

# Plant Science Says



Happy  
Easter!

April, 2007

## Ray Ditterline Retires



Ray Ditterline retired on March 30, 2007. He earned his BS in Agronomy in 1963 and his MS in Agronomy in 1970, both from New Mexico State University. He received his PhD in Crop and Soil Science from MSU in 1973 and began his career at MSU that same year.



Ray says, "I really enjoyed my interaction with students, graduate and undergraduate. I wanted them to learn and I think they knew that. Also, I

always enjoyed working with the growers on their farms and ranches around the state."

Ray, we wish you all the best in your retirement – you will be missed!

## Genes to Products: Agricultural Plant, Microbe, and Biobased Product Research By Andreas Fischer

Bob Sharrock, Mike Giroux, Alan Dyer and Andreas Fischer attended a USDA-NRI project leader meeting entitled "*Genes to Products: Agricultural Plant, Microbe, and Biobased Product Research*" from March 12-14 in the DC area. The meeting brought together ~140 awardees from several NRI programs for a 2½ - day meeting consisting of oral presentations and poster sessions. Topics covered a wide range of subject areas, from yeast strains improved for the fermentation of plant (waste) products to molecular approaches aimed at understanding various aspects of basic plant (mostly Arabidopsis) function. If any of you are interested, all participants received the complete abstract book with contact information for presenters in electronic form (Word file), giving an overview of successful projects from the last two years. As you are undoubtedly aware, it is now a "rule" with most NRI programs that awardees have to participate in these meetings once a year for the duration of the award. We seem to do quite well, as the "delegation" from this department was (almost) the same size as from places like Cornell or Washington State! An additional element to the meeting was "breakout" sessions with the National Program Leaders, both program-specific and on broader questions. One area, about which USDA starts to "think" seriously (in part in collaboration with DOE) are plant and plant waste-based fuels. Discussion on this subject were lively, and it is obviously not at all clear yet which crops and approaches are most promising (I'd suspect this to sound familiar to people who remember the late 1970s or early 1980s...). There is also the small issue that converting agricultural surfaces to fuel production could have an impact on food

production (interestingly, this did not really come up). While everybody seems to predict that fuel prices will only go up, I'm not so sure – at some level, I'd hate to see history repeat itself (i.e., fuel prices drop for mostly illogical reasons, and all scientists working in the area get dropped by the granting agencies until the next crisis in 15 years or so). It appears that the NRI feels a lot of pressure to fund projects potentially leading to short-term economic gains; the new rule (with which several meeting participants quite loudly disagreed) that Arabidopsis-only projects will no longer be funded is probably due to this pressure. It might be interesting to evaluate the economic gains resulting from the last few decades of basic research, both in this country and worldwide. More than likely, this would reveal granting agency policies aimed at short-term economic gains as, well, short-sighted.

I've returned to the DC area for the first time in over 10 years (I immigrated to the US through Dulles airport in 1996), but did not take the time to actually look at the more touristy side of the area (should be able to do better next spring, when I'm not teaching!).

### New Employees

Jakub Chojnacki (Mark Young)



My name is Jakub Chojnacki and I am a new post-doc in Mark Young's lab. I completed my PhD at the University of Melbourne, Australia, where I was investigating the entry

mechanism of Hepatitis B virus. My research interests involve the structural analysis of viruses and host-virus interactions during the virus entry. I also like to draw, design 3D graphics, train at martial arts and of course, enjoy the great outdoors. So, feel free to chat with me if you see me at the corridor and I will be more than happy to dispel some myths about Australia (No... Koalas are not ferocious bears that maul people.)

### Abdoulaye Visits Choteau Public Schools

Abdoulaye Camera of Mali, West Africa, one of Florence Dunkel's graduate students, visited junior high and high school history and government classes at Choteau Public Schools on March 16. Here Camera, wearing traditional Malian clothing, explains to junior high students how certain traditional cloth is produced. His

program included photographs and artifacts, and a brief overview of the country's social, cultural, religious, political and economic sectors.



### Gene Sharp's grandson receives MSU's 47th Goldwater Scholarship

By Evelyn Boswell, MSU News Service



A chemistry major known for his tuba playing and insatiable curiosity is Montana State University's latest recipient of a Goldwater Scholarship.

