

Plant Science Says



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The Department of Plant Sciences and Plant Pathology

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PSPP Christmas Party



The Departmental Christmas party will be on Friday, December 5, 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.

Faculty Searches By John Sherwood

Our Department is currently conducting searches to fill two tenure-track faculty positions. The first search is to fill the Endowed Chair in Plant Sciences, which is a new position. The funding for this position has reached \$2.5 Million, primarily from private sources and the Foundation is confident that it should reach \$5 million, which is the amount needed to sustainably maintain an endowed chair. The successful candidate will work on solving problems in cereal production in Montana; the primary issue at this time is wheat stem sawfly. This is only the second endowed chair hired at MSU and the first in the College of Agriculture! Mike Giroux is the Chair of that search committee.

The second position is an Extension Plant Pathologist to work on diseases of row crops (potatoes and sugar beets) and pulse crops. This position will replace Barry Jacobsen, who retired several years ago and will be ending his post-retirement work next year as a Professor and Department Head of the MAES Research Centers. Mary Burrows is

chairing the search committee for this position.

PSPP Celebrates Fall 2014 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 12, honoring all of the College's Fall 2014 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 and Plant Biology 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 2014 Commencement Ceremony will begin at 10:00 a.m. on Saturday, December 13, in the Brick Breeden Fieldhouse. The following are the names of all the PSPP graduates.

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

Undergraduates:

Environmental Horticulture- Horticulture Science

Justin Bartels
Amanda Miller
Catherine Opar
Khaled Shamesaldain

Environmental Horticulture- Landscape Design

Heather Begger
Eric Downs
Jace Kimmet

Plant Sciences- Crop Science

Kathryn Kratky
Lee Perkins

Plant Sciences- Plant Biology

Breanna Leake

Sustainable Food & Bioenergy Systems-
Sustainable Crop Production

Shane Cartularo

Grad Students:

Doctorate in Plant Science

Duke Pauli
Cecil Tharp

Doctorate in Plant Science- Plant Genetics

Joanna Gress

Masters in Plant Science

Rosemary Keating

Latin-American Botanical Congress

By Matt Lavin

During the latter half of October this year Matt Lavin attended the 11th Latin-American Botanical Congress (and the 65th National Botanical Congress of Brazil), which was held 19-24 October 2014 in the city of Salvador,



An international group of about 20 legume researchers attending the Latin-American Botanical Congress this year spent six days on a field trip in the state of Bahia, Brazil, which is well known for not only its plant diversity but also its diversity of vegetation types. This shot is within a tropical wet forest enclave in central Bahia (near the town of Morro do Chapeu) that is surrounded by savanna-like vegetation on one side and highly seasonal woodlands and forests on the other side. In this region of Brazil, slight changes in substrate, elevation, and rainfall patterns strongly determine a mosaic of such fantastically species-rich and varied forest and woodland types.

Brazil. Brazil is one of the main centers of biodiversity in the world so many researchers interested in plant diversity attended these meetings. Because the legume family is one of the most dominant and diverse in tropical regions of the world, and especially in South America, specialists researching the legume family held their own sessions, seminars, and field trips. Matt Lavin joined many of his long-term collaborators, including some like Toby Pennington (Royal Botanic Gardens Edinburgh), Alfonso Delgado (National University of Mexico, UNAM), Marty Wojciechowski (Arizona State University, Tempe), and Domingos Cardoso (Federal University of Bahia, Salvador, Brazil) who have spent much time in Bozeman working in the Plant Bioscience Building in Lavin's lab. The meetings involved presenting results of ongoing biodiversity research and planning future research projects especially in the Neotropics.

Flenniken Lab Attends Honey Bee Meetings in Montana
By Michelle Flenniken

Michelle Flenniken and Laura Brutscher (a Microbiology PhD student in the Flenniken Lab) co-presented their research findings at the Western Apiculture Society Meeting in Missoula, Montana in September 2014, and at the Montana State Beekeepers' Association Annual meeting in Lewistown, Montana in October 2014. These meetings were excellent opportunities for interactions with other scientists, small-scale beekeepers, and large-scale commercial beekeepers.

