

Plant Science Says



Happy
Valentine's
Day!

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Young Receives Award



Mark Young has been selected by MSU's Office of the Vice President for Research, Creativity, and Technology Transfer to receive the Meritorious Technology/Science Award. This award is given to those who have made one or

more significant technological/scientific contribution(s) which will likely be transferred or already have been transferred to the private sector, and that have potential to be or already are useful products or processes impacting the economy of Montana or the United States.

Congratulations Mark!

2011 MSU Crop and Pest Management School (CPMS)

By Kevin Wanner

Thanks to dedicated participants, guest speakers and a variety of helpers the CPMS held on campus January 4-6 2011 was the most successful one to date. Enrollment reached a record 54 students. A broad range of agronomic professionals participated including producers, crop consultants, county agents, and agricultural co-ops personnel. To accommodate the larger class size we moved from the PGC to a room in the Burns Technology Center (EPS building). Amazingly, everybody read their emailed directions and found the new location on time the first morning without wandering into the PBB office to ask Irene for directions!

"Small Grains" was the theme for 2011. This was my third CPMS since taking over



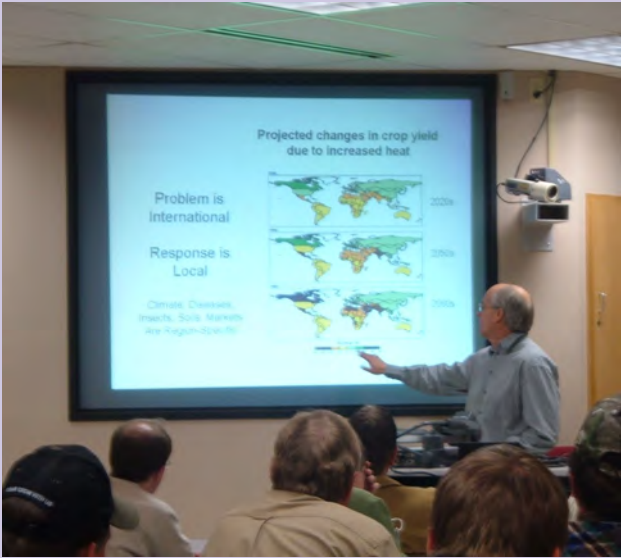
Dennis Cash provided 15 minute update on Forage news (don't play poker with Dennis, his hands are too fast!)

responsibility for its organization. Based on participant feedback, I re-organized the CPMS theme to focus on specific cropping systems (Pulse and Forage Crops in 2010 for example) in addition

to covering a range of cropping system topics. Based on evaluations completed by participants this continues to be a popular format, so the 2012 theme will return to Pulse and Forage Crops. Also, based on student suggestions, we included short 15 minute updates about pulse and forage news from Perry Miller (LRES) and Dennis Cash (Animal & Range Sciences).



Kim Falcon providing overview of Montana's Grain Industry



Luther Talbert talking about spring wheat breeding

first afternoon, while Clain Jones (LRES) had the distinction of closing out the workshop with a well received talk on Urea Volatilization and Enhanced Efficiency Fertilizers. Special thanks to our guest speakers who travel from abroad to speak.



Robert Evans, ARS Sidney

Robert Evans, ARS Research Leader and Agricultural Engineer, joined us from Sidney to talk about Irrigation Water Management of Malting Barley; Chengci Chen from the Central Agricultural Research Station in Moccasin talked about Crop Rotation and Nutrient Management; and Ron French (Texas A&M Research and Ext. Center, Amarillo, TX) did not bring any warm weather from Texas! Ron was a welcome addition, talking about cereal diseases and coordinating some hands on disease identification.



Student looking for sawflies during hands on experience

This year, Kim Falcon, Executive Vice President of the Montana Wheat and Barley Committee, kicked things off with an overview of the small grains industry in Montana. From our Department Luther Talbert and Tom Blake talked about wheat and barley breeding, Bob Johnston talked about the history and efficacy of seed treatment products for disease control, and I talked about the usual insect pests, grasshoppers, cutworms and wireworms! David Weaver (LRES) coordinated a two hour session on wheat stem sawfly management that included some hands on identification activities. As usual, the sawfly generated lots of interest! Fabian Menalled, Ed Davis and Jane Mangold took care of weed management topics on the



Ron French (Texas A&M) talking about cereal diseases and leading hands on cereal disease identification



All the people who help make the CPMS work smoothly also deserve a big thanks: Peggy Bunger and Irene Decker who help with organization and keeping me on task (when they can), undergraduate Emily Rohwer for registering everyone, Tamara Parnell for making sure that I fill out hospitality forms (even if I am late), Mary Burrows for organizing the pathology talks, and Megan Hofland and Norma Irish for bringing sawflies. On the social spectrum, everyone continues to enjoy the **pizza night at Columbo's and Granny's** donuts in the mornings (with coffee of course!). Before long it will be time to start planning for the 2012 Pulse and Forage Crop and Pest Management School. If you have good ideas for content – please email them to me!

