

Plant Science Says



*Happy
St. Patrick's
Day!*

Volume 13, Number 2

March, 2010

Wheat Quality Council Meeting, Feb 17-18

By Jim Berg



The Wheat Quality Council (WQC) held its annual meeting, forum and technical review sessions February 16-18, 2010 at the KCI Embassy Suites Hotel in Kansas City, MO with

over 135 industry participants in attendance. Frank Schoonover, a wheat grower from Dutton and a member of the Montana Wheat and Barley Committee, was also in attendance from Montana.

The WQC is the only industry-wide organization that brings together all wheat interests from breeders and producers to millers, processors and bakers. These participants are provided information on the milling and baking qualities of wheat varieties that will be released, grown and processed in the next few years.

Wheat breeders have an opportunity to network with the industry to determine what quality characteristics the millers and bakers would like to see in new wheat varieties. Forty-eight breeder-submitted lines and checks were entered for evaluation from the 2009 growing season. These lines were hard spring, soft winter and hard winter wheats. The MSU winter wheat breeding program entered one check variety (Yellowstone) and two experimental lines (one hollow and one solid-stemmed sawfly resistant). Within the group of eight public and private breeding programs involved in hard winter wheat submissions, the Montana program ranked #2 overall for mill and bake properties, behind lines from Colorado State. The hollow-stemmed experimental line (MT06103) was

#2 overall in combined milling and baking scores for hard winter wheats. Our Yellowstone check ranked #1 for alkaline noodle quality of the 21 hard winter wheats tested. Even the sawfly experimental line (MTS0713) was in the top five lines for tortilla preparations on tests conducted at Texas A&M.

The theme of the forum for 2010 was **"Wheat—Grading It, Losing Acres Of It, and Breeding Changes To It."** Dana Peterson, National Association of Wheat Growers, discussed challenges to the wheat industry, lost wheat acres, and plans in the works for moving forward from now. He stated that production needs to double by 2050 with less water. He believes genetic improvement for this challenge can increase through public-private partnerships in addressing biotech (GMO) traits of interest such as drought tolerance, improved yield, disease tolerance, and nitrogen use efficiency. Concerns in the future are public acceptance and potential discounts for growers if they grow GMO wheat.

Darrell Hanavan, Colorado Wheat, presented information on Public/Private wheat research collaboration in light of the recent re-entry of several private companies into wheat breeding. Monsanto spent \$45 million to acquire WestBred LLC and are perhaps 8-10 years away from delivering GMO wheat. Lima Grain (Argentina) and Bayer (Germany) plan to establish North American wheat breeding programs. At present, 60% of all wheat acreage is planted to public varieties.

The keynote dinner speaker on Wednesday was Len Heflich, VP of Quality Systems for BIMBO USA (headquartered in Mexico City).

Mr. Heflich talked about the certainty and uncertainty in flour from a baker's perspective. He also pointed out the many changes that have taken place in the baking industry over the years. He made some observations about the possible introduction of biotech wheat in the next few years from the viewpoint of the American Bakers Association.

Technical quality concerns in the next few years may include more whole wheat quality evaluations as public preference moves more toward purchase of these foods. Also increasing demand in the domestic market for wraps and tortillas may move testing away from white pan bread evaluations.

Mali Night 2010: Dancing Across the Gap

Three hundred and thirty people lined up at the Emerson Cultural Center Wednesday night, February 24, 2010, to sample Malian Mafie (vegetarian peanut sauce and rice) and a Cheyenne style meat stew before viewing the film. It was the Seventh Mali Night in Bozeman and the first Mali-Northern Cheyenne Night in Bozeman.



Florence Dunkel along with Courtney Miller, and Jennifer Lower—coordinators for Mali

Courtney Miller, Liberal Studies senior in PSPP 465, and Jennifer Lower, senior in Liberal Studies Multicultural Global option were Event Coordinators.