The Flenniken Lab investigates honey bee host pathogen interactions. Annual losses of honey bee colonies have averaged 32% since 2006; this level of loss is unsustainable. Research in the Flenniken lab is aimed at understanding the role of multiple biotic (i.e., virus, microbes, mites, bee genetics) and abiotic (i.e., agrochemical exposure) factors on honey bee colony health. This research is particularly important in Montana, since it is a big beekeeping state. Montana beekeepers ranked second in honey production in 2013, and provided over 150,000 colonies for national pollination services.

Laura Brutscher is investigating the mechanisms of honey bee antiviral defense, and the role of the entire bee microbiome on both individual bee and colony health. Laura received a fellowship from Project Apis m. (a

non-profit that supports honey bee research, <http://projectapis.org>) with funding support from Costco. She was officially recognized for this achievement at the Montana State Beekeepers Association banquet (see picture below).



Christi Heintz (Executive Director, Project Apis m. and Almond Board Bee Task Force Liaison), Dr. Michelle Flenniken (MSU), Laura Brutscher (MSU Microbiology PhD student and Project Apis m. Fellow in Honey Bee Biology), and Dr. Gordon Wardell (PAm Board Chairman and Bee Biologist at Paramount Farms). Lewistown, Montana October 17, 2014. Photo courtesy of Meg Ribotto.

The Lu Lab News in Pictures By Chaofu Lu

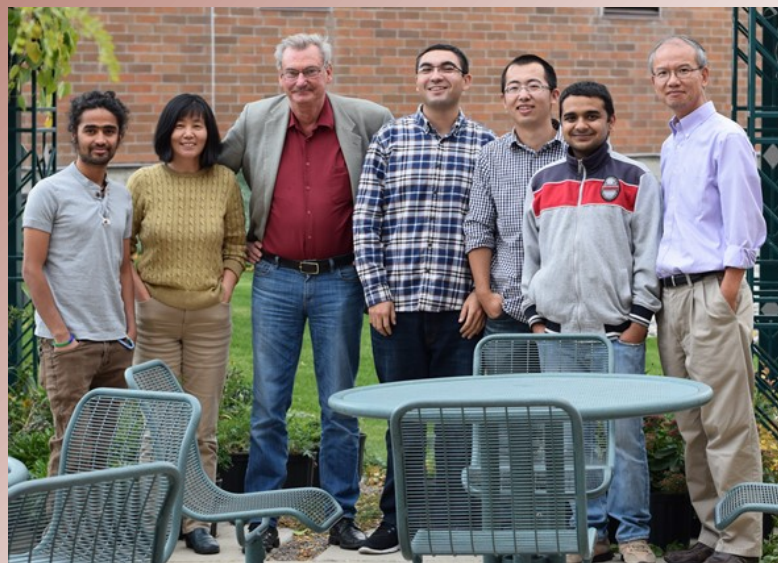


Research News

A new round of NSF Plant Genome Research Project activity kicked off at the International Symposium of Plant Lipids at the University of Guelph in July 2014.

The oilseed engineering gang posed for a photo in front of the Montana Cookhouse in Guelph. After completing the five-year (stretched to 7 since 2007, in fact) grant, it was successfully renewed for another

four years (2014-2018) with \$5.3M funding. As one of the seven labs participating in the project, the Lu lab receives \$680K to conduct research in camelina for producing high levels of hydroxy fatty acids.



Prof. Sten Stymne from the Swedish University of Agricultural Sciences visited the Lu lab on October 15, 2014. Sten is our international consultant of the NSF plant genome grant. Happily standing right next to Sten is our new graduate student Mehmet Ozseyhan, who is also participating in the NSF project.



Yes, the research in the Lu lab has been taken to the field! Field trial of the camelina lines resulted from our DOE consortium was successfully conducted in Bozeman. Some lines had significantly higher (40%) seed oil content than the control (35%). More field work is expected in the coming years for the DOE lines and the ones that will be generated from our new USDA grant starting next year. Thank you colleagues in the department and the Post farm for help!