Horticulture Farm Vegetable Wash Station by David Baumbauer and Chris Livingston

The Horticulture Farm is sporting a new vegetable wash station thanks to the students in ARCH 551 – Visiting Scholars Studio . It is a graduate studio in which a visiting scholar (in this case Coleman Coker) proposes a project of their choice and then



meets with the students several times over the course of the semester. The visiting scholar is usually not from this area and is either an up and coming person within the architectural profession or, in the case of Coleman, a well known architect. Coleman has some bio information on his site www.buildingstudio.net. The students worked closely with the production manager from **Towne's Harvest Garden** and Baumbauer to design a functional but architecturally interesting structure. The steel-framed wood and plastic structure weighs 4000 pounds, but sits on skids, so it can be moved if needed. It is partially clad in recycled greenhouse glazing and features greenhouse benching salvaged from the old biology greenhouse as the floor. Funding was provided by an anonymous local architect.



The students in ARCH 551 are: Nick Bowers, Erin Chamberlin (who also works with Alan Dyer), Steven Clayton, Miles Garrod, Chip Hammer, Logan Hendricks, Jennifer Kleckner, Tracy Longsdorf, Ian McNairy and Andrea Pierce. Wayne Sellers helped with the epic move of the structure. We also had some structural design help from Professor Jerry Stephens who is in the Civil Engineering Department.

Entomophagy Revisited By Florence Dunkel

San Diego was the site. Annual national meetings of the Entomological Society of America (ESA)was the occasion. Dunkel and, David Gracer, co-editors of *Chronicle of a Changing Future: The Food Insects*

Newsletter (published 2009) were chosen to present one of five program symposia. Their four hour symposium December 15, 2010, honored Professor Emeritus Gene DeFoliart, Father of Entomophagy, University of Wisconsin.

Funding Dunkel and Gracer received from the ESA for the event allowed them to bring in speakers from medical school faculty in the U.S. and Canada, specializing in allergy, pediatric nutrition as well as psychologists and media specialists studying **humans' (Euro-Americans)** response to entomophagy or food insect consumption. **Montreal Museum's Insectarium** site of edible insect feasts for tens of thousands of Canadians in the past decade shared their observations of human behavior. Dunkel proposed Euro-American entomologists contribute to world hunger by contaminating food insect supplies in material resource poor countries and in sharing their anti-entomophagy attitude when working in cultures whose children grow up enjoying edible insects. Medical school faculty shared research on insect solutions to the issue of world hunger (mainly protein deficiency or lack of essential amino acids) and recent research indicating children consuming insects early in life were less likely to develop allergies later in life. President of ESA, David Hogg (University of Wisconsin) and 2010 Program Chair, Mehga Parjulee (Oklahoma State) along with Dunkel and Gracer presented Gene DeFoliart with a plaque of appreciation via



Caption: From Left, Dunkel, President of Entomological Society of America (ESA) David Hogg, Mehga Parjulee 2010 ESA program chair, and David Gracer, co-organizer of program symposium present Gene DeFoliart with plaque via

video preceding DeFoliart's keynote address which was presented via video from his home in Madison, Wisconsin. Parjulee was a former grad student of DeFoliart in entomophagy and Dunkel was a former undergrad student of DeFoliart in medical entomology.

Poverty Banquet in Plant Bioscience By Florence Dunkel

Students and professors from across campus, friends, and relatives, joined PSPP 455R students in Health, Poverty, Agriculture: Concepts and Action Research for a hallway banquet December 9, 2010, following student presentations of site recommendations. This semester students worked with communities in Mali Sanambele, a subsistence farming community, and on the Northern Cheyenne Reservation in Lame Deer, Montana. In a quick-paced presentation, each student summarized their semester of research for former and future students. A video record of the event was created to share with site mentors.



Caption: Tables of textiles and traditional foods bring smiles to Fall 2010 students and 2011 PSPP 465 instructors, Florence Dunkel and Ada Giusti, web master Robert Diggs www.montana.edu/mali, and TA Ky-Phuong Luong.

Due to student response for 2011, the cap on the course was lifted and additional professors and a teaching assistant were engaged to co-teach the course with Dunkel. Those professors were Dr. Ada Giusti, Associate Professor of Modern Languages whose research area is poverty and immigration and Lori Lawson, adjunct

instructor in Liberal Studies and MSU's certified administrator in the Intercultural Development Inventory (IDI). Students in Fall 2010 were from Agricultural Education, Military Science, Neurobiology, Environmental Studies, Liberal Studies Global Multicultural, and English Literature. This is a Research and Creative Activity MSU Core 2.0. course.