While some ate stew and Mafie, others sipped a cup of locally produced peppermint tea contributed by Robert Diggs and perused the booths set up by local organizations working in Mali or other parts of Africa. These included: Nine Villages, and NGO begun by MSU retired finance professor, Dean Drenk and a Malian MSU graduate student in Engineering; Engineers Without

Borders; and www.mama.net, a handicraft enterprise begun by the Women's Association of Sanambele, Mali in collaboration with MSU French professor, Ada Giusti and PSPP professor Florence Dunkel.

Northern Cheyenne elder, Ms. Alberta Fisher, gave the blessing of the food, the Chet Leach Children's Malian Drummer Group entertained us in the lobby followed by Raymond Burket and the Djembe drummers in the Emerson Theater. Florence opened the evening by asking the audience, Why Mali? She went on to say that Mali is one of the most materially poor countries in the world, but their gross national happiness is probably one of the highest. Why? Is it because they are mainly subsistence farmers and herdspeople with a strong, intact culture? The film is about crossing cultural gaps, not only between peoples of different ethnic origins, but between professors and students in different disciplines. Sometimes, when there is a forced assimilation, there is a clash within one's self between two cultures. The film arose from a teaching and learning process called the *Quiet Revolution*. George Ayittey, Ghanaian economist and well known author, speaker, and global thinker coined the term *Quiet Revolution* when he came to Bozeman and saw what was happening here in 2008. The *Quiet Revolution* is a change in teaching and learning in which we pay attention to the cross cultural gap. We connect knowledge with the community that wants to have that knowledge. In the process, we all learn a lot.

This teaching and learning process focused on Mali and was begun by MSU in 1999 by Florence Dunkel and Bob Diggs and quickly moved across the state to Chief Dull Knife College in Lambe Deer, to University of Montana, to Minnesota, Virginia Tech, and University of California. Now over 100 students have traveled to a Malian village and exchanged information and ideas with the villagers. In the process, their lives are changed and they gain skills useful where ever they go, many enter the Peace Corps. Some enter Medical School or graduate school. Others have become environmental engineers, geographers, entomologists, business managers.

At least 50 of these university/college students

have been from Montana, MSU or Chief Dull Knife College. This process is now changing the way instructors teach. Hundreds of students who never travel to Mali, now benefit.

The two most recent externs (overseas study) presented their results before the film began. Katy Hansen, ASMSU vice-president and senior in Economics and Industrial Engineering was the first solo in the entire program. Katy Hansen, went on her own to Mali, mentored in Mali by the Mali Agribusiness Center, 6 midcareer scientists and an engineer trained at MSU. In 2008, she was selected to travel on her own to Mali to address the specific requests of a **Women's Shea Butter Production Cooperative** in a Malian village, the village of Zantiebouguou. This effort required that Katy dance across many cultural, linguistic, and discipline gaps.

Wendy Nickisch, also a graduate of PSPP 465R, is a senior majoring in Organismal Biology and a pre-dental student. Her project focused on two of the main ways villagers in small communities like Sanambele, Mali, manage malaria. These are biocontrol of mosquito larvae and cooperative enterprises by the villagers, like the handicrafts, that generate cash for bednets and malaria medicines.

Abdoulaye Camara, former PSPP student, now tenured scientist at the national agricultural research institute (IER) in Mali welcomed the audience on behalf of all of the people of Mali. Conrad Fisher, Northern Cheyenne spokesper-

son from Lame Deer, Montana welcomed the audience on behalf of the Northern Cheyenne people.

The film, *Dancing Across the Gap: Journey of Discovery* was produced by Eric Chaikin of Sustainable Productions, New York NY. with a grant from USDA Higher Education Challenge Grant program. Florence Dunkel is the P.I. It is a film about forced assimilation and intact cultures, in stories told by three Northern Cheyenne women, who were Mali externs. Audience questions and comments were fielded by one of the Cheyenne women from the film, the Cheyenne videographer, Josette Wooden Legs, and Abdoulaye Camara, one of the translators in the film.



Apsaaloke fancy dancer performing after the film showing at Emerson Cultural Center.

