

Plant Science Says



Happy Thanksgiving



November, 1999

Open House for Ag BioScience Facility

The open house for the new Ag BioScience Facility will be on November 5, 1999. The schedule of events is as follows:

- 12:00 p.m. Luncheon to honor significant donors
1:15 p.m. Presentation in the Brick Breeden Fieldhouse. Everyone is invited. University administration and the Congressional delegation will be speaking
3:00 p.m. Ribbon cutting at ABS Bldg
3:15 p.m. Public tours of Building
Tour guides are: Shirley Gerhardt, Sue Brumfield, Bill Grey, Hope Talbert, and Amy Lindahl, Debbie Willits

The following labs will be part of the tour:

- Schutter Diagnostic Lab - 121
- Milling and Baking Lab - 127
- Biotechnology Teaching Lab - 215
- Dr. Gary Strobel's Lab - 232
- Dr. Mark Young's Lab - 333
- Drs. Stout/Lavin Lab - 332

ALBERTA BOUND: SEED LAB ON TOUR

by Stacy Biebendorf, Lucy Cooke (Seed Testing Lab) and Martha Mikkelson (Plant Disease Clinic)

In early October, we beamed up to the Great White North (Edmonton, Alberta). The purpose of the mission was to test the parameters of Ascochyta detection in pea and lentil seed at 20/20 Seed Labs, Inc., a private seed testing lab. 20/20 performs many seed quality and disease tests conducted by certified seed analysts and a resident plant pathologist. This seedy group took the time to share their lab and knowledge of seed testing with us. After the cramped conditions of their own lab, Stacy and Lucy were in awe of the bright, spacious, and state-of-the-art facilities.

Ascochyta Blight is a seedborne fungal disease that can cause significant yield losses in peas, lentils, and chickpeas. Determining infection levels in seed lots can help growers make informed planting decisions and hopefully reduce

impacts of the disease as more acres are planted to pulse crops in Montana. The detection method used involves direct plating of seeds on agar media and identifying the fungal species that grow. The workshop allowed them to gain the expertise needed to offer this disease testing service to Montana growers.

The trip began optimistically when our medium-sized sedan was upgraded to a snazzy minivan. Border crossing was no problem despite our attempt to drive our large vehicle through the semi-truck line. To their great relief, no search and seizure was undertaken. We found Edmonton to be a foreigner-friendly city with overabundant shopping opportunities and plenty of good ethnic restaurants. In the arctic of Alberta, we visited the Muttart Conservatory with its pyramidal desert, jungle, and temperate climate greenhouses. We fulfilled our obligatory tour of the West Edmonton Mall without aiding the slipping Canadian dollar. However, the Japanese and German restaurants were the great benefactors of our generous per diem allowance. Despite spending 120 consecutive hours together, we look forward to our next seed tour together.

From Whence the Apple?

Dr. Norm Weeden

We have all heard of the 'Washington' Red Delicious apple, but did you know Montana was a key apple production region before the state of Washington tapped into the Columbia River for cheap irrigation water? On the opposite side of the continent, New York still claims to grow the best and most diverse selection of apple cultivars in the United States.

Where did these apples come from, anyway? John Chapman (Johnny Appleseed) may have planted many of them (rather than an aimless wanderer, he was a shrewd businessman who set up many nurseries in Ohio for the purpose of supplying apple seedlings to new settlers), but my question refers to the actual origin of the domesticated apple. A first response might be to point to early horticulturalists, but many of our familiar apples such as

Pippin, Red Delicious, Golden Delicious (no relation to Red Delicious), Granny Smith and McIntosh were obtained as chance seedlings without a known parentage. Only the more recent cultivars (e.g. Fuji, Gala, Empire, and Jonagold) are products of breeding programs. Thus, most early cultivars were selected from seedlings growing around established orchards or in backyard gardens. The origin of apple as a crop remained somewhat of a mystery, with speculation as late as the 1980s that the domesticated apple was produced by some complex interspecific hybridization involving species from Europe, Asia and the Middle East.

However, there had always been whispers of commercial types growing in forests in the mountains of central Asia, and with the break up of the Soviet Union these whispers began to become much louder as people from Dushambe, Tashkent and Almaty began to communicate with western scientists. The species was known as *Malus sieversii*. The few specimens available in western collections had small, yellow fruit that were not of commercial quality, but reports began to surface of trees with sweet, red-skinned fruit 5 to 8 cm in diameter.

