

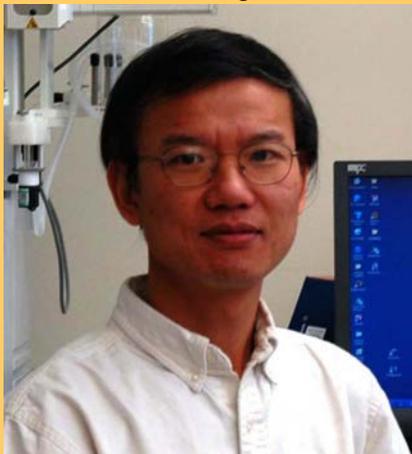
# PLANT SCIENCE SAYS



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## Lu Joins Faculty



Dr. Chaofu Lu was recently appointed as a tenure track Assistant Professor in our Department. His new position started July 16. Chaofu has been in our Department for

the last three years as a Research Assistant Professor.

Following are Chaofu's thoughts on his new appointment.

"Hello folks! I would like to use this space to express my sincere gratitude for your generous support and friendship during the past three years! PSPP is truly a great place, and I feel lucky to be able to work with you for many years to come.

I am extremely excited about my new expanded role as a teacher-scholar in our department. My research focuses on plant lipids using the reemerging oilseed crop *Camelina sativa* and its close relative *Arabidopsis thaliana*, the model plant species. My laboratory will continue to contribute to international efforts on genetically improving oilseed crops to provide valuable vegetable oils for enhanced nutrition, alternative energy and renewable industrial products. I am also looking forward to teaching the "Plant Physiology" course starting in January 2009, and accepting graduate students."

## Zidack Named Director of MSPCP



Nina Zidack was recently named Director of the Montana State Seed Potato Certification Program. Nina's will begin her new duties on October first; Mike Sun will continue to direct the

Potato Lab until then. Nina won't be traveling far to take this new position. She has worked at MSU for 14 years with 11 of them in the Plant Sciences and Plant Pathology Department. Over the years, Nina has worked on a number of projects in Plant Pathology, specifically in the areas of biological weed control and disease control. The last three and one half years have been spent in the role of Plant Disease Diagnostician for the Schutter Diagnostic Lab.

In her new role as Director of the Potato Lab, Nina will be involved in all aspects of the certification of seed potatoes, serve as liaison with the Montana Potato Improvement Association, and perform research on diagnostics for potato diseases. The toughest duty will be performing the winter test on Montana's seed potato crop – in Hawaii. The most attractive aspect of this new position will be working with Montana Potato Growers and the current staff in the Potato Lab to produce high quality, disease free seed stock. Outside of the lab, Nina enjoys gardening, taking advantage of the Gallatin Valley's many outdoor activities, and visiting family members throughout Montana. She and her

husband Walt have two daughters, Madeline (14) and Julia (10).

### **Crop damage at the Post Farm**

The hail storm that struck Bozeman on July 22 also caused severe damage at The Post Farm. Everyone in our Department pretty much lost everything except for Dave Sands' and Alice Pilgeram's camelina plot. Alice said, "There will be a decent yield, but it will be more difficult to harvest and quality may be difficult to ascertain."

According to Luther Talbert, "Here is a passage from the Annals of Nottinghamshire in 1812 that pretty much describes the Post Farm situation: (The hail storm brought) 'an aspect of present wretchedness, and a prospect of future misery and destitution to one portion of (Post Farm researchers), and embarrassment and ruin to the others'. The Annals further states that 'universal distrust and gloom pervaded the whole (Post Farm)'."

"More realistically, the breeding project will recover based on saved seed and complementary experiments in other places in the state. Graduate students will have to scramble a bit, but it will all work out."

### **APS Celebrates 100<sup>th</sup> Anniversary By Don Mathre**

The American Phytopathological Society recently celebrated its 100<sup>th</sup> anniversary meeting in Minneapolis, MN with over 2000 plant pathologists in attendance. Included were the following from our department: Mary Burrows, Dave Sands, Barry Jacobsen, John Sherwood, Oliver Neher, and Eva Grimme, and emeritus members Don Mathre and Al Scharen. This was a very exciting and informative meeting with plenary session speakers discussing the many aspects of the world food situation, from problems with disease to the lack of water. A representative of the Bill and Melinda Gates Foundation discussed how this organization is now interested in global agriculture and has recently provided \$29 million for work on stem rust of wheat. Charles Arnetzen discussed the development of plant produced pharmaceuticals with some amazing new success stories. Other key sessions were on the future of teaching plant pathology and how modern technology is being used to get the plant path message across to students. George Hudler of Cornell University gave an especially entertaining talk on this subject using his class on Magical Mushrooms and Mischievous Molds as a model to attract students into plant pathology.