The gala evening closed with Cheyenne singing, drumming, and dancing. Singing and drumming were by Conrad Fisher, Shane Doyle, Burton Fisher senior, and Jason Baldes. Mr. Chris Parrish, an incredible "fancy dancer" attired in regalia that he created. He has earned the right to wear this regalia because of his

extraordinary skills and athleticism demonstrated all over the U.S. at pow wows. The evening ended with the children joining in the round dance on the stage.

Montanans came from Lame Deer, Crow Agency, Missoula, and Choteau for the event. It was a celebration of the cultural richness and the depth of teaching and learning that is taking place in what is becoming a national process for college students.



Following the presentation of the film, Abdoulaye Camara and Northern Cheyenne women, Josette Wooden Legs (left) and Janelle Beartusk (right) answer audience questions.

Thank you to the sponsors of this event— ASMSU, University Studies, MSU French Club, On the Rise Bakery, Sola Cafe, and Perkins Restaurants. DVDs of the film with guidelines for use in the classroom are available from Florence Dunkel at 994-5065 or 451-9343.

Twenty-second Annual Food Insect Luncheon

One hundred and twenty five Montana State University students, faculty, and families gathered in the Plant Growth Center Friday 26 February 2010 for a 4 course luncheon with a take-away treat. The event began with sensory evaluation of 10 different local and international honeys. Beekeeper David Baumbauer (also



Dave Baumbauer engages students, faculty, and their guests with bee-utiful stories at the 22nd annual food insect luncheon in Plant Growth.



While the mealworms (beetle larvae) and crickets simmer and the waxmoth larvae are boiling, students and their guests sample a selection of honey products.

manager of Plant Growth Center) presented a brief update on honey bee colony collapse and other interesting honey bee news items. David's



Abdoulaye Camara, plant microbiologist at l'Institut d'Economie Rurale in Mali, explains how Malians use food insects.

interpretive stories on life in the hive will long be remembered by young and older luncheon guests.

The just published book, *Chronicle of a Changing Future: The Food Insects Newsletter*, was available for perusal and is now on sale at the MSU Bookstore. Editor of the 414 page volume, Florence Dunkel was the chief chef for the luncheon. She was assisted by teaching assistants, Tiphani Lynn and Taven Anderson, majoring in neurobiology and plant sciences, respectively. Ian Swan, Brendan Johnson, and Elly Waite, BIOL 106 students doing their individual research paper on specific aspects of food insects issues assisted with food preparation and serving.

After clearing their palates with lemon water, guests were invited to try the wax moth larvae cocktail and cheese fritters while they listened to the sizzling Chinese chirpy stir-fry. Mealworm quesadilla was the other main course item. Dessert was fresh cinnamon apple fritters. The take-away treat was mealworm brownies. There were duplicate servings at 12: 15pm and 2: 15pm. in room 214 with the walls draped in insect saliva (woven into silk).

Reporters present were from *The Exponent* and *Field and Stream Magazine*. All of campus was invited. For students of Biology 106 Issues of Insects and Human Societies, an MSU Contemporary Issues in Science Core Course taught by Florence Dunkel, it was a required laboratory. To reduce anxiety, students are

not told in advance that this is the food insect laboratory. Guests were students from PSPP 465R, Health, Poverty, Agriculture: Concepts and Action Research, taught by Dunkel. Thirty five students from Nutrition Fundamentals taught by Melody Anaker attended. PSPP was represented by Bill Hock and several Horticulture students. The Montana Seed Potato Lab sent several representatives. One BIOL 106 student brought her family of 5 from Des Moines IA. There were three students from the Netherlands and one from Norway.