Also, we would like to welcome everyone to the annual Edible Insect Luncheon, Friday, February 25 from 12 noon to 4 p.m., Plant Growth Center Mezzanine. A reporter from New Yorker Magazine will be interviewing for an upcoming article.

Urban IPM Workshop by Linnea Skoglund

The MSU Urban IPM Program sponsored a workshop, "Pesticides for the Home Landscape", at Fairmont Hot Springs on January 23rd in conjunction with the AMTOPP (Association of Montana Ornamental and Turf Pest Professionals) annual conference. There were 23 participants from the landscape and nursery industries as well as extension. Topics covered included pesticide labels, PPE, and sprayer calibration with Toby Day and Cecil Tharp as presenters. We were joined in the afternoon by Sarah Holden, Pesticide Regulation and Enforcement officer, Montana Department of Agriculture. Sarah joined in discussions and offered information about legal issues



Cecil Tharp, Pesticide Specialist, reviewing proper PPE at the Urban IPM workshop.

regarding pesticides in Montana.

Part of the afternoon session was a group exercise in which groups devised IPM action plans for an assigned disease, insect and weed common in landscapes. This seemed to be fun and was well received.



Group presentation of IPM action plan at Urban IPM workshop.

We want to do more interactive learning in future workshops.

The highlight of the workshop was the awarding of ten Urban IPM Practitioner certificates. Becoming a Certified Urban IPM Practitioner requires the completion of 12 education credits. Seven individuals were certified previously. Two additional people (including Dara Palmer the new Master Gardener Coordinator working for Toby Day) earned their certifications at the AMTOPP meeting. We now have a total of 19 Certified Urban IPM Practitioners in Montana. They are able to use the certification logo on their stationary and web-

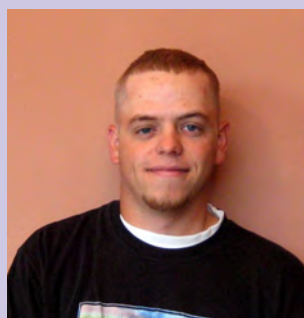


New Certified Urban IPM Practitioners.

sites. Their names will be available to the public through our new website (<http://www.urbanipm.org/>) currently under construction.

Because training is a big part of the mission of the MSU Urban IPM Program, we will offer more workshops this year. Currently in the planning stages are a field class on diagnosing problems with urban trees and wind breaks as well as a workshop on turfgrass that will combine lecture and lab.

Plant and Animal Genome Meeting By Jay Kalous



The trip this year to the Plant and Animal Genome conference was short and sweet for me. The main purpose for my attendance this year was the first Triticeae CAP meeting, which took place on Sunday. In

the morning, Dr. Jamie Sherman presented a talk about the early stages of a massive education program for plant breeding graduate students. The courses will be administered through an online interface and graduate students at various institutions will be able to take additional instruction on plant genetic topics that may not be available at their attending university. I also heard about the trials and tribulations of phenotyping for drought tolerance that the Australians have been working on for the past several years. The Australian researchers are finding that the success of genes providing drought tolerance is dependent on whether you have intermittent rainfall drought cycles or long-term drought cycles. There was also a talk on augmented experimental designs. As the size of mapping populations continues to grow, it is becoming difficult to conduct replicated field trials. These augmented field designs are being looked at as a potential to handle larger numbers of genotypes on smaller allotments of ground. The goal is to estimate field variation by replicating

only 10-15% of the mapping population. The 10-15% would be "checks" consisting of available varieties or potential new releases. All and all, the T-CAP meeting was interesting but at the same time a little overwhelming after hearing about all of the tasks that will have to be completed over the next few years. Of course, the trip wasn't all business. I had the fortunate opportunity to try Thai food for the first time and sample a couple of very delicious Thai beers. And of course the weather was perfect, in the 70's the whole time, which made it that much harder to return to Montana in the middle of January.

Grad Student Defends

Jay Kalous, Candidate for MS in Plant Science, defended his thesis, "Candidate Gene Association Mapping in Spring Wheat" on Thursday, December 16, 2010. Jay plans to continue his education by working on a Ph.D. with Luther Talbert.

Course Focus

PSPP 146 - Sustainable Food Bio Systems

By Mary Stein

PSPP146: Introduction to Sustainable Food and Bioenergy Systems (cross-listed as LRES146 and HDFN146) This course is an introduction to the Sustainable Food and Bioenergy Systems interdisciplinary degree program here at MSU. Currently, students from across many majors and interest areas are enrolled in this course which has grown to a capacity of 80 students. Students gain a systems perspective on current food, agriculture, and energy systems issues in Montana and beyond. In a format that includes frequent guest speakers and many opportunities for discussion, students examine past and current models of sustainable food and energy production, distribution and consumption.

