Plant Science Says

Happy Easter!

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Montana Wheat in Japan
By Luther Talbert

Leonard Schock and I had the opportunity to see Montana wheat as it was being milled into flour in Japan earlier this month. We visited with quality control experts at Nisshin and Nippon, the two largest users of Montana wheat in Japan and perhaps the world. Leonard is Chairman of the Montana Wheat and Barley Committee, and a spring wheat grower from Vida. He guessed that one million or so bushels of wheat grown on his farm have been consumed in Japan over the years. The people we met had jobs similar to those enjoyed by Deanna Nash, Harvey TeSlaa, and Jackie Kennedy in the Cereal Quality Lab, except that instead of testing experimental lines they were testing new shipments of wheat. A large proportion of the spring wheat in the ships unloading at Japanese ports originated at MSU in the form of varieties such as Choteau, Vida, and McNeal. The winter wheat shipments contained a large share of Genou, Rampart and Yellowstone. The Japanese end-users knew our varieties very well. While farmers differentiate varieties by relative grain yield and sawfly resistance, the millers were more interested in traits such as gluten strength, flour yield, and final loaf volume.

The goal of the trip was to provide an opportunity for wheat buyers to relay traits they liked and did not like about our varieties. Montana wheat has an excellent reputation for quality, and is a premium product in the marketplace. The main concern of the millers was consistency. For instance, they wanted hard red spring wheat from the United States to behave the same year after year, shipment after shipment. Both the environment and genetics impact end-use quality. While we can't control the environment very well, we can control the genetics to some extent. Their biggest desire is that all of our varieties fit in a very tight window for quality parameters. They typically blend expensive Montana wheat with wheat from other areas, depending upon complementation for a final product with excellent end-use quality.

Our trip was sponsored by U.S. Wheat Associates, a grower-supported organization responsible for marketing U.S. wheat throughout the world. U.S. Wheat has an office in Tokyo and we were fortunate to have Mr. Watsunomiya from the office as a guide and interpreter. We had one morning to sightsee in Tokyo, and had pleasant and relaxing visits to the Meiji Shinto shrine and the Imperial Palace grounds.

The earthquake hit while we were in the airport awaiting our flight home. The authorities and staff at the airport did a great job of taking care of all of us, despite being worried sick about their own families. We were able to leave after only a 24 hour delay. The mood on the plane was certainly one of relief to be leaving, coupled with appreciation for all the help from the staff at the airport and heartfelt wishes for their recovery from this disaster.

Montana Trade Mission to Brazil and Colombia – From Batata (Portuguese for potato) to Papas (Spanish for potato)

Nina Zidack recently participated in a Trade Mission to Brazil and Colombia with Max Baucus and 15 other Montana Ag and Business representatives. The official schedule of the Mission started with a day in Rio de Janeiro where we were briefed on the economic status of Brazil which is the largest economy in Latin America, and the eighth

Max Baucus and Montana Delegation in Colombia

largest economy in the world. Agriculture is a dominant force in the Brazilian economy and accounts for 25% of total GDP. The second day in Brazil was spent in the nation's capital Brazilia, which is located on the central plateau. There, the ag delegation visited with agricultural attaches from the US National Agricultural Service where we learned about phytosanitary and customs requirements for seed potatoes and other crops. This was followed by a meeting with the Minister of Agriculture, Wagner Rossi, and 6 of his deputy ministers. During this meeting, Minister Rossi specifically stated that farmers in Brazil needed new sources for clean seed potatoes. Seventy percent of their potato production is for fresh market, 20% for processing, and 10% for seed. Half of the processing market is for chips and the other half is for fries and other products. Their largest seed supplier is the Netherlands at 45% of total imports. Canada supplies 18% of their imported seed and the US only supplies 2%.

