00 AM in 108 PBB.

Landscape design students participate in Park(ing) Day
By Rebekah VanWieren

Way back in September, landscape design students created two pop-up parks along College Street as part of an international event, Park(ing) Day (parkinday.org). For one day only, the parklets successfully challenged people's every-day perceptions of public space. We could not have asked for a more beautiful fall day! The objectives for this class project, which was part of the Advanced



In this photo and the following photo, park users enjoying the pop-up spaces designed and constructed by landscape design students. Photos courtesy of Rebekah VanWieren.



Landscape Design studio (HORT 432), were for students to collaborate in developing a shared design idea, work within budget and time constraints, physically construct the parklet, and assess the user experience and implementation of their design intent. Students learn first-hand about site design by delving into a real mini-project from conception to implementation. Also, a big thank you to John Van Delinder, City of Bozeman's Street, Sign, and Signal Superintendent, who helped make this project a reality!

2014 MSU Crop and Pest Management School

By Kevin Wanner

Enrollment is limited; register now for the Crop and Pest Management School held at Montana State University January 2-3, 2014.

The two-day workshop will include a variety of topics related to crop production in Montana. Daren Mueller, editor of the book "Fungicides for Field Crops" published in 2012 by the American Phytopathological Society, will join us from Iowa State University as a guest speaker. Corn will be discussed as a potential crop in Montana by a panel, with interactive discussion and questions from the audience. In addition, eleven MSU staff from four departments will cover topics in weed, disease, insect and nutrient management as well as pollinator safety.

A registration fee of \$195 provides workshop supplies, morning and afternoon refreshments, parking and the traditional pizza dinner at Colombo's. Crop consulting (CCA), private pesticide applicator and commercial/government pesticide applicator credits will be available. The schedule that includes instructions for registration can be found online at: <http://plantsciences.montana.edu>. For more information, contact Kevin Wanner at kwanner@montana.edu.

Schutter Diagnostic Lab 2014 Webinar Series

By Linnea Skoglund

The Schutter Diagnostic Lab and the Great Plains Diagnostic Network will be offering the 7th Diagnosticians' Webinar Series beginning January 22, 2014. Webinars begin at 9 MST. They are open to anyone who would like to attend. You will need a computer with an internet connection and speakers. You can ask a question by typing it in or by using a

DATE	SPEAKER	TITLE
1/22/14	Carrie Harmon	Collaborative Research in Detection and Diagnosis: Meeting the Challenge of Invasive Species Detection and Economic Constraints
1/29/14	Jim Stack	Wheat Blast: An emerging disease in South America
2/5/14	Alison Robertson	Tips and Tricks for Diagnosing Goss's Wilt
2/12/14	Jim Jasinski	An Introduction to the Brown Marmorated Stink Bug
2/19/14	Sally Miller	International Plant Diagnostic Network
2/26/14	Alma Laney	Association and Detection of Rose Rosette Virus with an Old Disease
3/5/14	Nancy Gregory	Toward Single Scientific Names for Fungi and Oomycetes in Database Applications
3/12/14	Febina Mathew	Identification and Characterization of <i>Diaporthe</i> Species Infecting Sunflowers

microphone if you have one. To join go to <http://connect.ksre.ksu.edu/gpdnseminars>. Or join Linnea in 121 PBB.

If you have any questions regarding this webinar series or connecting, contact Linnea Skoglund (linnea.skoglund@montana.edu, 406-994-5150). All webinars are recorded and can be viewed later at www.gpdn.org along with those from 2008 through 2013.

2013 MAES Seminars

Norm Weeden - 11/21, 1:00 p.m., 108 PBB
"Genetic studies and germplasm enhancement in cool season legumes"

Jack Martin - 12/2, 9:00 a.m., 108 PBB
"Quantitative genetics and cultivar development"

Alan Dyer - 12/5, 9:00 a.m., 108 PBB
"Management and Population Dynamics of Cereal Pathogens"

Invited Talks

Gary Strobel was invited by the University of Colorado Medical School (Molecular Biology Program) to deliver the keynote address at its annual retreat in Winter Park Colorado on the evening of October 25th. The group was particularly interested in hearing about Strobel's journeys to the world's rainforests and the resultant studies on the biology and biochemistry of the endophytic microbes that live therein. The meeting was attended by well over 100 students and faculty of the Medical School of the University of Colorado. Papers were presented by both faculty and students at the three day meeting.

Grants

Specialty Crop Block Grants – Montana Department of Agriculture

Mike Ivie, \$49,754.47, Huckleberry
Challenges: Pollinator Mysteries, Pests and New Invasive Threats

Mary Burrows, \$20,250, Evaluation of the Ascochyta/Mycosphaerella Pathogen Complex in Chickpeas, Peas and Lentils for Resistance to QoI, DMI and SDHI groups of Fungicides

Michelle Flenniken, \$49,992, Montana Honey Bee Health

Tracy Dougher, \$42,500, Addressing the demand for cost-effective production of Montana native plants.

Nina Zidack, \$49,992, MSU Montana Certified Seed Potato for Home Gardens

Montana Board of Research and Commercialization

Jack Martin, \$59,950, Development and Characterization of Novel Variants to Improve Milling and Dough Quality of Wheat

Christmas Cacti

By Toby Day, Extension Horticulture



During the holidays we often hear about how to care for our Christmas trees or how to prolong the life and color of a poinsettia.