In the late 1980s, several scientists from the United States made several trips to Kazakhstan to investigate these reports. Samples brought back from the first trip were very exciting. Although none of the specimens were of commercial quality, the genetic diversity observed in the samples otherwise closely matched that found in domesticated apple. On the second trip, the scientists were taken to a mountainous region near Tarbagatai close to the Chinese border. Here they encountered forests of wild apples growing with red-skinned fruit with a sweet flesh. Such fruit could not be distinguished from what one might expect at the marketplace.

Further genetic analysis has provided compelling evidence that it was from these forests or similar ones in slightly different regions of central Asia from which the domestic apple originated. Seed or scion wood apparently was taken westward along the Silk Route to Europe and then to the New World. Interspecific hybridization has occurred only relatively recently when the imported domestic apple began to be planted near the European apple (*Malus sylvestris*) or one of the four species native to North America. Breeders have also made interspecific crosses, but the ancestry of most commercial apple cultivars can still be traced to those sites around Almaty, a city whose name in Kazakh means "home of the apple."

Employee of the Month - Rick Bates, 312 LJH

Rick was born and raised in Cincinnati, Ohio, moved to the



hills of West Virginia after high school, and spent the next 15 years in Appalachia. While he's now thankful that he left the mountain accents behind, he feels fortunate to have lived in a part of the country known for its bluegrass music, apple orchards and tremendous fall and spring

seasons. Rick received both his B.S. degree in Agriculture and M.S. degree in Horticulture from West Virginia University. He then entered the ranks of the extension service and worked as an urban horticulture county agent with the Ohio Cooperative Extension Service in Cincinnati, Ohio. The call of the mountains was too much however, and he left Ohio again after 18 months to take a position with the Virginia Cooperative Extension Service in Botetourt (pronounced Bod-e-tot) County, Virginia. He enjoyed extension work immensely but grew weary of the cows, sheep, and horses and after four years resigned to pursue his PhD at Virginia Tech in Blacksburg, Virginia. While at Virginia Tech he studied water relations and stress physiology of woody plants and gained a renewed appreciation for teaching. He completed his degree in mid-August 1994 and was standing in front of a class of horticulture students at MSU by the end of the month (he didn't say 'teaching' them!). Rick works with the Horticulture Science Option of the B.S. in Horticulture degree program and teaches Woody Ornamentals, Herbaceous Ornamentals, Plant Propagation, and Nursery Management. He also coordinates the horticulture internship program and oversees activities at the Hort Farm. His 'dual-track' research since arriving at MSU has focused on improving woody plant establishment and teaching methods. Rick and his wife Jeanna have three children. Colin and Jeremiah are seniors at Bozeman High School (yes, twins; they're also the main reason I have no hair) and Jacqueline, age 10 is home-schooled. Their hobbies are backpacking, biking, hiking and snowboarding.

New Employees

Cynthia Page - working for Tom Blake, 209 ABS



I have been in Montana for just over a month and I really like it. I thought it was supposed to be cold here! I have lived in many states, mostly in the west, however I spent a few years in Massachusetts and Hawaii. I received my Bachelor's degree in

Microbiology from the University of New Mexico a long time ago. More recently I earned a Master's degree in botany from Oregon State University. I have a variety of research experience in academia and biotechnology, in addition I have taught science and math. I really enjoy learning and teaching and am very excited about my new job with the Department of Plant Sciences because I am learning a lot.

After earning my Master's degree I spent three years in Colorado working on my skiing. Skiing is one of my most favorite things to do and Colorado is a fabulous place to ski. I have never skied at Bridger but I have heard that it is a challenging and fun mountain. I look forward to the snowfall and hope to see some of you as we are sliding, gliding (tumbling and fumbling) down the slopes.

Mark McBroom - working for Pam Border, 233 ABS



I'm originally from Colorado. I moved up here on a whim six months ago after graduating from Colorado State University. My girlfriend and I loaded up the truck and my two dogs and headed to Bozeman, with no prospect of a job or home.

Luckily after a month of unemployment and homelessness, things started to look up. We found a house in Belgrade that would take two very large dogs, I landed a job with Pam Border and was offered a job with Dr. Weeden, all within the same week. I wasn't going to give up until I had a home and a good job. Unfortunately, a double major in botany and zoology, along with only six months of genetic research at the academic level, doesn't necessarily guarantee a good job within my field. However, I am happy to say I have found a great spot here at MSU and am thankful to those who have helped me along the way. Next year I will continue on with my education and pursue my MS degree out of state. Until then I will spend my weekends exploring every mountain range I possibly can. I have truly found a little slice of heaven here in Montana.

