Plant Science Says

Happy Easter!

April 2001

Annual Meeting of the American Society of Sugar Beet Technologists

Barry Jacobsen attended the Annual meeting of the American Society of Sugar Beet technologists in Vancouver, B.C. Feb.28-March 14. He presented a poster coauthored by Martha Mikkelson, Alan Dexter (North Dakota State University) and Larry Smith (University of Minnesota) entitled: Survey of Pesticide Use, IPM Practices and Pests of Sugar Beet in the U.S.A. for 1998 and 1999. This survey is the most complete of its kind and presents actual pesticide use and IPM practices on more than 1.5 million acres. The research was supported by a USDA grant.

CAST Board Meeting

Barry Jacobsen also attended the Council on Agricultural Science and Technology (CAST) Board meeting in Alexandria, Virginia, March 15-17. CAST assembles, interprets, and communicates science-based information regionally, nationally, and internationally on food, fiber, agricultural, natural resource, and related societal and environmental issues to our stakeholders--legislators, regulators, policy makers, the media, the private sector, and the public. CAST is a nonprofit organization composed of 47 scientific societies representing more than 360,000 scientists and more than 2000 individual, student, company, nonprofit, and associate society members. CAST's Board of Directors is composed of representatives of the scientific societies and individual members, and an Executive Committee. Barry represents the American Phytopathological Society and is currently Vice Chair of the Plant Protection Work Group of CAST. More in- formation about CAST can be found on the website: http://www.cast-science.org/castinfo.htm. Items of interest from the board meeting are the new membership of the Society for In Vitro Biologists and the decision to co- sponsor a Symposium on Management of Pest Resistance: Crop Management Strategies. This meeting which will address both transgenic and pesticide resistance is tentatively scheduled for December of 2001 possibly in conjunction with the Entomology Meetings in San Diego, CA.

Experiential Learning Opportunity for Graduate and Undergraduate Students
by Luther Talbert

Conversations over the past few years with students, administrators, and Montana agricultural producers have pointed to a potential weak spot in educational opportunities for our students. In particular, many of our current students, both undergraduate and graduate, have little experience with agriculture. This is in spite of the fact that most of the research being conducted by these students has improved agriculture as an ultimate goal.

There is currently funding available to provide an opportunity for a set of students to gain experience with Montana agriculture. The current plan is to provide transportation, meals, and lodging for graduate and undergraduate students to participate in a 2-3 day intense agricultural education foray into the state. The foray would be planned around one of the Research Center Field Days, with additional tours of local farms (perhaps one conventional farm and one organic farm), grain elevator, seed dealer, and perhaps other associated industry. The current thought is to plan the trip around the Havre Field Day on July 11. Not only is this an excellent Field Day with tours encompassing both plant and animal agriculture, but there are farmers and seedsmen nearby that have expressed a willingness to help out.

In addition to funding expenses for the participating students, there is also a stipend of $75 per day available for some enterprising graduate student to be the tour guide (ie., drive a van). It would be very helpful if people in our department could respond to me soon as to potential interest in this trip. It should be fun, and, who knows, maybe something worthwhile will be learned.

Thanks in advance for your response.

Spain
by Debbie Willits

Working for Mark Young has both incredible challenges and rewards. The opportunity to visit the lab of a collaborator in Spain was one of the great rewards. I went to Madrid for over two weeks in March to learn a technique for testing potatoes for the virus PVY and to learn about a plant virus protein-expression system. Fernando Ponz and the rest of his lab were very welcoming and determined to make my stay in Madrid memorable. Fortunately, most of the people in the lab spoke English and did their best to communicate with me. The one person who didn't speak English spoke to me very loudly and slowly in Spanish. I was surprised that it actually worked. We didn't talk a lot but I learned a little Spanish from her. I was informed that I would need to learn the language before I return to Spain. I definitely agree with that.

The potato testing technique that I learned was Immunocapture Reverse Transcription PCR (IC-RT-PCR). It uses an antibody to capture the virus particle out of ground plant material onto a PCR tube. Once the virus particle is captured, a simple RT-PCR reaction is performed in that tube with primers that are specific to the virus. It is a simple and quick procedure that accurately detects the presence of virus in a potato plant. The Ponz lab has also developed a system for determining the strain of the virus just from cutting the PCR product with different restriction endonucleases. This technique may be used to test some of the potato samples from Montana for the presence of PVY.

The lab is also working on a plant viral expression system. They have used a plant virus to express GUS in Arabidopsis and are now trying to express the virus that we work with (CCMV). We are interested in this system because they are obtaining a large amount of protein and we can always use a lot of virus. The long-range idea is to use plants for bioremediation. The hope is that CCMV will bind metals in vivo. I was involved in the beginning cloning and can't wait to see the end results.