Conferences, Travel , and of course, Food
... now for the fun stuff



The 4th International Conference on Biomass Energy Technologies—World Bioenergy Symposium was held in the city of Changsha in Southern China on Oct. 17-20. I was going to chair one session in the Biomass Resources theme, not to mention overcoming the 15-hour jet lag! I arrived at 2 a.m. on October 18, and woke up only to see the dismal morning smog outside of my hotel room. Sadly, this was actually a better scene compared to some of what I would later experience when I travelled north.



Visiting the oil-plant biofuel research demonstration center in Changsha. The center shows off some of the oil producing shrubs and trees, e. g., castor bean, *Symplocos paniculata*, *Cornus wisoniana*, whose oils are processed on site to produce biodiesel. Determined to fight the country's heavily polluted air and waters, China is actively looking for alternative energy including bioenergy to sustain its fast growing economy.



Freedom (Liberty) Square in Taipei, Taiwan seen from the Chiang Kai-Shek Memorial Hall. The square played the important historical role in Taiwan's transition from one-party rule to modern democracy in the 1990s. The square serves as the place of choice for public gatherings in Taiwan.

Leaving the smoggy air behind, arriving in Taiwan was very refreshing. Equally pleasing, I could now use Google, YouTube, Facebook, and all the software that is not accessible in mainland China! What Freedom!



The Kaohsiung Formosa Boulevard Station - By traveling to the south with a high speed train, we arrived in Kaohsiung in 1.5 hours for a conference. This spectacular metro station was named after the incident when a group of Nationalists tried to ban a magazine run by people linked to the now Democratic Progress Party. The 1979 incident is regarded as the watershed of the Taiwan democratization movements. Formosa, was that what the Portuguese called Taiwan? I call it Beautiful Island or Treasure Island!



The International Symposium of Biocatalysts and Agricultural Biotechnology (ISBAB) was held at the beautiful (and wealthy!) Medical Campus of I-Shou University in Kaohsiung, Taiwan. I was invited to present a talk entitled, "Towards rational engineering of plant oils: deciphering the chemical factories of oilseeds".



The imperial Summer Palace under Beijing's precious blue sky! Returning from Taiwan to Beijing, the usually gloomy sky turned surprisingly clear. That came with a high price however. To host the APEC Summit in early November, polluting factories and construction projects were shut down, and the traffic was cut in half according to plate numbers in Beijing and the nearby provinces of Northern China. Awarded a week-long holiday to accommodate the APEC, Beijingers wasted no time enjoying the "APEC Blue" which would soon be gone along with President Obama and other world leaders.



Students of I-Shou University in their indigenous costumes entertaining the ISBAB delegates at the welcome reception.



A girl greeting visitors for their spectacular performance at the theatre in the **Taiwan Indigenous Peoples Cultural Park**, the top tourist attraction in Pingtung County near Kaohsiung. Right top: Houses built with local materials (rocks) with a low front entrance, said to keep wild beasts out. Also, pendants hang outside a hut in the park.



Visiting the Engineering Research Center for Castor at **Nankai University** in Tianjian, China. Shown on the left are hybrid castor varieties and the castor-based synthetic high performance lubricant and other products manufactured from castor oil.

Related news: The US-China carbon emission deal, announced in November during a visit by President Obama to Beijing, calls for China to cap its emission by around 2030 and for about 20% of China's energy production to come from non-fossil sources. The United States in turn would cut net emissions by 26-28% by 2025 compared with 2005 levels. China's

research and development expenditures in 2013 was US \$193 billion. During the same period, the US NSF budget was about \$7 billion, and the NIH \$30 billion!



The Peking roast duck; Crab Soup Baozi; and, oh, that's the fish I caught ...



Blueberry paste on yam (Dioscorea), Ice "tea" from Taiwan (various foods on top of ice)

Montana Seed Potato Seminar By Susie Siemsen

The 49th Annual Montana Seed Potato Seminar was held at the Hilton Garden Inn in Missoula, Montana on November 12 and 13, 2014. This seminar brings in-state and out-of-state growers and families together to discuss the issues of the industry. The National Potato Council and the United States Potato Promotions Board representatives updated the audience on legislative and consumer matters. Exhibitors showed the latest farm equipment, chemical technologies, potato varieties and financial products. Participants were treated to great food which, of course, included potatoes, and an evening of entertainment before plant bacteriologists, virologists, entomologists, and economists shared information about research, potato disease epidemiology and management, and family financial education.