From Brazil we traveled to Bogota, Colombia. The first day we were briefed on the political and economic situation in Colombia. Their recent history has been heavily influenced by the drug and guerilla warfare in the countryside which has displaced millions of people, many of whom are farmers. U.S. aid over the last ten years is approaching $10 billion, and the Colombians credit that assistance with reducing the kidnapping rate by 90% and the murder rate by 70%. Of premier importance to the Colombians is ratification of the U.S./Colombia Free Trade agreement which was negotiated in 2006, but has not been ratified by the U.S. If the FTA is not ratified by the end of 2011, 15% tariffs will be applied to most agricultural products. The US currently exports $1 billion dollars of agricultural products to Colombia, half of which is grain. After the morning briefing, I had a one-on-one meeting with the head of the Potato Research Unit, Carlos Nustez, of the National University of Colombia. Dr. Nustez is a potato breeder who has made significant yield and quality improvements on potato varieties from the species *Solanum andigenes* which are potatoes indigenous to the Andes. I provided Dr. Nustez with a presentation on our certification program and methods. He was astounded at the technological scope of our testing and inspection methods. In Colombia, they rely on production of seed potatoes at very high altitudes (8-10,000 ft) to limit exposure to aphids and other diseases. Their "basic" seed originates from in-vitro culture, but virus testing is limited to research. Colombia actually restricts imports of potatoes to exclude varieties originating outside of the Andes. The next meeting was with the Colombian Minister of Agriculture. This meeting again highlighted the importance of the FTA to Colombia. The Minister indicated that if the FTA is not signed, much of the imported small grains, peas, and lentils would be purchased from Canada rather than the US. The last day of the Mission started with a speech by Senator Max Baucus, highlighting the importance of the FTA and pledging his support and leadership in getting it passed. My trip was topped off with an excursion to a seed potato farm in the mountains above Zipaquira, which is 20 miles north of Bogota. The mountainous areas surrounding Bogota are the largest seed potato regions in the country. I visited a farmer by the name of Enrique Trevino who is the seed potato representative for the Federation of Potato Growers "Federopapa". He showed me his storage facility and seed potatoes ready for market. All seed was bagged and had individual certification tags very similar to ours. We then traveled to see

Mr. Enrique Trevino with seed potatoes from his farm in Zipaquira, Colombia

his fields, which were very high in the mountains above the town. Most of the potatoes are planted on steep slopes which preclude mechanical planting and harvest. On the more level areas, tractors are used for soil preparation, but planting and harvest are still performed with hand labor. The elevation was so high that we were not able to reach our final destination due to the mis-calibration of the fuel system in the car I had contracted. We had to get out and walk at one point so that the car could make it up a hill. We weren't able to pull the final hill and had to turn around. In that particular area, there were crops that were in flower through harvest. Unfortunately it was raining heavily and the workers harvesting potatoes had left the field. The trip culminated with lunch at a local restaurant that served a chicken stew with 3 kinds of potatoes. We also had potatoes for an appetizer! On the way back through Zipaquira we stopped at a fresh market where they sold a vast array of fruits and vegetables, including many native potatoes in all shapes and colors. While Colombia is not a target market for seed potatoes, both Dr. Nustez and Mr. Trevino were very excited to explore the possibility of exchanging research and educational information.

I have only described a very small part of my overall experience, and haven't even touched on the endeavors of the other Montanans. In the Ag sector, Lola Raska represented the Montana Grain Growers and Kim Murray represented peas and lentils. Other businesses included a company that develops secure communications systems for municipalities (police, fire, etc.), the owner of Corporate Air in Billings, a welding and fabrication company that produces landing platforms for Blackhawk helicopters, a civil engineering company that designs water drainage systems for roads and wetlands remediation, and the Director of the Montana Manufacturing Center. All of these businesses made contacts in both countries which will hopefully lead to future exports.

The Gallatin Gardener's Club
By Don Mathre

The Gallatin Gardener's Club recently gave $4000 to the MSU Foundation to provide two $2000 scholarships to outstanding students majoring in horticulture or a related area. Over the last five years, the club has provided $20,000 for such scholarships. The funds for these scholarships come from the proceeds the club makes from the sale of produce at the Farmers' Market on Saturday mornings at the Gallatin County Fairgrounds. Four years ago the Club moved its garden from a private property on Gooch Hill Road to the

Don Heyden, Mary McLean, and Don Mathre selling produce at the Farmer's Market at the Fairgrounds.

MSU Hort Farm under an agreement between the Dean and the Department of Plant Sciences and Plant Pathology with the Garden Club. The garden is about one half acre in size and includes a cold frame greenhouse where we grow vine-ripened tomatoes.

Jann Hayward boxing up vine ripened tomatoes

In addition to the scholarship money, the club also provided $500 to support Montana Ag Live, and $800 to Toby Day's program with the Master Gardeners.