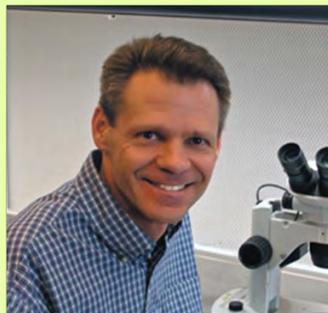
For guests, there were slide presentations and an 8 minute video segment from Discovery Channel's World of Wonder introduced by Micheal Dorn and featuring entomologists Arthur Evans and Florence Dunkel and including MSU Film professor Paul Monaco. A lively and informal discussion ensued during dessert with guests, students, Native Americans, and a special guest, Abdoulaye Camara, from Mali. Abdoulaye is a tenured scientist with the national agricultural research organization of Mali, l'Institut d'Economie Rurale and is here for 3 months to prepare for opening their Plant Disease Clinic. Both Abdoulaye and Dunkel shared stories with students and guests of insect eating by the children in Mali.

In the world, Europeans and people of European descent are the only groups not known to have food insects as part of their history or current practice. Fifteen hundred species of insects have been documented as good food sources around the world. Insects, those terrestrial land shrimp, make sense as a food of the future, more nutritious than steak and chicken, easy to rear, clean, and have a much higher conversion rate than cattle. And, most important, insects are delicious!

Awards for Excellence

The MSU Alumni Association and the Bozeman Area Chamber of Commerce hosted the twenty-eighth annual Awards for Excellence Program on Tuesday, February 16, 2010. The evening, dedicated to excellence, is designed to recognize students who have outstanding records of achievement in academics (must have a 3.5 G.P.A. or higher and senior standing), extracurricular activities and service to the University and the Bozeman community. These students are selected by the academic college Deans as

the most outstanding in their colleges. **Forty of MSU's top seniors were honored this year** along with a mentoring faculty person, selected by each student honoree, to also receive an Award for Excellence. The faculty Award for Excellence, in particular, has come to mean a great deal, as it is recognition directly from a student on whom they have had an incredible impact.



In our Department, Rhiannon Wilson chose Dr. Bill Hoch as her mentoring faculty person. **She states, "I** chose to nominate Dr. Hoch because his passion for horticulture is apparent and he has inspired me to excel

throughout my education and into my career. Without his encouragement and faith in my abilities, my college education would not have been as fulfilling."



Dr. Bill Hoch commented, "Rhiannon Wilson has been a truly outstanding student and member of the Bozeman community. She was the driving force behind the revival of the MSU Horticulture Club, where she organizing a number of community service projects while serving as President. She recently published her Undergraduate Scholars project in a scientific journal, and throughout her time at MSU Rhiannon maintained a 4.0 GPA while putting herself through college working both on and off campus jobs. **She is a rare inspiration!"**

Kalinina-Turner Wins Award

Aleksey Kalinina recently won a senior award for excellence. He nominated Jill Davis as his mentor. Aleksey is the son of Elena Kalinina-Turner, Research Associate in Bill Dyer's Lab.

Aleksey states, "Throughout our English class and as the faculty adviser in our club – Students for Danforth Park, Jill has pushed me to overcome my insecurities, be more outgoing, be a better leader, and an agent of positive

change. She taught me that nothing is impossible and that a bit of craziness and positive thinking transforms our world and those around us. She showed me by example how to commit to projects that I begin and how to get others excited about ideas of positive change. She is the greatest club adviser imaginable, pushing us students forward, encouraging and inspiring us in countless ways. Jill sparks positive change in people and on this campus and is most deserving of the Montana State Award of Excellence.



Jill Davis says about Aleksey, "You've given us reason not just to be proud, but also optimistic about the future of America when there are students like you in our midst! In lead-

ing others with the Danforth Park initiative- Alexey displays strong core values of inclusion, optimism, empowerment, curiosity, contribution and most of all compassion. He is a master at bringing every one to the table and making sure every voice is heard, modeling transformative leadership skills, delegating for inclusion, and leading a huge project from the heart and with heart. All who have been part of this restoration process from faculty, staff and student, know this to be true. Alexey has taught us about engagement- at a time when so many suffer from **disengagement and alienation ...he has taught us about effectively voicing needs and wants- and getting the job done!**

Miles wins awards

Greg Miles, a junior majoring Biotech or biochem was recently awarded a Weed Science Society of America Undergraduate Research Award in the amount of \$1000 for his proposal entitled "DNA Sequencing of ACCase Domains in Pinoxaden-resistant *Avena fatua*." Greg was also awarded an MSU Undergraduate Scholars Program scholarship in the amount of \$750 for his proposal entitled "Investigation of Herbicide Resistance to Pinoxaden in *Avena fatua*." The re-

search for these papers was done in Bill Dyer's lab.