Luke Oltrogge of Absarokee is the 47th MSU student to win

the nation's premier scholarship for undergraduates studying science and math. Oltrogge learned about his award over the weekend while waiting to board a ski lift at Big Sky. His mother had heard about it from a friend and called to ask if he had any good news for her.

"She always thinks I keep things from her," laughed the MSU junior who told her he had nothing to report.

Jane Oltrogge then told her son that he had won a Goldwater, the second major scholarship he received in a week. Already a Presidential Scholar with a 4.0 grade point average, Oltrogge had learned a few days earlier that he had also received a Beckman Scholarship, an award for elite undergraduate researchers. The Goldwater Scholarship will provide Oltrogge up to \$7,500 a year for two years of undergraduate education and retain MSU's standing as one of the nation's top schools for receiving Goldwaters.

"It's major, and it's significant," said Michael Miles, director of the Honors Program and coordinator of Goldwater Scholarships at MSU.

Oltrogge, an undergraduate student who researches oxidative stress and works with nanomaterials, credits his Absarokee science teachers, his MSU adviser, and his grandfather for his interest in science. Catherine Frazer taught Oltrogge in junior high. Kevin Chandler taught him in high school. Gene Sharp, Oltrogge's grandfather, once headed MSU's Department of Plant Pathology.

It's no coincidence, Oltrogge added, that two students who've worked in Trevor Douglas' laboratory at MSU have received Goldwater Scholarships. Bridgid Crowley of Helena received the award in 2005.

"He just has a really creative approach to research," Oltrogge said about Douglas who, with Mark Young, creates tiny cages out of protein viruses. They adapt the cages for a variety of purposes like delivering drugs to specific parts of the body.

Oltrogge noted that Chris Chandler, one of his best friends from Absarokee and his science teacher's son, also received a Goldwater this year. Chandler attends the University of Idaho at Moscow.

"Some of the best and brightest young men and women come to us from rural Montana," Miles commented. He added that Oltrogge is quick to credit others, but he has the right stuff within himself, including an instinctive humility.

"Einstein said imagination is far more important than knowledge," Miles said. "When you combine Luke's intelligence, imagination, passion and insatiable curiosity, you have the total package for success.

"He brings a serious work ethic that stems from growing up in a small, rural environment," Miles continued. "He possesses a full heart and engaging intellect. He is a rich and balanced human being."

Miles said Oltrogge is a sixth-generation Montanan whose family were homesteaders and pioneers in territorial Montana.

Oltrogge said he plans to become a professor who both teaches and conducts research. In his spare time, he plays piano at the Absarokee

Congregational Church. He also plays tuba, euphonium and bass with the University Band. Besides skiing, he enjoys mountaineering and scuba diving.

### **Bob's Byte By Bob Johnston Out of office replies**



A number of people in the department use the Out of Office reply feature that Outlook offers. There are a couple of things to consider if you continue using this feature.

1: It lets everyone that sends you an email (legitimate) or otherwise know that you are out of town. With a university email address, finding the owner and home address provides little challenge.

2: If the email is sent by a spammer, the auto-reply feature lets the spammer know that the email address is a valid one and opens the door to receiving even more spam.

3: Another problem is with automated list servers. If you send an email to a list server, the message gets sent to all the people that subscribe to the list. If your name is on the list, it will send you a message that you will be gone until a certain time. The out of office reply will send a message back to the list server and the cycle gets repeated. This will quickly fill up your mailbox and the mailboxes of all the people on the Listserver – Not a great way to make friends!!.

Whether you use this feature is up to you. I wanted to let people know the downside of using the out of office reply feature. If it is not critical to let people know you are gone, I would not use it.

Let's be careful out there.

### **To Transplant or Not To Transplant By Cheryl Moore Gough**

We can direct seed many of our vegetables but some require a longer season to mature than we Montanans often have. By transplanting these we can get a jump on the season and mature a good crop. But not all plants transplant equally well and some, like turnips, are not easily transplanted at all. Still, you'll find all sorts of transplants offered for sale at the local garden center. Do not waste your time and money on some of them.