Dr. Nina Zidack, of the MSU Seed Potato Certification Lab, presented an overview of the 2014 Montana seed potato growing season and crop. Dr. Barry Jacobsen, MSU Extension Plant Pathologist and Department Head of the Research Centers, gave participants his perspective based on 20 years of potato disease management research in Montana and integrated management of PVY using roguing, BmJ induced resistance, stylet oils and no-gap

insecticides. Dr. Neil Gudmestad of North Dakota State University discussed the reemergence of bacterial ring rot disease. Dr. Erik Wenninger of University of Idaho, Kimberly Research & Extension Center spoke about contribution of non-colonizing aphids to Potato Virus Y incidence in potato in southern Idaho.

The keynote address was given by Mr. John Youngberg, Executive Vice President of The Montana Farm Bureau Federation. He spoke about the future trends in farming and relationships with research. He encouraged applying for research funding with the Montana Board of Research and Commercialization which awards \$2.4 million annually for research in Montana.

Dr. Phil Hamm of Oregon State University, Hermiston Agricultural Research and Extension Center relayed information about Zebra Chip, psyllid-borne bacterium, Purple Top, phytoplasma, bacterial ring rot and *Clavibacter michiganensis* subsp. *sepedonicus*. Dr. Marsha A. Goetting of MSU department of Agricultural Economics and Economics informed all on Montana's laws of property rights when planning an estate. The seminar was hosted by the Northwest Montana Seed Potato Growers in cooperation with Montana State University Extension Services.

TV Spot Celebrates 100 Year Anniversary of Extension

In recognition of 100 years of MSU Extension serving the people of Montana, MSU created a TV spot that debuted during the broadcast of the Cat Griz football game on Saturday Nov. 22. Telling the story through the voice of MSU student, Marissa White, the spot features the Schutter Diagnostic lab, MSU Extension faculty and county agents working together to grow a better Montana. To see the video, please click on <http://www.montana.edu/grow/>.

Workshop on Microbes at the Interface of Land-Atmosphere Feedbacks: October 13-17, Sainte Maxime, France By Cindy Morris

As part of the NSF project on *Research on Airborne Ice-Nucleating Species (RAINS)*, David Sands and Cindy Morris organized a workshop for early career scientists. A dozen early career scientists from the biological sciences as well as physics, mathematics and Earth sciences were invited to meet with a group of established scientists and

stakeholders ('mentors') active in fields related to the interaction of landscape with rainfall processes. The workshop focused on the ascent of micro-organisms into the atmosphere, their dissemination, their descent and the changes in landscape management that could influence these processes. The workshop included some formal presentations by mentors to set the stage for interdisciplinary discussion, but favored interactive discussion and brainstorming. The early career scientists were joined by the principal Investigators of the NSF *RAINS* project:

- Brent Christner, Louisiana State University
- Boris Vinatzer, Virginia Tech
- David Schmale III, Virginia Tech
- Carolyn Weber, Idaho State University
- David Sands, MSU-Bozeman
- Cindy Morris, INRA, Avignon, France and MSU (Affiliate Professor)

Additional mentors and stakeholders including:

- E. Charles Brummer, UC-Davis Plant Breeding Center
- Franz Conen, University of Basel, Switzerland
- Yves Brunet, INRA, Bordeaux, France
- Nicolas Métro, Forest & Life movement, France
- Jane Cohen, University of Texas Law Faculty
- Olivier LeGall, Deputy Director General, INRA, France

The lively discussions and brainstorming activities led the group to put together a vision for the direction of future research and public outreach concerning the impact of Ice Nucleating Bacteria in initiating rainfall. Several new collaborations are being established as a result of this workshop.



Participants of the MILAF workshop in Ste. Maxime, France

Towne's Harvest Garden Receives Award

The Association of Public and Land-grant Universities recently recognized Towne's Harvest Garden as an exemplary outreach and engagement project.

For the past eight years, THG has collaborated with MSU students, faculty and community members and the Gallatin Valley Food Bank to provide 30,000 pounds of free or discounted produce to families in need.