Montana Ag Live! Spring Schedule

March 28 Dr. Tracy Sterling, LRES Dept Head of LRES and Weed Scientist, "Basic Research Methods to Solve Common Production Issues"

April 11 Ian Foley, Entomologist, MT Dept of Agriculture, "Native Pllenators as an alternative to declining honey bee numbers"

April 18 Adam Sigler, MSU research scientist, " taking care of your ground water and septic system issues".

April 25 Dr. Marcia Goetting, MSU's Department of Agricultural Economics, "Transferring farms and ranches from generation to generation"

May 2 Rob Dunn, Co-owner of Westscape nursery and MSU LRES collaborator, "University and Private industry cooperation including using plants to detoxify national wildlife refuges which are high in selenium and sodium that often results in bird toxicity"

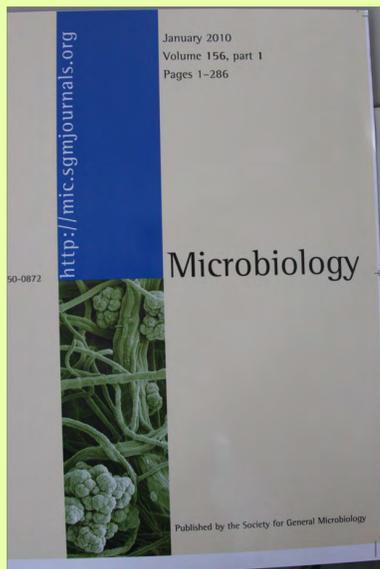
May 9 Kim Falcon, Director of the Montana Wheat and Barley Committee, "The Montana Wheat and Barley Committee, helping producers and consumers"

May 16 Dr. Dale Clark, Monsanto/ Westbred Plant Breeder, "How corporate plant breeding can be beneficial for small grain producers".

May 23 Dr. Waded Cruzado, "MSU President, "Views of the Land Grant Mission Relative to the College of Agriculture and Montana's Agricultural Industries"

June 6 TBA

June 13 Dr. Cathy Cripps, Mycologist, "Spring Mushrooms"



Publications

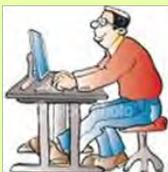
Angela M. Mitchell,
Gary A. Strobel,
 Emily Moore, Richard Robison and Joe Sears, "Volatile antimicrobials from *Muscodor crispans*, a novel endophytic fungus", *Microbiology* (2010), 156, 000–000.

The photo is an SEM of *Muscodor crispans* taken at BYU by Bill Hess.

Bob's Byte By Bob Johnston

Microsoft Word—Autocorrect

Word lets you print currently selected text. (In Word 2007, choose the MS Office Button, Print, and then the Selection radio button. In Word 2003, chose File | Print, and then Selection.) It won't let you print multiple non-contiguous selections, however, which is sometimes more useful. The good news is that it will let you copy and paste non-contiguous selections, which gives you a simple work-around. Highlight the selections (by holding the control key down as you highlight each selection with your mouse), then give the Copy command (Ctrl-C), open a new document, paste the selections into the new document, and print.



Autocorrect fixes – Word 2007

By default the AutoCorrect system fixes many common spelling errors and also applies some automatic formatting rules. If you point at the just-corrected text the icon you mentioned appears; clicking it reveals a menu that lets you undo the correction, suppress that correction in the future, or open the full AutoCorrect Options dialog.