The Garden Club believes that its association with MSU is a mutually beneficial one and is very appreciative of the support provided by Jeff Jacobsen, John Sherwood, and especially Dave Baumbauer. If you would like to visit our garden, just contact Don Mathre for a guided tour at upldm@montana.edu.

Graduation Ceremony Changes

This year's Commencement will take place during two ceremonies on Saturday, May 7, 2011. MSU's College of Agriculture will celebrate their graduates as part of the morning ceremony. College of Agriculture graduates need to assemble no later than 8:00 a.m. in the southeast mezzanine of the Fieldhouse. Family and friends should be seated in the Fieldhouse no later than 8:30 a.m. The processional, always a memorable aspect of the ceremony, will begin at 8:40 a.m. sharp, and the ceremony will start at 9:00 a.m. The North Gym (adjacent to the Fieldhouse in the HPE complex) has been reserved as a convenient rendezvous point for College of Ag graduates, families, and friends immediately following the celebration at 11:00 a.m. Please keep in mind that with the afternoon Commencement beginning at 1:30 p.m., MSU police will be directing traffic on campus throughout the day.

Another change is that for the first time ever, the ceremony will be streamed live over the Web for friends and family who are unable to attend. Also, using a camera and large monitor in the Brick Breeden Fieldhouse, each graduate's face will appear on a screen as they receive their diploma. In addition, faculty members who were recognized with awards at Spring convocation earlier in the semester will be included in the platform party for both ceremonies.

The graduation reception for PSPP graduates (both undergraduate and graduate students) will once again be held on the Friday prior to Commencement in 108 PBB from 3-5 p.m. However, this year it will be expanded to include an awards ceremony and recognition of our graduates at 4:00 p.m. Invitations will be sent out in the near future, but please reserve that time slot.

Montana Ag Live! Spring Schedule

April 3 — Nancy Schweitzer, First Lady of Montana, "First Lady Nancy Schweitzer's Classroom Garden: Discover the wonders of science as First Lady Nancy Schweitzer shares the newest feature of the Governor and First Lady's Math & Science Initiative."

April 10 — Dr. Glenn Duff, Animal nutritionist and Department Head of Animal and Range Sciences, "My vision of the Animal and Range Science Dept and our new facilities". He will also field questions relative to animal nutrition.

April 17 — Charles Holt, Director of the Townes Harvest Garden, MSU, "Educating Community Food Systems and MSU's new outdoor classroom, an exciting new classroom activity offered by the Land Resources and Environmental Sciences Department."

May 1 — Tim Fitzgerald, MSU economist, "The problems and pitfalls facing Montana landowners relative to oil and gas leases."

May 8 — Vince Smith, MSU economist, "The future of the Farm Bill". Vince Smith will alert producers and viewers what may happen in the next farm bill.

May 15— Bruce Smith, Dawson County Extension Agent, "Local Food Systems for Montana and how they can be accomplished".

May 22— Jane Mangold, MSU Noxious Weed Specialist, "Noxious weed research efforts at Montana State University".

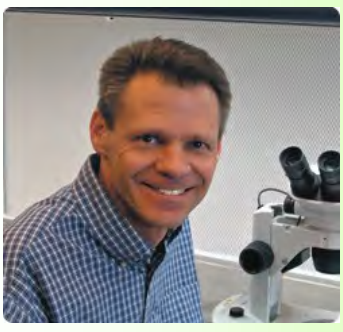
June 5— Cathy Cripps, MSU Mycologist, "Mushrooms to Avoid"

June 12— Mark Mattix, Consulting Veterinarian, "Problem poisonous plants in Montana and their effect on livestock"

Publications

Skoglund, L. G., Harveson, R. M., Chen, W., Dugan, F., Schwartz, H. F., Markell, S. G., Porter, L., Burrows, M. L., and Goswami, R. 2011. Ascochyta blight of peas. Online. Plant Health Progress doi:10.1094/PHP-2011-0330-01-RS.

Course Focus
PSPP 425/427 Horticulture Senior Capstone
By Bill Hoch



Students in the Horticulture Senior Capstone course, PSPP 425/427, work in teams to examine contemporary issues in the green industry. During the fall and spring semesters of their senior year, student teams review scientific literature, develop a systematic investigative approach, perform experiments, analyze data and submit a final research report in May.

