Plant Science Says

Happy 4th of July!

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Travel to Kyrgyzstan to Evaluate the Central Asia IPM CSRP Project and Participate in Diagnostic Workshop

By Barry Jacobsen

On June 1-5, 2009, I travelled to Bishkek, Kyrgyzstan to evaluate the USAID IPM Central Asia CRSP project "Ecologically Based Participatory and Collaborative Research and Capacity Building in IPM in the Central Asia Region". This project is being conducted by Michigan State University and the University of California- Davis. I also spoke at the project's IPM Forum on IPM and the Plant Disease and Pest Diagnostics Workshop lead by Dr. Sally Miller (The Ohio State University) of the IPM CRSP Diagnostics Global Theme IPM CRSP Project on triaging samples and identification of fungal pathogens. The three day IPM Forum was attended by approximately 58 project participants and stakeholders from Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan in addition to the project team members from Michigan State University (Drs. Maredia, Landis, Pett, Bird, Baributsa), the University of California- Davis (Dr. Frank Zalom), and ICARDA (Dr. Mustafa El Bouhssini, Entomologist) and the World Vegetable Center (Dr. Ravza Mavlyanova, Central Asia Coordinator). Both ICARDA and the World Vegetable Center (formerly the Asian Vegetable Research and Development Center) are important team members in the IPM CRSP project. At the end of the forum there was extensive planning for the next five year phase of IPM CRSP activity in Central Asia. The next project will focus on development of IPM packages for wheat, tomato and potato.

View of Bishkek and Tian Shan Mountains – elevations to 20,000 feet.

This part of the world is much like Montana with high mountains and agriculture concentrated in mountain valleys. Crops include, cotton, wheat, potatoes, barley, many fruits (apples, cherries and other stone fruits) and vegetables (tomatoes, melons, cucumbers, squash, onions). In the mountain valleys they will have 120-140 frost free days. Cattle, sheep, goats and horses are the major livestock and meat

sources in these predominantly Muslim countries. Horse and lamb were served at most meals. Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan are former republics in the former USSR that are now independent countries. Literacy rates exceed 90% in the Central Asian Region with Russian being a unifying and common language.

A legacy of inappropriate insecticide use has resulted in widespread insect pest resistance to insecticides and prior widespread use of chlorinated hydrocarbon insecticides has created many problems. Because of this, the Soviets invested heavily in "Biolabs" that produced insect predators and parasites. In Kyrgyzstan, there were more than 150 such labs during the Soviet era with a similar number in Uzbekistan. A large capacity exists for the production of insect predators and parasitoids based on the widespread investment made during the Soviet era. Much of this physical capacity is now unused due to funding issues, however human capacity should still be available. One lab we toured produced two different predacious mites (*Amblyseius cucumis and A. mckenzie*), lace wings, *Beaveria bassiana* and *Trichoderma harzianum .* The predacious mite production was a direct result of training in Dr. Frank Zalom's lab at the University of California-Davis. Of interest is the use of native flowering plants and their use as refugia in agricultural landscapes for insect predators and parasites. This part of the project was led by Dr. Doug Landis of Michigan State University.

Countries in this region are geographically isolated and since the end of the Soviet era have had little access to new IPM technologies. In examining the libraries at the Kyrgyz Agrarian University in Bishkek, it was obvious that investments in journals had dramatically declined in the late 1970s. Per capita incomes are $390- $610 per year for the 39 million people in Uzbekistan, Tajikistan, and Kyrgyzstan. Kazakhstan has 5 million people with a per capita income of $3790.00 per year owing to the oil and gas wealth of this country. Since independence and the dissolution of the collective farms, approximately 80% of farmers are subsistence farmers, that is they sell little product off the farm, 15% sell some product off farm and 5% can be considered commercial farmers depending on off farm sales.

A major problem discussed was Sunn pest (Eurygaster integriceps), a stink bug- like insect that feeds on wheat and barley heads with the result that 3% kernel damage can make the grain useless for bread making since it won't rise. The insect is widespread in central Asia and very damaging. Damage from stripe rust is widespread and a major concern as is the finding of a stem rust race of the TTKS genealogy (Uganda 99) at high elevations in Tajikistan. On cotton and vegetables, thrips and virus diseases transmitted by thrips (Tomato spotted wilt and peanut bud necrosis) were of greatest concern. An insect, melon fly, is causing major losses on several vegetable crops. Representatives from all the countries wanted help with development of a potato seed certification program. Potato is served with every meal and is termed "the second bread". Yields are very low primarily due to virus diseases. Because of the geographic isolation it is difficult and very expensive to get certified seed. Some is imported from Germany, Poland and the Netherlands but the cost is almost prohibitive.

The people from the central Asian countries were very friendly and were eager for exposure to new IPM and other scientific technologies. At this point there is no Extension Service so farmer training is done primarily through Farmer Field Schools conducted by non-governmental organizations (NGOs). The Central Asian IPM project is working with several NGOs including Helvitica (Switzerland), the Aga Khan Foundation and a group called Training Advisory Innovation Center that is funded by several countries and foundations.