Next time you see that icon open the menu and select **Control AutoCorrect Options**. Or, if you prefer to take care of this right away, click the round Office button at top left, click the **Word Options** button, click **Proofing** at the left, and click the **Auto-Correct Options** button. Uncheck the box titled **Show AutoCorrect**

Options buttons and click **OK**. You won't be bothered by that icon in the future. If AutoCorrect makes a correction you don't want, just press **Ctrl-Z** to reverse it.

There's a similar feature that others may find annoying. When you paste formatted text into Word an icon appears offering a Paste Options menu. This lets you choose to make the pasted text match the formatting of the destination document, among other things. But it frequently gets in the way—even more so than the AutoCorrect Options button. To get rid of it, click the Office button, click the **Word Options** button at the bottom of the drop-down menu, click **Advanced** in the list at left and scroll down to **Cut, copy, and paste**. Uncheck the box titled **Show Paste Options** and click **OK**. Gone!

Thx to PCMagazine for the tips - rhj

Proper Cleaning of Pruning Tools By Toby Day



This is the time of the year that Extension agents for counties and reservations give recommendations on proper pruning. When recommending pruning tech-

niques, one of the more common recommendations is to disinfect or sterilize your pruners between each cut, so as not to spread diseases to other parts of the tree or shrub and especially not to other plant material. Usually the recommendation is to use a 10% bleach solution to spray or dip your tools into.

While it is still encouraged to clean and disinfect your pruning tools while pruning, 10% bleach should no longer be the recommendation. There are several reasons why.

First, the companies that produce bleach products even state in their material safety data sheet (MSDS) that prolonged contact with metal may cause pitting or discoloration. The pitting that occurs on pruning tools makes the tools more prone to carry microbes responsible for the many diseases we encounter in trees and shrubs.

Chlorine bleach also can be dangerous to your health, causing irritation to your skin, nose, throat and even your lungs. Some medical conditions can be aggravated by inhalation exposure to bleach. They include: asthma, chronic bronchitis, and obstructive lung disease.

Lastly, there is the possibility of plant related damage with the use of chlorine bleach. If bleach is left on your tools while making the next cut, it could damage the cut tissue because of the phytotoxicity of chlorine bleach. This may mean that the delayed formation of **callus tissue may slow the tree's natural healing process.**

The disinfectant that I am now recommending is rubbing alcohol or Lysol. Both are not as destructive or corrosive to pruning tools, are readily available, and are safer than using the 10% bleach method.

As a final note, make sure that you wipe your pruning tools clean before and after each cut. While you think you are disinfecting the tool by simply spraying it; any dirt, pitch, or other debris that remain on the tool can still infect the next cut if the tool is not wiped entirely clean.

Most of the information about this and other subjects of interest in horticulture can be found on a great website from Washington State University Extension Urban Horticulture, called **"Horticulture Myths" written by Linda Chalker-Scott PhD, Extension Urban Horticulture.** http://www.puyallup.wsu.edu/~linda%20chalker-scott/horticultural%20myths_files/index.html

Dougher's St. Patrick's Day Party

Tracy Dougher would like to invite everyone to their house for the 17th Annual St. Patrick's Day Party on Saturday, March 20, at 5:30 p.m. Their address is 1335 Cherry Dr. in Bozeman.

Recipe of the Month

St Patrick's Day Zucchini-Oatmeal Cookies

1/2 c butter
3/4 c sugar
1 egg
1/2 t vanilla
1 1/2 c grated zucchini
(keeps them moist)
1 1/2 c flour
1/2 t baking soda
1 t cinnamon



1 c quick cooking oats
1 c granola
2 c semi sweet chocolate chips

Preheat oven to 350°. In a medium bowl, cream butter and sugar until fluffy. Stir in the egg and vanilla, mix well, then stir in the shredded zucchini mixture. Finally, stir in the oats, granola, and chocolate chips. Drop dough by the teaspoon unto unprepared cookie sheet. Leave 2 inches between cookies. Bake for 10-12 minutes in the preheated oven.

March Birthdays

Dai Ito	11
Yousef Zadegan	17
Tamara Vook	24
Victoria Blake	28
Elaine Nichols	31