Bill Dyer, professor of plant physiology and a THG faculty advisor, agreed. "Towne's Harvest Garden is a perfect example of MSU's land-grant mission of outreach and engagement because it combines the best of hands-on learning and student involvement with outreach to and partnership with our community," Dyer said.

In 2011, THG added its Community Food Truck, funded in 2012 and 2013 by a two year grant from AARP and subsequently by donations from MSU alumni. The truck allows students to bring farm-fresh food directly to constituents, including low-income seniors, students and rural communities.

2015 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 5-7, 2015. The 2½-day workshop will focus on small grain production in Montana. Ruth Dill-Macky, Professor of Small Grains Pathology at the University of Minnesota Department of Plant Pathology will join us to provide two guest lectures. A hands-on practical session will feature an identification guide for weed seedlings and an application to identify grasses. Topics in plant breeding and weed, disease, insect and nutrient management will be covered by nine MSU staff from the Bozeman campus, as well as scientists from the Central and Eastern MSU Agricultural Research Centers.

A registration fee of \$195 provides workshop supplies, morning and afternoon refreshments, parking and the traditional pizza dinner at Colombos. Crop consulting, 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/producersandfarmers/2015%20CPMS%20Brochure.pdf>

For more information contact Kevin Wanner, kwanner@montana.edu

MAES Seminars

Phil Bruckner, Friday, November 21, 8:00
"Winter wheat breeding and genetics"

Andreas Fischer, Monday, November 24, 9:00
"Cereal quality and biochemistry"

David Sands, Wednesday, December 3, 9:00
"Value added agriculture in Montana"

Mike Ivie, Friday, December 5, 2:00
"Revision of the *Dinoderinae* (Coleoptera: Bostrichidae) an emerging threat to global grain stores"

Rebekah VanWieren, Monday, December 8, 9:00
"Ecological Landscape Design in Brownfield Regeneration"

Mark Young, Wednesday, December 10, 9:00
"Role of viruses in natural ecosystems"

Graduating Grad Students



Joanna standing by a Ranzorback sculpture at the University of Arkansas.

Joanna Gress successfully defended her dissertation titled "Identification and characterization of the olfactory-related genes in the wheat stem sawfly, *Cephus cinctus*, a major pest of wheat in the northern plains" on November 10, 2014.

She has moved to Fayetteville, Arkansas where she has obtained a post doctoral position working with Dr. Ioannis Tzanetakis at the University of

Arkansas studying berry virus epidemics and management.

Joanna says, "I want to thank everyone in the PSPP Department for all their help and support over the years. I enjoyed my time at MSU and am sad to leave but am excited about this next chapter in my scientific career."

Rosemary Keating defended her dissertation entitled, "Increasing Harvestability of *Phacelia hastata* Seed Using Plant Growth Regulators" on November 17, 2014. Her field work was done in collaboration with the NRCS Bridger Plant Materials Center in Bridger, Montana and they will be using the results to inform further studies leading to a seed release of this wildflower.

Regarding future plans, Rosemary says, "I plan to take my degree and go fly fishing!" On the side, she hopes to continue studying and learning more about the fascinating world of plants and to stay involved in the Master Gardening program. Congratulations to both of you!

Course Focus

HORT 226 – Landscape Graphics II by Jennifer Britton



To design is to communicate clearly by whatever means you can control or master.

~Paul Rand

For students in Environmental Horticulture pursuing the Landscape Design option, HORT 226 Landscape Graphic II serves as an introduction to understanding the opportunities offered by computer-based rendering and modeling technologies. Through the semester, students explore software applications common to the profession of landscape architecture including the Adobe Creative Suite and SketchUp. We meet for studio class twice a week on Tuesday and Thursday from 9:00-10:50 in Linfield Hall.

The class curriculum mimics work they will experience in their future careers with studio projects organized around rendering one site on campus- the new Hedges Suite. Students are tasked with developing a coherent set of computer renderings and layouts akin to professional conceptual presentations. Their first jumpstart project, "Placemaking" allows students time to amass technical skills in Adobe Photoshop and Illustrator while also introducing cultural landscape theory. Through introspective inquiry, students evaluate how values manifest in a landscape, specifically their impression of Montana's

landscape, and how to create a graphic representation to convey this meaning.