Broccoli, cauliflower, cabbage, Brussels sprouts, tomato, and lettuce are easily transplanted, rapidly regenerating a new root system to replace those damaged

in the move. Because the roots regenerate faster than the top grows the plants establish quickly. Beet and Swiss chard (actually a type of beet) also regenerate roots rapidly but are usually direct-seeded to the garden.

Celery, eggplant, pepper, and green onion are slower to regenerate new roots and their tops grow relatively fast, so take care to preserve as much of the original root system as possible. Also, these plants wilt easily to be sure to use plenty of water during transplanting. Very young carrots belong to this group but again, they're usually direct-seeded.

Bean, corn, peas, turnip, and the cucurbits (vine crops) are not easily transplanted because their tops grow much faster than their root systems can regenerate making them highly susceptible to wilting and death. There is little reason to transplant most of these. However, the vine crops, particularly the melons, can be most successfully grown in the home garden if they're transplanted. If you purchase the plants, be sure they're about 4 weeks old (about 6 inches high) and are packed in individual peat pots. Set the plants, pots and all, in the ground, making sure the lip of the pot is completely covered with soil. Do not disturb the root systems.

### Greetings From Jeff Cameron

It has been nearly two years since I left Bozeman to enter a Ph.D. program at Washington University in St. Louis, MO. After a year of classwork and three mandatory laboratory rotations I am happy to be in my thesis lab. I joined Prof. Himadri Pakrasi's lab, which works on photosynthesis, systems biology, and redox



biology using the model cyanobacterium *Synechosystis* PCC 6803. My project is focusing on cellular redox regulation in cyanobacteria, *Arabidopsis* and moss.

Recently, I was selected by Washington University and the Department of Energy to attend the 57<sup>th</sup> meeting of the Nobel Laureates and students in Lindau, Germany. The meeting is held in the beginning of July, and allows students and young researchers to interact with some of the Nobel Laureates in Physiology or Medicine. More information on the meeting can be found at: <http://www.orau.org/lindau/>

Although I miss the mountains and outdoor scene in Bozeman, I have found some beautiful areas in Missouri. There are many nice parks to hike in and I have found some excellent fly-fishing waters south of St. Louis. And yes, these waters hold some nice rainbow and brown trout. I have also found some great mushroom hunting woods full of chanterelles.

I hope all is well in Bozeman. I hope to come back for a visit sometime.

### April Birthdays

<i>Bill Pond</i>	11
<i>John Sherwood</i>	12
<i>Mike Giroux</i>	12
<i>Amanda Henry</i>	19
<i>Matt Lavin</i>	20
<i>Andreas Fischer</i>	25
<i>Nina Zidack</i>	26
<i>Jeremy Jewell</i>	28



### Recipes of the Month

#### Apple Cole Slaw

3 cups chopped cabbage  
 1 unpeeled red apple, cored and chopped  
 1 unpeeled Granny Smith apple, cored and chopped  
 1 carrot, grated  
 1/2 cup finely chopped red bell pepper  
 2 green onions, finely chopped  
 1/3 cup mayonnaise  
 1/3 cup brown sugar  
 1 tablespoon lemon juice, or to taste



In a large bowl, combine cabbage, red apple, green apple, carrot, red bell pepper, and green onions. In a small bowl, mix together mayonnaise, brown sugar, and lemon juice. Pour dressing over salad.

## Trivia

84% of a raw apple is water.

*99% of the pumpkins sold in the US end up as jack-o-lanterns.*

A cucumber is 96% water.

*Americans eat more bananas than any other fruit: a total of 11 billion a year.*

An average ear of corn has 800 kernels, arranged in 16 rows.

*Ginger has been clinically demonstrated to work twice as well as Dramamine for fighting motion sickness, with no side effects.*

In the Netherlands, in 1634, a collector paid 1,000 pounds of cheese, four oxen, eight pigs, 12 sheep, a bed, and a suit of clothes for a single bulb of the Viceroy tulip.

*The plant life in the oceans makes up about 85 percent of all the greenery on the Earth.*

*Wheat is the world's most widely cultivated plant; grown on every continent except Antarctica.*

The world's tallest grass, which has sometimes grown to 130 feet or more, is bamboo.