One evening the emeritus members were hosted with a dinner with over 140 in attendance. This allowed many of the old timers to get together to bring each other up to date on what they had been doing in their retirement and regale us all with stories of their days as graduate students in the "good old times" when fluency in two foreign languages was still the norm in most American graduate schools. For many, this will be the last APS meeting that they will ever attend so this occasion had special meaning for them.

Don Mathre (President in 1989) attended the luncheon for past presidents of APS where a collage of the pictures of every president was displayed and each of the 27 attending past-presidents autographed the document.



## Gordon Research Conference on Plant Senescence

By Andreas Fischer

I attended the 2008 Gordon Research Conference on Plant Senescence, which took place at Mt Holyoke College (South Hadley, MA) from June 15-20. This conference only takes place every four years, and brings together the small group of senescence researchers from all over the world (~60 this year, including a number of postdocs and graduate students). As most people active in this area are, in fact, in Europe (which has its own bi-annual senescence meeting), this was an important opportunity for me to exchange ideas and establish/renew contacts. I gave a talk on our recent work (entitled "Transcriptomic analysis of a barley chromosome six locus involved in the control of leaf senescence and grain protein content"), which was quite well received; probably in part because it constitutes one of the few attempts to bridge the gap between basic plant science and a crop quality parameter.

As in other plant science disciplines, senescence research is extensively using genomic and proteomic tools to (try to) understand both the regulatory networks and the "executors" of the senescence and cell death processes. Sessions revolved around chlorophyll degradation and leaf coloration; the role of oxidative stress in plant senescence; hormonal regulation of leaf senescence; transcriptional regulation and signal transduction; nutrient remobilization (my own main interest); and applied aspects of senescence research. As one of the "elder statesmen" of senescence research, Howard Thomas, indicated, the area had two major "enigmas" 15 years ago: How are 1) chlorophylls and 2) ribulose-1,5-bisphosphate carboxylase / oxygenase (the major leaf protein, constituting a huge N reserve) degraded during leaf senescence? Question 1) has essentially been solved (including cloning of the major genes involved in the process), but 2) continues to be elusive, most likely because there may be more than one "pathway" involved. Equally elusive is, for now, a comprehensive picture of senescence signaling and regulation – as one participant said, there is an ongoing competition of "my

gene is more important than yours"! To address the problem more scientifically, as in other fields, systems approaches have been initiated – let's see what my colleagues come up with until 2012!

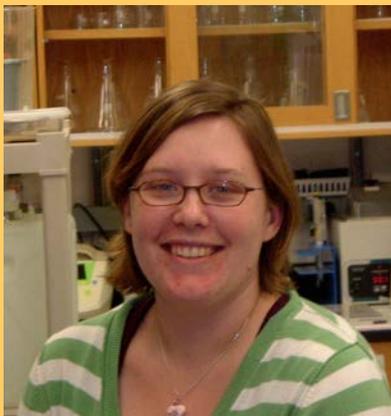
## Montana Ag Live! Schedule

Montana Ag Live! starts its fifteenth season on Sept 7 with a special pledge drive program. The regular fall schedule will begin on September 14th.

Sept. 7 Special	Special Program during fund raising week
Sept. 14	Vince Smith, MSU agricultural economist, "The new farm bill and it's potential impacts on Montana agriculture"
Sept. 21	Luther Talbert, MSU spring wheat breeder, "Advances in wheat production and the importance of wheat to Montana's economy"
Sept. 28	Dave Baumbauer, MSU's Plant Growth Centre Coordinator and Honey Bee expert, "Bees, Bees and More Bees." David will answer questions relative to the importance of the "Honey" industry in Montana.
Oct. 5	Nina Zidack, new Director of the MSPCP, "The potato industry in Montana"
Oct 12	Cathy Cripps, MSU's mushroom expert, "Mushrooms, mushrooms and more mushrooms"
Oct 19	Clayton Marlow, Range Scientist, "Environmental factors affecting agriculture"