However, little is said about the Christmas cactus. So here are some tips for Christmas cactus care during and after the holidays:

1. Christmas cacti actually perform better and bloom longer in cooler areas of the house. The optimum temperature for a Christmas cactus is between 55°F and 68°F.
2. Keep Christmas cacti away from drafts or where there are large changes in temperature, such as outside doors, heat registers or furnace vents.
3. Christmas cacti are short-day, long-night plants. For Christmas cacti to bloom, they need at least 14 hours of uninterrupted darkness per day for about six weeks. And, due to diurnal cycles, they often bloom around Thanksgiving rather than Christmas. A little known fact is that most Christmas cacti we purchase aren't true Christmas cacti. A true "Christmas cactus" is the hybrid *Schlumbergera xbuckleyi* that is rarely grown commercially. What we find and grow here is *Schlumbergera truncate*, commonly known as Thanksgiving cactus, Holiday cactus or Zygocactus.
4. Even though they need a certain amount of darkness to bloom, once they start to bloom, put the plant in a bright location but away from direct sunlight. Usually an east facing window will suffice. This will increase the amount of time that they will bloom.

5. Christmas cacti need little water. The soil should be well-drained and should only be watered when it is dry to the touch. I like to lift the pot of my Christmas cactus, checking the weight to feel whether the soil has slightly dried, then I water again. However, as they are forming flower buds and are flowering, they may need a bit more water to prolong bloom time. Never over-water.
6. Christmas cacti grow in temperate regions that experience larger amounts of water and humidity during flowering. Misting the plant daily in the winter months during times of low humidity will help the plant immensely.
7. Fertilize with a complete fertilizer once a month from spring to October. Do not fertilize from October until spring giving the plant some time to rest.
8. Pruning will also encourage branching and thus, more flowers. Trim the last one or two segments at or just above the node and it will encourage branching. This can be done any time after it has flowered through early summer.
9. The most common pests of Christmas cactus are fungus gnats, root mealy bugs, basal stem rot and root rots. Most pests of Christmas cactus can be avoided by not over-watering.
10. If a Christmas cactus is maintained properly, it can live 20 to 30 years or more.

Mathre Wins Boulevard and Yard Beautification Award

Congratulations to Don and Judy Mathre for recently winning the Boulevard and Yard Beautification Award presented by the Bozeman Beautification Committee. The following photo below shows what their property looked like in 1979; they have made continual improvements since then. Every year, Don and Judy start 500-600 seedlings in their basement "growth chamber". In June, all of those plants are transplanted to the garden and flower beds. Some of the things they grow are sweet corn, tomatoes, beans, peas, carrots, broccoli, squash, cucumbers, radishes, spinach, strawberries, raspberries, gooseberries, and apricots. The garden provides all their fruits and vegetables for the entire year. In the fall, everything is dug up and taken to the city compost.



The Mathre place in 1979



The Mathre garden shortly before harvest.

Don retired as Department Head of the Plant Pathology Department at MSU in 2000. He has been a member of the Gallatin Gardener's Club for many years and enjoys selling produce at the Farmer's Market.

Courtney Moves to Alaska



Courtney Speegle will be marrying her fiancé, Gordon Johnson, on January 11, 2014. Soon after that, they will be moving to Juneau, Alaska for Gordon's new job.

Courtney says, "In a bittersweet sort of way, my last day will be January 3, 2014. The last five years of working with this department and getting to know you all has been a blessing that I am so very grateful for. The people of this department have made this a great place to work and I will miss you all. Thank you all for everything."

Congratulations Courtney and we wish you and Gordon all the best! Thank you for all your hard work and for being great to work with; we will miss you!

Recipe of the Month

Christmas Bread Pudding

8 cups day-old bread, crust removed
 2 medium tart apples, peeled and chopped
 1/2 c dried cranberries or raisins
 6 egg yolks
 3 eggs
 1 c heavy whipping cream
 1/2 milk
 1 c sugar



Cream Sauce

1 c heavy whipping cream
 3 T sugar
 1-2 t vanilla or rum extract
 Dash ground cinnamon and nutmeg

1. In a bowl, combine the bread cubes, apples and cranberries. Transfer to a greased 11-in. x 7-in. baking dish. In a bowl, combine the egg yolks, eggs, cream, milk and sugar. Pour over bread mixture.
2. Place dish in a larger baking dish. Fill larger dish with boiling water halfway up the sides. Bake at 350° for 50-55 minutes or until a knife inserted near the center comes out clean. Remove from water bath. Cool for 15 minutes.

For the cream sauce, in a saucepan, combine cream and sugar. Cook and stir until sugar is dissolved. Remove from the heat. Stir in the vanilla, cinnamon and nutmeg. Serve warm with pudding. Yield: 6-8 servings.

December Birthdays

Ted Clack	3
Bill Grey	4
Nancy Blake	6
Cheryl Moore-Gough	23
Sue Brumfield	26
Duke Pauli	27



January Birthdays (no Jan. newsletter)

Alice Pilgeram	2
Bridget Westfall	4
Alanna Schlosser	5
Don Mathre	5
Anuar Morales Rodriguez	8
Deanna Crow	11
Frank Etzler	12
Rebecca Huntsman	12
Jamin Schmitzger	17
Cathy Cripps	18
Dara Palmer	25
Hongtao Zhang	26
Kevin Wanner	28
Erin Burns	28
Tamara Parnell	29



Once again, it truly has been great working for all of you this year. We wish each of you a very Merry Christmas and a Happy New Year! Tamara, Courtney, Jill, and Irene

Go to the next page to see who just had a street named after them!



Bernie Schaff, former Post Farm manager, by the newly named street sign that bears his name. The new sign will greet visitors as they enter the Arthur H. Post Farm from Huffine Lane. Congratulations Bernie!