This year's teams are investigating a variety of topics, including: the combined use

Andrew Beland and Kristi O'Brien with their project: testing the potential of a bio-nutritional additive to reduce fertilizer use in greenhouse and nursery container production.

of entomopathogenic fungi and a parasitoid to control aphids in the greenhouse, the potential of a bio-nutritional additive to reduce fertilizer use in greenhouse and nursery container production, the effects of modifying media, nutrient solution and pulse timing on hydroponic production of lettuce, and identifying factors affecting the segregation of turfgrass colonies in sod production. The course concludes with teams presenting their findings to the class and submitting a written research report. This is the third year of this course, and projects from previous years have been presented at the American Society for Horticulture Science annual meetings and have resulted in one peer-reviewed publication.

Olesen Selected to Attend Seminar

Lee Olesen, Environmental Horticulture Science major and graduating senior, was recently selected by the Jacobsen Com-

Lee Olesen

pany as one of thirty students from throughout the U.S. to attend the 2011 Jacobsen Future Turf Managers' Seminar. The Seminar is open to one graduating baccalaureate student from seventy-one universities throughout the United States.

This all expense paid seminar will to be held at Jacobsen's Headquarters in Charlotte, North Carolina, from May 16-19, 2011. The program provides students the opportunity to visit some of the nation's most prestigious golf courses and interact with several of the top professionals in the turfgrass industry. In addition to visiting golf courses, sports turf venues, and networking with leaders and future leaders of the turfgrass industry, attending students will be given the opportunity to tour Jacobsen's facilities as well as operate Jacobsen turf equipment. This will help to better prepare students for their futures as turf grass professionals.

Voles
by Toby Day
Extension Horticulturalist

As the snow melts from lawns, many Montanans are startled to see multiple small pathways one to two inches wide just above the ground surface around ornamental trees, shrubs, orchards, and flower beds. Closer examination will sometimes reveal that the trees and shrubs have been girdled (bark and living tissue removed around a woody plant) by a small mammal gnawing around their base. This damage and the pathways are usually caused by voles.

There are eight species of voles (*Microtus spp.*) in Montana, four of which have been documented to cause economic damage. The most common vole in Montana is the meadow vole. Meadow voles, sometimes called meadow mice or field mice, have

Meadow Vole

compact, stocky bodies that are five to seven inches long with short legs, a short tail, small eyes and partially concealed ears. However, there are other voles in Montana such as the prairie vole, common in prairie habitats in eastern Montana, the long-tailed vole in western Montana, whose tail can be 30% or more of its entire length, and the montana vole, which can be found in a variety of habitats in south-central and southwestern Montana.

Voles damage trees and shrubs mainly during fall and winter by girdling non-uniform gnaw marks about 1/8 inch wide and 3/8 inches long. If the tree or shrub has been girdled excessively, the tree or shrub will most likely die.

Voles also have extensive runway systems that can travel from the trees and shrubs, through turfgrass, pasture, or crops, to hiding places usually under decks or tall thickets of grass. Many times vole damage is worse in drought conditions or if the numbers of voles increase due to an abundant food source. Voles have been known to take out more than two-thirds of an existing orchard when conditions fostered

Vole Damage

high vole numbers.

Reducing the severity of vole populations and subsequent damage can be as simple as exclusion and habitat modification. Wrapping the base of trees and shrubs with hardware cloth 1/4 inch or less in size that is buried three to six inches into the ground in the fall may keep voles from getting to the base of the plant. Modifying the vole's habitat will also be effective. Remove any weeds, ground cover, grasses, and litter from around the property. Mow the lawn short and regularly before the snow sets in. Mulch should also be cleared away from the base of the tree.

Girdled tree

Trapping voles can be effective if there are small numbers or the damage is restricted to small areas of the property. Simple mouse traps can be used by placing them perpendicular to their runways. Voles are creatures of habit and will remain in the runway, even if it is covered with a mouse trap. You can bait the traps with peanut butter or apple. This simple method can catch several voles in one night.

Fumigants are not effective for vole control. However toxicants are commonly used for larger populations. Toxicants, most commonly zinc phosphide bait, can be placed in burrow openings. However, they can also be toxic to ground feeding birds and waterfowl, so use caution and be sure to read and follow direction on the product label.