Well, of course I just wanted to do science while I was in Spain but the people in the lab made me get out and see the sights of Madrid. I saw parks, world famous museums, palaces, cathedrals, and a Roman Aqueduct. I also saw a great deal of city life and learned to get around on the metro and shop in Spanish. I visited two nearby towns, Segovia and Toledo. Both were beautiful and filled with history. The Spanish are very proud of their cuisine but I was sure glad to get home and have some pizza. One of the Germans that I met in Spain called Spanish food "Medieval." I thought that was the perfect description. It was quite the life experience for a small town Montana girl and I am glad to be home.

BOB'S BYTE by Bob Johnston

Upgrade information for web users and web authors concerning COA webpages

The web pages currently stored on the COA web server (agadsrv) will be moved April 21st to a new server. The new server will be maintained by COA/MAES and represents a major upgrade to AGADSRV. It is a different machine, of course, but much more able to take what we throw at it than AGADSRV can. The server will be physically located at ITC in their "non-ITC-server" server room. It will have much more bandwidth available and will be in a climate controlled atmosphere (nothing like Linfield Hall). It will be maintained by Matt Rognlie, ITC will never be touching it - it's our machine (COA).

What does this mean to you: The address for your web page will change. This is not all negative and will simplify your current web address to: HTTP://ag.montana.edu/webname

You may need to pay a few dollars for initial startup. This means paying $6 for a MSU NT client license if you do not already have one.

NOTE: This name change will not affect those who have subwebs under the departmental homepage. I.e. Bergey, Stout; Cereal Quality, Foundation Seeds, Wheat Transformation, and the Crops page. The horticulture page that Dick Pohl publishes to will not be affected, but the horticulture page that Tracy/Carol publish to will be.

Everyone who publishes to a web page will need a NT client license. If you do not already have one, please let me know. If you are not sure if you have a license,

send me an email and I will check it out for you. For those without a license, I will be submitting a list of user names to ITC. I would like to do this by April 15th. T names need to be in place before the switch -- so let me know ASAP. Matt Rognlie or myself will be contacting each web author individually and leading them through the change. Don't panic and think that you have to do this on your own!

Also: Please note that during this upgrade that the web server will be down for most of Saturday April 21st. All webpage will be offline during this switch over.

Growing Tips
by Bob Gough

With spring nearly here some of you may be antsy about getting the lawn fertilized and subsequently becoming the envy of the department. But hold on a bit. Early spring is NOT a good time to fertilize lawns. It used to be, before 1975, but turfgrass people, like taxonomists, keep changing their minds.

F tilizer is most effectively taken up during active root growth periods. For cool season grasses that's spring and fall. Since the temperature range for effective root growth of most cool-season grasses is 58 to 65 F, the soil in very early spring (right now) is still too cold and much of the fertilizer may be leached or volatilized away before the roots can pick it up, particularly if you use an agricultural fertilizer. That's one reason to hold off. Okay, suppose you wait a couple of weeks. The soil and air have both warmed and the ground has dried out a bit. In early to mid- April the roots can pick up the N and the leaves can respond. Boom. Up comes the lawn, lush and green, and you have your lawn mower singing away twice a week. The lawn looks great and you schedule a departmental cookout at your place in mid-July to impress the department head into giving you a raise. Now, the nitrogen you applied has stimulated rampant shoot growth which the grass has depleted its CHO stores to support. That supply was put away last fall for use in slow, strong spring growth. Now the lawn, like the Great American Public, is living high on the hog, with little money in the bank for tough times d. Along comes summer heat and drought, the grass is under stress with reduced CHO supplies, and it enters quiescence early. The weakest grass dies, and the lawn looks lousy in the fall. So does your paycheck because the department head was not impressed when the dripping grease from the barbecued spare ribs set your front lawn on fire.

Next year, wait until you've mown the lawn a couple of times before applying the fertilizer. This may be late April to mid May, depending upon where you live. Since people remember holidays better than dates, I tell them to apply 1 lb of actual N / 1000 sq. ft. between Mother's Day and
Decoration Day. Normally, we don't fertilize during the summer. Then, when the heat of summer has passed (around Labor Day), apply another pound of N and still a third pound of N around Columbus Day. Use a crystal ball to fine tune the Columbus Day application to go on when the fall spurt of growth is over but while 35 shopping days still remain before soil freeze-up. This last application is important. If timed properly, the grass leaf growth has slowed in the cool temperatures while the roots continue to grow in the relatively warmer soil. They absorb the N and the grass remains green. Photosynthesis remains effective at temperatures close to freezing with no apparent shoot growth, respiration, or CHO utilization. Much CHO is stored in the crown for spring growth, the grass enters rest in a strong condition and begins spring growth slowly, as it should.

Outlined above is a moderate lawn fertilization schedule-- 3 lbs of N per 1000 sq. ft. per year, with no more than a pound or so of N applied at any one time. Resist the temptation to fertilize the lawn in March, have the appropriate cook-out, and you'll no doubt get your raise.