Their next two assignments focus on rendering the Hedges Suite in plan, section, axonometric, and perspective through the use of Photoshop, Illustrator and 3D modelling in SketchUp. For graphic inspiration students have exposure to a wide range of creative works, including graphics from contemporary design firms. Their last project is the culmination of all parts. Students utilize Adobe InDesign to create a summation of the semester's work into both poster and booklet layouts. In the truest sense of graphic design, students contemplate font, color, and page to form a conceptual "story-line."

Although we have brief lectures throughout the term on relevant technical information needed to complete exercises and assignments, class time also provides opportunity for critique and feedback. Projects range from 2-4 weeks in duration with pin-up presentations for each project.



Drawing by Heather Begger



Drawing by Patrick Heslin

It's my goal that students leave HORT 226 with an extensive understanding and appreciation of graphic design generation and aesthetics.

Survive and Enjoy Classes! by Dr. David Sands

1. Never go to class without having read the material first.
2. Take notes in class.
3. Always read the notes that evening.
4. If you do those three, studying and cramming for an exam will not be necessary, maybe a brief review will be enough.
5. Get to know the Instructor.
6. Attend all classes on time.
7. Hand in all assignments on time.
8. At least one hour of physical exercise every day.
9. Only one social event per week.
10. Get to know the smartest students in the class, they will have good advice, very good, and they are of your generation.
11. Try to think beyond the class material, what if? If then? Get into it.
12. Try reading a book about the class subject, not the text, the text is read of course, but ask the teacher for a good book. This also lets the teacher know that you care about learning.
13. Get into the subject, play the strong points, don't just sit there and call the lines.



Publications

Malone, K., A. Harmon, W. Dyer, B. Maxwell, and C. Perillo. 2014. Development and evaluation of an introductory course in sustainable food & bioenergy systems. *Journal of Agriculture, Food Systems, and Community Development* <http://dx.doi.org/10.5304/jafscd.2014.042.002>, pp. 1-13. Published online February 8, 2014.

Keith, B.K., E.A. Lenhoff, E.E. Burns, F.D. Menalled, and W.E. Dyer. 2014. Characterization of *Avena fatua* L. populations with resistance to multiple herbicides. *Weed Research* (In press). Jordan, N., J. Grossman, P. Lawrence, A. Harmon, W. Dyer, B. Maxwell, K. Cadieux, R. Galt, A. Rojas, C. Byker, S. Ahmed, T. Bass,

E. Kebreab, V. Singh, T. Michaels, and C. Tzenis. 2014. New curricula for undergraduate food-systems education: A sustainable agriculture education perspective. NACTA Journal (in press).

Grants

Mary Burrows, USDA National Institute of Food and Agriculture, "Fourth Annual NPDP National Meeting

Bill Dyer, Erin Burns, and Barbara Keith, Bayer CropScience, "Do herbicide safeners play a role in multiple herbicide resistance?"

Invited Talks

Mary Burrows, Canmore, Alberta, CANADA - to speak at the Plant Pathology Society of Alberta meeting

Bill Dyer, Gallatin Conservation District, Manhattan, MT, December 9, "Biotechnology and Genetically Modified (GM) Crops: What's All the Fuss?"

Barry Jacobsen, book chapter in Mycotoxin Reduction in Grain Chains, Chapter title, "Good Agricultural and Harvest Practices to Reduce Mycotoxin Contamination in Wheat in Temperate Countries", Wiley Blackwell. 2014.

Amaryllis (*Hippeastrum hybrids*)

By Toby Day

Extension Horticulturist



If you have one person that is really difficult to buy a present for this year, follow my lead and buy them an amaryllis. Yep, a flowering bulb. It is in my opinion the best all-around - "I didn't have a clue what to buy you" kind of present. And why not? They are not

gender nor age specific. You can give it to kids, adults, men, women, and the elderly.

I like amaryllis as gifts because they give the recipient instant gratification. That "oh, you got me *something*." However, as it grows and especially when it blooms you usually get another response from the recipient a few weeks after about "how great that flower you gave me looks!" I also think the bloom is timely, since there isn't much flowering or even green in early spring. Additionally, an amaryllis is a great gift because it usually costs less than twenty bucks!