## New Graduate Student

Joanna Gress (Tom Blake)



As the daughter of two social workers (who are inept at science) I never imagined a career in Biology nonetheless plants. I received by B.A. in Biology from Mills College in 2003. I then

went to complete my Masters in 2007 at the University of Arizona where I studied Phylogenetics and Biological Control of the citrus nematode, *Tylenchulus semipenetrans*. I took a year off and taught Introductory Biology Lab at the University of Arizona. I am now pursuing a PhD at Montana State University in the Molecular Bioscience Program. I am interested in the genetics and breeding of crop plants and am currently working in Tom Blake's lab where I am loving barley. I live here with my three dogs that I try to inspire a love of plants in, but they seem most interested in eating them.

## Farewell to John Dudas

John Dudas will be leaving us in the middle of August. He has been teaching two courses in the College of Business and starting this fall, he will be teaching three.

Thank you for your contribution to PSPP John and we wish you all the best.

## Note from Cheryl Moore-Gough

Friends and Colleagues,  
Thank you for your cards, e-mails, and telephone calls during my recent health and family situations. They have helped me through a tough time, and I sincerely appreciate it. Thank you, too, to those of you who donated your sick leave when it was clear I would run out far before the need was over. Due to your generosity, I was able to spend a precious week with my father in the hospital, and was able to arrange for his hospice at home. After his death, I was able to arrange for the funeral and attend to his business. I couldn't have done this without your help. Thank you.

## Patents

Yuhao Ren and Gary Strobel. Coronamycin, a novel peptide antibiotic US patent 7,387,888.

Yuhao Ren and Gary Strobel. The pseudomycins for use in agriculture - US patent granted Feb 5, 2008 -7,326,689.

## Publications

Burgal, J., J. Shockey, C. Lu, J. Dyer, T. Larson, I. Graham, and J. Browse. "Metabolic engineering of hydroxy fatty acid production in plants: RcDGAT2 drives dramatic increases in ricinoleate levels in seed oil." Plant Biotechnology Journal Published Online: Jul 17 2008. DOI: 10.1111/j.1467-7652.2008.00361.x.

Ren, Y., Strobel, G.A., Graff, J.C., Jutila, M., Park, S.G., Gosh, S., Teplow, D., Condron, M., Eric Pang, E., and Hess, W.M., Moore, E. 2008. "Colutellin A an immunosuppressive peptide from *Colletotrichum dematium*." Microbiology 154: 1973-1979.

Verma, V.C., Gond, S.K., Kumar, A., Kharwar, R.N. and Strobel, G.A. 2008. Endophytic fungi from root and fruits of *Azadirachta indica* (Meliaceae). Current Science. 95: 28-33.

Strobel, G.A. Spang, S., Kluck, K., Hess, W.M., Sears, J., and Livinghouse, T. (2008). "Synergism Among Volatile Organic Compounds Resulting in Increased Antibiosis in *Oidium* sp. FEMS" Lett 283: 140 -145.

Hoffman A.M., Strobel, G.A., Hess, W.M., Sovocool, G.W., Grange, A.H., Harper, J.K., Arif, A.M., and Grant, D.M. 2008. "Purification, identification and activity of phomodione, a furandione from an endophytic *Phomopsis* species." Phytochem. 69: 1049-1056.

## Why do my cucumbers sometimes have a bitter taste?

### By Cheryl Moore-Gough

I get many calls about cucumbers this time of year. Seems they can be fairly unpredictable, taste-wise. One year you get a terrific crop, the next year nothing. So people get pretty concerned about their cucumber crop. They worry that if they plant them next to muskmelons and the two of them cross-

pollinate, their cucumbers will turn bitter. They worry too that while the plants look healthy and flower profusely, they seem to set no fruit. Both of these worries are unfounded.



Muskmelons and cucumbers are separate species. Although bees carry pollen of one plant to the other, nothing will happen. It's like crossing an Angus bull with a pig. You can

do it, but not much happens. So attributing cucumber bitterness to melon pollen doesn't make sense. Bitterness in cucumber is due to the presence of a compound called cucurbitacin. This contributes to cucumber flavor in small amounts, but in large amounts causes bitterness. Hot, dry weather increases the fruit levels of this compound. Insufficient irrigation is also a culprit. Lastly, seeds of an off-type may have gotten into your garden, and these can form bitter fruit. So there are many causes, but crossing with muskmelon is not one of them. Discard the bitter fruit and enjoy the rest.