The Hops Are In!
By Vicki Blake

On June 4, with an exceptional effort from all members of the Blake lab and a few volunteers, we strung the vertical vine support lines, dug holes, planted 250 hop plants and laid a drip irrigation system in the

new hopyard built on the MSU Horticultural Farm last summer.

Although traditional vine supports are tied onto the upper support trellis (ours being ~14 feet off the ground) by people on stilts, we devised a method that involved tying the end of a 60 foot piece of 'binder twine' to two 2-ounce fishing weights, and throwing the weights over the steel cable. There are a few remnants of miss-thrown weights scattered throughout the yard, but overall this method proved satisfactory.

The hopyard is divided into 15 sections, each holding 44 plants. Currently, the only full sections are 'Fuggles' and 'Cascade'. Cascade, being a hop variety that is well-adapted to the Pacific Northwest, seems to have weathered the transplanting the best. Other varieties we planted are Aromet, Northern Brewer, Mt. Hood, Early Cluster, Swiss Tetnanger, and a *Humulus lupinus* native hop. More cuttings are rooting in the PGC greenhouse and we will plant them in mid-July to fill up the sections. These include cuttings for Hallertauer which did not root well under our previous rooting regime, but have since been propagated.

We have space for six more varietals in the hopyard, and will be seeking 'Willamette', 'Magnum', 'Nugget' and are open to suggestions for the remaining space. We have also offered space to hops breeders in Oregon and Washington.

After planting, the temperature dropped to around freezing which damaged the leaves of most of the hop plants except for Cascade. By June 17th the hops were breaking buds on the woody stems and in the axils of the leaves on the trained vines.

Work in the hopyard continues as we weed and train the vines up the trellises. Future work will include placing signs to designate the varietals and building stand-alone trellises to demonstrate small backyard hop growing systems.

Many Thanks to Roy Lambeth, Edinburgh Scottland for the photo of Hops pickers / stringers. (Hops is used to flavor beer!)

The Blake lab would like to thank Dean Jeff Jacobson for his generous support of this effort. We also wish to thank David Baumbauer for his allotment of the land at the Hort Farm. Of course this could not have been done without Stan Bates, the Blake lab

field tech and the Blake lab members Duke Pauli, Chris Shafer, Kelley Thornsberry, Paige Tresidder, Bradee Smith, Aidan Bickford and volunteer Pete Zuck and Robert Blake.

Ivie Group Works in St. Lucia

The Ivie lab is two-thirds of the way through their European Union funded expedition to document the insect biodiversity of St. Lucia, West Indies. Entomology graduate students Ross C. Winton and Crystal Maier have been working with Michael Ivie and some 20 other entomologists to collect and identify as many

Ross Winton on the top of Piton Troumassee, one of the highest mountains in St. Lucia, and one with no trail! Photo by Melvin Smith.

beetle species as possible from the island-nation. The students and Eli Ivie have repeatedly climbed the highest mountains in the country to deliver fresh 12 volt auto batteries and other supplies to long-term trap sites, while Ivie has been limited to more level terrain work, mostly in the house/lab set up to process the material as it comes in. To date, they have multiplied the number of species known from the island many times.

Michael Ivie collecting a newly documented tiger beetle. Photo by Ross Winton

With 67 families of beetles and X00-X000 (a st ill-unknown but large number of) species now documented (up from 26 families and 181 species in the literature), St. Lucia is now documented to be among the most biodiverse islands in the Eastern Caribbean.

Crystal Maier and a friend. Photo by Ross Winton

Status of Landscape Design Position
The search to fill the position of Assistant Professor of Landscape Design is still in progress. We were unable to fill the position from the original three candidates; therefore we are going to invite other candidates to interview sometime in July.

Leila Feiz Starts New Position
I am moving out to Cornell, Boyce Thomson Institute for plant research to start working in David Stern's lab as a two- three year post doc. My main responsibility will be working on the regulation of Rubisco synthesis and assembly in maize. As a side project, I may also be working on the components of the signal transduction pathway which regulates chloroplast responses to sulfur starvation. I will sorely miss everything in Montana and Bozeman, above all; the summer field work with my advisers (Mike and Jack) at the post farm and all my friends in PSPP.

Congratulations Leila and we wish you all the best.

New Employees
Linnea Skoglund – 121 PBB

I am Linnea Skoglund, the new plant disease diagnostician. I just moved to Bozeman from Ft. Collins, Colorado where I spent over nine years as the pathologist in the Busch Agricultural Resources barley breeding program. I am delighted to move to Bozeman where I have many friends and acquaintances. And I am especially delighted to return to diagnostics, my first love as a plant pathologist. My past experiences were in the CSU clinic during my doctoral program in the 1980s and again in the 90s.