The amaryllis that you buy locally is a *Hippeastrum hybrid*, a large flowering bulb that originally came from South America or South



Africa. Its Genus is Greek and means "horseman's star." An odd name that is thought to come about because the bud looks like a horses ear, while the flower, when opened, looks like a star. And, speaking of odd, it is not a true *Amaryllis*. The Genus *Amaryllis* looks starkly

different. Over the years though, the common name "amaryllis" has become the norm for *Hippeastrum*.

There are many *Hippeastrum* hybrids with an array of colors and flower forms. Some stalks can produce up to six blooms per stalk and can come in many different colors - including white, yellow, pink orange and red. Once it stops blooming, you can cut the flower stalks back, move it to a sunny window, water and fertilize it throughout the summer to build up its reserves to bloom again. To force bloom, let it dry out, stop fertilizing, and store it in a cool, 55°F area until next spring when they can be pulled out and you can watch them bloom all over again. Amazingly, some amaryllis have been known to re-bloom for over 70 years!

Now that is one great, colorful, cheerful and cheap gift that keeps on giving!

Recipe of the Month

Courtesy of pioneerwomancooks.com

Rice Pudding

1/2 c Raisins (golden Or regular)
1/2 c Bourbon Or Other Whiskey (optional)
1 c Medium Grain White Rice
2 c Water
2 c 1% milk
2 Tab Heavy Cream
1 Tab Salted Butter
Pinch Of Salt
8 ounces, fluid Sweetened Condensed Milk
Dash Of Ground Cinnamon
Dash Of Ground Nutmeg
1 Tab Vanilla Extract
1 whole Egg, Beaten



Caramel-Pecan Sauce

1/2 c Butter
1/2 c Packed Brown Sugar
1/2 c Light Corn Syrup
1/2 c Chopped Pecans
1 Tab Bourbon Or Other Whiskey (optional)

Be sure to use medium-grain rice (not long-grain.)

Use a nonstick saucepan if you have one. In a small bowl, combine the raisins and whiskey. Set aside for 1 hour.

In a medium saucepan or pot, combine the rice, water, milk, cream, butter, and salt. Bring it to a gentle boil, then cover the pot, reduce it to low, and simmer for 20 to 25 minutes, stirring twice during this stage. Note: The rice should be cooked, but there should still be visible creamy liquid; it should not all be absorbed. If the liquid looks like it is absorbing more quickly than this, you can cut this stage to 18-20 minutes.

Remove the pot from the stove and add the sweetened condensed milk, cinnamon, nutmeg, and vanilla. Return to low heat for 5 minutes to finish cooking. Remove the pot from the stove and slowly drizzle in the beaten egg, stirring constantly. Drain the raisins and stir them in. If you'd like the pudding to be a little creamier, stir in a little more sweetened condensed milk. If it's too creamy, return to the stovetop and cook for another 3 to 4 minutes. Serve immediately in a small bowl.

While the rice is cooking for the first stage, make the Caramel-Pecan Sauce: Combine 1/2 cup butter, brown sugar, light corn syrup, and chopped pecans. Heat up the mixture over medium-low heat, then allow to bubbly gently for 5 minutes, or until consistency is like a nice caramel sauce.. Remove from the heat and set aside.

Top each portion of rice pudding with some of the Caramel-Pecan Sauce.

December Birthdays

Bill Grey	4	<i>Happy Birthday!</i>
Nancy Blake	6	
Cheryl Moore Gough	23	
Sue Brumfield	26	
Amy Dolan	29	

January Birthdays (no January newsletter)

Alice Pilgeram	2
Bridget Westfall	4

Alanna Oiestad	5
Don Mathre	5
Deanna Crow	11
Frank Etzler	12
Rebecca Huntsman	12
Jamin Smitchger	17
Cahty Cripps	18
Dara Palmer	25
HONGtao Zhang	26
Kevin Wanner	28
Erin Burns	28
Tamara Parnell	29



Once again, we have really enjoyed working for all of you this year.

We wish each of you a very Merry Christmas and a Happy New Year!

Tamara, Karen, Jill, and Irene