Now why will cucumbers bloom but produce no fruit? The first flowers to open are the male. Of course they produce no fruit. A couple of weeks later, more male flowers and the female flowers open. You'll get plenty of fruit then. So be patient.

### Bob's Byte

By Bob Johnston (Irene Decker Filling in)

Is there is a way that Track Changes can be locked so that only the original author can turn it off and a way that only the original author can accept/reject changes?



Theoretically, there is a way. What you need to do is to protect the document so that only tracked changes can be made by other editors. The way you do this differs from one version of Word to

another. If you are using Word 97 or Word 2000, follow these steps:

There is another option that may also fit the bill. This involves saving your document as a Word form, which can be easily protected. To accomplish this, follow these steps if you are using **Word 97 or Word 2000**:

1. Choose Protect Document from the Tools menu. Word displays the Protect Document dialog box.
2. Choose the Tracked Changes option.
3. Enter a password at the bottom of the dialog box.
4. Click on OK.
5. When prompted, enter your password again.
6. Save the file as normal.

If you are using **Word 2002 or Word 2003**, follow these steps:

1. Choose Protect Document from the Tools menu. Word displays the Protect Document pane at the right of the document window.
2. In the Editing Restrictions section of the pane, choose the Allow Only This Type of Editing in the Document checkbox. Word enables the drop-down list under the checkbox.
3. Using the drop-down list, choose Tracked Changes.
4. Click Yes, Start Enforcing Protection. Word displays the Start Enforcing Protection dialog box. (Click here to see a related figure.)
5. Enter a password (twice) in the dialog box.
6. Click on OK.
7. Save the file as normal.

Finally, if you are using **Word 2007**, you should follow these steps:

1. Display the Review tab of the ribbon.
2. Click the Protect Document tool within the Protect group. Word displays the Protect Document pane at the right side of your document.
3. In the Editing Restrictions section of the pane, choose the Allow Only This Type of Editing In the Document checkbox. Word enables the drop-down list under the checkbox.
4. Using the drop-down list, choose Tracked Changes.
5. Click Yes, Start Enforcing Protection. Word displays the Start Enforcing Protection dialog box.
6. Enter a password (twice) in the dialog box.
7. Click on OK.
8. Save the file as normal.  
With these protections in place, people can view and edit your document with the changes being shown as regular Track Changes edits. Further, nobody can accept or reject changes without knowing the original password used to protect the document.

There is, of course, a big caveat to all of this, and it bears repeating any time people start to talk about protection. In Word, document protection will only provide protection for those who decide to "play nice." There are ways around the protection—the most notable of which is that an editor can simply copy all of the text from the edited document into a new document and start passing around that new document as if it were the original document. There is, unfortunately, no way around such behavior with Word documents.

## **Recipe of the Month** Grilled Fusion Chicken



4 boneless,  
skinless chicken  
breast halves

1/2 cup garlic-  
infused olive oil  
(see notes)

2 tablespoons each tequila and fresh lime  
juice

1 1/2 teaspoons hot sauce

1 teaspoon Worcestershire

1 teaspoon grated fresh ginger

1 teaspoon ground dried chipotle chile

1 teaspoon salt

1/3 cup heavy whipping cream

Chopped cilantro (optional)

Pound chicken to 1/4-inch thickness. In a shallow dish, whisk oil, tequila, lime juice, hot sauce, Worcestershire, ginger, chile, and salt. Reserve 1/3 cup of this marinade, then put the chicken in dish, turn to coat, and marinate 30 minutes.

Grill chicken on a charcoal or gas grill over medium heat (you can hold your hand 1 to 2 inches above grill level only 4 to 5 seconds), turning once, until cooked through, 6 to 8 minutes total.

In a small saucepan over medium-high heat, simmer reserved marinade until reduced to 1/4 cup, about 2 minutes. Whisk in the cream, then remove from heat. Serve chicken drizzled with sauce and garnished with cilantro, if you like. Serve extra sauce and a green salad on the side.

## **August Birthdays**

Barry Jacobsen	6
Thamir Al-Niemi	6
Yukiko Naruoka	6
Al Scharen	9
Paul Trusty	12
Mike Ivie	16
John Terry	17
Amber Weitzel	20
Peter Suci	24
David Sands	30