Woody Cranston moving down 2 floors

Woody will be starting a new position with Chuck Paden in the Cell Biology and Neuroscience Department starting May 1. He will be continuing to work as a molecular biologist. Congratulations Woody! We wish you all the best in your new position.

Xeuyan Shan returns

Xeuyen Shan (Chen) is a new post doc in Mike Giroux's lab. She was a graduate student in Luther Talbert's lab, obtaining her Ph.D in 1999. For the last two years, she has worked at Oregon State University as a post doc.

Montana Ag Live!
Spring Schedule - 6:30 - 8:00 p.m.

March 25:
T ic: Current legislative activities that will impact agriculture
\. erator: Hayden Ferguson
Guest: Ralph Peck, Dept. of Agriculture
Panel: Jack Riesselman
A.J. Bussan
Jeff Jacobsen

April 1:
Topic: Barley variety development and genetically modified plants that affect Montana's agriculture
Moderator: Hayden Ferguson
Guest: Tom Blake, Barley Breeding Specialist
Panel: Sue Blodgett
A.J. Bussan
Jack Riesselman

April 8:
Topic: Increased cost of fertilizer as it affects agriculture
Moderator: Hayden Ferguson
Guest: Jeff Jacobsen, Soil Fertility Specialist
Panel: Jack Riesselman
Roger Sheley
Bob Gough

il 15: Easter - No show

April 22:
Topic: Projections for surface water run-off from the mountain snow pack
Moderator: Hayden Ferguson
Guest: Roy Kaiser, Snow pack & surface water Specialist
Panel: Bob Gough
Roger Sheley
Sue Blodgett

April 29:
Topic: The impact of energy deregulation on Montana's agriculture
Moderator: Hayden Ferguson
Guest: Bob Julian, Independent Energy Specialist
Panel: Jack Riesselman
Roger Sheley
Sue Blodgett

ployee of the Month - Bob Sharrock

Bob was born in St. Paul, Minnesota, and grew up in White Bear Lake, a charming suburb just outside the twin cities. For having been educated largely by nuns,

Christian brothers, and priests in all-boys schools from grade two through his second year at St. Thomas College, he seems remarkably well adjusted. Bob left St. Thomas and finished his B.S. in Microbiology at the University of Minnesota, then ventured off to the University of California, Berkeley, and completed a Ph.D. in Microbiology. He married his wife Carol while in graduate school. Bob did postdoctoral research at the University of Wisconsin, Madison, for five years and, during that time, he made the critical transition from bacterial systems (ribosome biosynthesis in E. coli) to plants (phytochrome). This was a formative time in his young scientific life. Bob and Carol had their first daughter, Katy, in Madison and, in 1987, the three of them migrated back to the Bay Area where Bob did yet more postdoctoral research at the USDA Plant Gene Expression labs. Their second daughter, Julia, was born in Berkeley. In 1989, the Sharrocks moved to Bozeman and to MSU. The main out-of-school activities of the family revolve around music, with the kids actually playing - Katy on cello and Julia on violin - and the parents mostly encouraging and chauffeuring. Bob skis, plays tennis (he will someday beat Sarah), and still, after many years, occasionally struggles to play guitar.

Recipe of the Month

Spinach Ravioli
1 cup tomatoes, peeled, seeded and diced
1 cup mushrooms, minced
1 small onion, oven roasted
2 t garlic minced
½ pound spinach leaves, blanched, chopped
1/4 cup nonfat cottage cheese
3/4 cup tofu-mashed
2 T fresh basil, minced
2 T freshly ground black pepper
salt to taste
48 pot sticker skins

In a large saucepan, combine the tomatoes, onion, mushrooms and garlic. Cook over medium heat until the liquid from the mushrooms completely evaporates and the mixture is somewhat dry. Be careful not to burn it. Set aside to cool.

In a large bowl, combine the tomato mixture, spinach, cottage cheese, tofu, and basil. Season to taste with pepper and salt.

On a cutting board, lay out a single layer of pot-sticker skins. Using a pastry brush, moisten the edges with water. Place 1 tablespoon of the spinach mixture onto the center of each skin. Cover with a second potsticker skin and press the edges together with the tines of a fork to seal.

Cook the ravioli in boiling water or vegetable stock for 3 minutes, or until the potsticker skin is al dente. Serve hot.

April Birthdays

Deb Habernicht	*6*
Mike Giroux	*12*
John Sherwood	*12*
Sarah Briggs	*19*
Matt Lavin	*20*
Rebecca Bargabus	*21*
Lynn Goosey	*24*
Anthony Kern	*24*
Freas Fischer	*25*
Woody Cranston	*25*
Nina Zidack	*26*
Holly Johnson	*30*
Rich Stout	*30*