In between my tenure as diagnostician at CSU I was with the International Potato Center, first in Lima, Peru and then in Nairobi, Kenya. I worked far more on sweet potato in East Africa than "Irish" potato. It was always my dream to develop a salt and heat tolerant potato but they would never let me spend that much time at the beach! My research experience includes fungicide trials for snow molds on turf, foliar diseases of barley, major diseases of rice, Fusarium stalk rot on corn, soil solarization, Fusarium head blight on barley, and a few other wild and crazy studies.

My three cats and I will be moving into our new home in late July. I think I will be very occupied with painting. When not painting, I enjoy reading mysteries and science fiction (especially Terry Pratchett). Hiking has not been a top activity with me for years, but that might have to change. There are far fewer people on the trails here than around Ft. Collins. And if anyone has a spare horse that needs some riding, just give me a shout.

Publications
Gary Strobel, "Driving on Mushroom Fumes", Forbes.com, 5/25/09.

Answers to Your Horticulture Questions
By Toby Day

I have had my peonies in the ground for four years and they have never bloomed. What is going on? (Gallatin County)

This time of year I get a slew of questions about peonies that won't bloom. Many people believe that there is a fertility or watering problem, or that they were simply duped from the nursery that sold it to them. Some believe that if there are no ants present, the peony won't bloom.

The main reason that a peony won't bloom is that it has been planted too deep. Peonies should be planted so that the crown of the plant is no more than two inches below the soil surface. If too much soil is covering the root crown, the peony may not bloom for several years. Adding mulch around the peonies can add to the problem, creating an effect of raising the soil above the crown. Too much competition or shade can also affect the bloom of the peony.

If your peonies aren't flowering this year, you may need to move them to a less competitive and sunnier site, raise the plant so that the crown is at the proper height or remove some or all of the mulch from around the plant.

Finally, peonies do not need ants present in order for the flowers to open − this is a myth. Ants are only attracted to sugars that are produced by the flower bud and do not aid in the opening of the flower.

Bob's Byte
By Bob Johnston

In Word 2003 the status bar displays a number of useful status items that have vanished in Word 2007. Maybe you don't need an indicator to let you know that macro recording is on, or that extended selection is enabled, but it can be awfully handy to see at a glance that Word is tracking changes or that your keystrokes will overtype existing text. The Word Options dialog won't help. You can scan it 'til your eyes cross without finding any settings to bring back those handy indicators. What you need to do is right-click the status bar itself. That brings up a menu of 20 distinct items that can appear on the status bar. Now you can have it your own way.

A lot of people know that pressing the PrintScreen/PrtSc key puts an image of the entire desktop into the clipboard, and pressing Alt along with that key takes a screenshot of the active application. But a significant portion of that group doesn't know what to do next. I can tell by the number of screenshots I receive in the form of Word documents. Don't paste your screenshots into Word! The resulting file is way bigger than it needs to be. Instead, launch the Paint applet from the Accessories menu and paste the image into Paint. Now save it in a compressed image format to save space. The Portable Network Graphics (PNG) format is a great choice because it compresses the image without losing any detail. Next best is JPG, which loses some detail during the compression process. Just don't save as a BMP file. A BMP screenshot of a 1,280 by 1,024 desktop always takes 3.75MB of disk space. The file size of that same screenshot as a PNG image will vary, but it can be closer to 100KB.

If you are using Vista Business, this OS ships with an application called Snipit. This small program allows you to grab just a portion of the screen and then paste it into another program.

Thanks to PC Magazine for the first two hints.

Additions to the Moffet and Reynolds families

On Friday, June 19, Logan Anthony Moffet was welcomed into the family of Matt and

Amber Moffet. He weighed 9lbs 8oz.

On Tuesday, June 16, McKinley Layne Reynolds was welcomed into the family of Nick and Kacey Reynolds. He weighed 7 lbs 13 oz.

Congratulations to all of you!

Recipe of the Month

Five Minute Chocolate Mug Cake

4 tablespoons flour
4 tablespoons sugar
2 tablespoons cocoa
1 egg
3 tablespoons milk
3 tablespoons oil
3 tablespoons chocolate chips (optional)
A small splash of vanilla extract
1 large coffee mug (MicroSafe)

Add dry ingredients to mug, and mix well.
Add the egg and mix thoroughly.

Pour in the milk and oil and mix well.
Add the chocolate chips (if using) and vanilla extract, and mix again.

Put your mug in the microwave and cook for 3 minutes at 1000 watts. The cake will rise over the top of the mug, but don't be alarmed!

Allow to cool a little, and tip out onto a plate if desired.

July Birthdays

Jinling Kang	1
Susie Couch	2
Peter Zuck	3
Mary Burrows	7
Andy Hogg	8
Jack Riesselman	9
Ernesto Moya	12
Susie Siemsen	22

Matt Moffet and Andy Hogg have recently purchased some very nice cameras and have been taking quite a few pictures. Following are some of their efforts.

Photograph taken by Matt Moffet

Photograph taken by Andy Hogg