Anticoagulant baits have also been shown to be effective in the control of voles. Multiple feedings will have to occur by the vole for a complete kill and the baits should be placed in bait containers to protect them from moisture and to reduce ingestion by non-target animals.
Voles can cause quite a bit of damage. If you suspect you have a large vole damage problem or have questions about vole control and/or pesticides, contact your local county or reservation Extension agent.

Impressions
by Matt Rognlie, College of Ag IT Coordinator

I'm entering that stage of life where we are helping our daughters prepare for college. We traveled to the Midwest for spring break to visit family and a number of schools. I wish all MSU employees had the opportunity to be on the flip side of the visitor/employee relationship a few times as I found it very educational. The chance to view campuses from a "consumer's" point of view (even though I don't really like that term used in higher ed) has challenged me in my work here at MSU. What am I doing to help make this an appealing place, and make it a place where relevant information is produced and is easily available?

The schools we visited were small, undergraduate and liberal-arts. The atmosphere was welcoming and friendly in ways that really surprised me. While it may not be fair to compare MSU to environments like that in terms of atmosphere, I still asked myself: "What am I doing to welcome or assist those who I know are visitors or potential students?" A brief and random encounter with a staff member or a student on the sidewalk can make a huge impression on a visitor – it happened to us and we were profoundly impressed.

But, more to the [Information Technology]

point, I found myself taking a hard look at online and physical information resources available to us as we 'shopped.' I observed a wide variety of available resources during our week. The worst was the Biology Department that we had a hard time finding, had an empty administrative office, no print materials and frankly a shabby set of laboratories. Topping that off was a departmental Web page that was pretty much useless, but it was pretty. In contrast, a Music Department had pristine facilities the staff obviously cared about, an abundance of print material of all kinds, a Web site that contained rich information organized intuitively and logically, and an atmosphere so full of energy it fairly crackled.

I wanted to share my lessons learned with you, and hopefully challenge you as I've been challenged to look at the College-level electronic resources and ensure we're doing what we can to provide the best information. I'll pose the challenge as a list of questions. I think they are very important and all resulted from my observations over spring break. Please note that I don't ask 'does your page look nice?' That could be the least important question!

- Are your Web pages consistent in graphical format with those of the rest of the university?
- Do you stick to what's important on the page and keep it from being cluttered?
- Are your faculty easy to find on your site and is the listing up to date? Do you include office locations for each? Photos?
- Is there a current C.V. posted for every single faculty and researcher as well as a brief description of the work they do? Also, don't underestimate the power of including a little bit of personal information and interests as well.
- Do you list courses taught for every faculty member? Are you including the name of the course as well as the number?
- Are your field research and off-campus (including international) opportunities clearly listed and richly documented?
- Your facilities are a crucial part of recruiting. Besides being well cared for, are your facilities described well on your site and does the description convince the visitor that you are proud of them?
- Is the administrative office well described on your page? Staff should be listed, and the location in the building and on campus should be clear enough to find practically blindfolded. Is the office physically appealing, welcoming, and are there print materials attractively displayed?

Thanks for reading-
Matt

Recipe of the Month

Barbeque Beef Casserole

2 lbs ground beef
1 large onion, diced
1 minced garlic clove (or more)
1 green bell pepper, seeded and diced
1 (10 oz) can whole kernel corn, drained
3/4 c barbeque sauce
1 t Worcestershire sauce
1 (14.5 oz) can diced tomatoes
2 (8.5 oz) packages corn bread mix (may not use quite the whole amount-make muffins with rest).

Preheat oven to 400 degrees. Crumble the ground beef into a large skillet over medium-high heat. Cook until evenly browned and drain. Add the onion, bell pepper, corn and tomatoes. Cook and stir until vegetables are tender. Drain excess grease, and stir in the barbeque sauce. Spread the beef mixture in an even layer in a 9x13 inch baking dish. Prepare the cornbread batter mixes according to package directions. Spread the batter over the top of the beef mixture. Bake for 20-25 minutes in the preheated oven, until the top is golden brown, and a knife inserted

into the center comes out clean.

April Birthdays

Ryan Quire	8
John Sherwood	12
Mike Giroux	12
Toby Day	15
Matt Lavin	20
Andreas Fischer	25
Siavash Taravati	26
Nina Zidack	26
Martha Peters	30