Michelle Fisher - Seed Lab, 710 LJH



Hi! My name is Michelle Fisher and I'm the new Seed Analyst in the Seed Lab. I am also an MSU student and will receive my bachelor's degree in Microbiology in December. I am originally from Shelby, Montana. I am married

and have a three and a half year old son. Needless to say, I keep pretty busy. When I'm not working or studying or

cooking or doing laundry, I like to scrapbook and quilt. My husband is an electrician and loves to hunt and fish and do all the outdoorsy Montana stuff. I'm learning a lot at my new position and find the work really interesting. I look forward to meeting everyone in the department. See you around!

Jerzy Przyborowski - working for Dr. Weeden, 233 ABS



I am from the University of Warmia and Masuria in Olsztyn in Poland. I was an assistant professor in the Department of Plant Breeding and Seed Production. My wife Bozena and 3 children - Lukas (10), Agate (7), and Wojciech are all still in Poland. Bozena works in public radio in Olsztyn as a journalist.

My responsibilities here include doing a pea linkage map together with Dr. Norm Weeden and I plan to stay here until July of 2000. I enjoy working, sightseeing, climbing, and swimming.

Brian Beecher - working for Mike Giroux, 124 ABS



Brian Beecher is a new post-doc in the Giroux laboratory. He recently received his Ph.D. in biochemistry from the University of Missouri-Columbia for work exploring the role of ribonuclease activity in interspecific pollen rejection in tobacco. He is now

switching gears a bit to investigate genes involved in wheat quality, and is looking forward to the new learning experiences that this new system will present. His wife Connie has an M.S. in speech and language education. She is currently finding herself a niche in the community due to her experience working with autistic children in the classroom. Brian has lived near the Missouri river most of his life, but the muddy brown river he is familiar with bares little resemblance to its crystal-clear headwaters here in Montana. Although he would not classify himself as an outdoorsman, he enjoys camping, hiking, hunting, and fishing. (At least he has fond memories of doing that kind of thing before graduate school!) Fly-fishing has always appealed to Brian, and he is hoping to find time to learn something about it during his stay here among the world-class trout streams. Neanderthals are among us, even now.

Announcements

John Sherwood

Disruption of the sexual cycle of fungal plant pathogens with pheromone analogs, USDA

November Birthdays

| | |
|---------------|----|
| Jim Berg | 4 |
| Rick Bates | 4 |
| Jack Martin | 8 |
| Jia-yao Li | 8 |
| Harvey TeSlaa | 15 |
| Ron Lockerman | 18 |
| Adam Richman | 22 |

Happy Birthday!



Recipe of the Month - Martha Mikkelson

Crockpot Tofu and Spinach Manicotti- From Sunset Crockery Cookbook.

(This is a great recipe - even for compulsory meat eaters!)

Ingredients:

Large crockpot

1 onion, medium sized and finely chopped

1 stalk celery, thinly sliced

3 cloves garlic, minced

2 teaspoons Italian herb seasoning or 1/2 tsp each of dry

Basil, marjoram, oregano, and thyme

1 lb soft tofu

1 package (about 10 oz) frozen chopped spinach, thawed and squeezed dry

1/4 cup grated Parmesan cheese

1/2 tsp salt

1/8 tsp pepper

12 manicotti shells (about 6 oz total)

2 large cans (about 15 oz each) tomato sauce

1/2 cup dry red wine

1 cup (about 4 oz) shredded mozzarella cheese

In a 5 quart or larger electric slow cooker, combine onion, celery, garlic and herb seasoning. In a large bowl, combine tofu, spinach, Parmesan cheese, salt, and pepper; mix well. Stuff manicotti with tofu filling.

Arrange filled manicotti in a single layer over onion mixture in cooker. In bowl you used for filling, mix tomato sauce and wine; pour over manicotti. Cover and cook at low setting until manicotti are tender when pierced and no raw, heavy flavor remains (4 or 6 hours).

Sprinkle with mozzarella cheese. Increase cooker heat setting to high; cover and cook until cheese is melted (about 15 more minutes). Makes 6 servings.