Topics explored in this three-credit course include Agroecology, small- and large-scale crop production, pest management, food and agriculture policy, renewable energy sources, natural/human resource conservation, food justice, farm econom-

ics, and community food security. With experts from on-campus and from across the state, students examine the barriers and opportunities that exist relative to long-term, sustainable practices that ensure economic, environmental and social well-being.

Toward the end of the spring semester, students have the opportunity to take a field trip to two local farms, examining the implementation of sustainable practices at these operations. Students also may **choose to engage in an "Eat Montana" activity**, where, for 24 hours, they eat only products that are grown, processed, distributed and accessed right here within the state of Montana.

The course project is a small group endeavor in which students explore and report on a specific food systems sector within a specific geographical region of Montana. This course is intended to help students gain an understanding of the complex interactions within food and agriculture systems while examining the current challenges facing the next generation of agriculture and food systems leaders.

Grants

Nina Zidack, Montana Department of Agriculture, **"Adopt real-time PCR protocols."**

David C. Sands, Montana Department of Agriculture, **"Reinvigorating the Sprout Industry."**

Mike Giroux, Consortium for Plant Biotechnology Research, **"CPBR—Increasing Rice Photosynthesis and Yield."**

Gary Strobel, Department of Energy, **"Mycodiesel from various Endophytic Fungi."**

Barry Jacobsen and Mary Burrows, U.S. Department of Agriculture, **"Continued Development of the IPM PIPE 2010: Legume Pipe Field and Laboratory Sampling."**

Jamie Sherman, Luther Talbert, Tom Blake, USDA, **"Improving wheat and barley for a changing climate"**.

New Employees

Jill Scarson — Student Affairs



Jill Scarson is the new Student Affairs Coordinator with Plant Sciences & Plant Pathology. Originally from Syracuse, New York, she lived and worked in Yellowstone National Park before moving to Bozeman and graduating from MSU in 2009 with a B.S. in English. Jill worked for MSU Food Services for four years before accepting her new position with Plant Sciences & Plant Pathology.

Jill is also a professional photographer and enjoys hiking, snowshoeing, fly-fishing, and spending as much time as possible in Yellowstone with her husband Nick and nine month-old daughter, Julia.

Priyanka Biswas (Norm Weeden)



I completed my MS in biotechnology in India along with five years of research experience. I moved to Bozeman along with my husband, a post doctorate fellow in the chemistry and biochemistry department at MSU. I was looking for research work to add to my knowledge and experience. Professor Sherwood helped me and Professor Weeden gave me the opportunity to work with him. I am exploring my knowledge in the area of pea genetics; it is challenging.

I like Bozeman; it is a very beautiful place. We are enjoying the weather, the snow, and trying some of the snow sports.

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Tawnya Morgan (MSGA)

My name is Tawnya Morgan, and I have joined the Montana State Seed Growers as



of Dec 22, 2010. I graduated from MSU with a bachelor's degree in Animal Science (Feed/Health Option) in 1998.

Since that time, I have worked many jobs in the cattle and

seed industry, one of them being with the Montana State Seed Lab as a analyst. For the past seven years, I have helped run our family tile business, but I am I looking forward to being back in the agriculture industry. I have two amazing kids that I love spending time with. Some of the activities I enjoy sharing with my husband and kids include working horses, hiking, hunting, fishing and cycling.

Greg Leary (Kevin Wanner)



My name is Greg Leary, and I grew up just south of Bozeman in the small town of Sheridan, MT. After finishing undergraduate studies at Regis University in Denver, CO, I re-

ceived my PhD in Neuroscience at U of M in Missoula under Dr. Michael Kavanaugh. My doctoral research focused on the biophysical properties of secondary active transport, specifically for the excitatory amino acid transporters that regulate synaptic transmission in the nervous system.

My time in Bozeman is part of a collaboration with Dr. Kevin Wanner. As a post-doctorate in his lab, we will define the chemical features of sex pheromones and sex pheromone receptors that distinguish the closely related Asian corn borer moth from the European corn borer moth. Because insect odorant receptors are electrogenic, we will express the receptors in *Xenopus* oocytes and use electrophysiology to screen pheromones for agonist or antagonist activity.

Apart from science, my wife and I enjoy

cross country skiing, rafting, kayaking, and camping. This opportunity allows us to begin exploring another vast piece of Montana. I look forward to being a member of your department and learning of the scientific research at MSU.

New Graduate Student Duke Pauli (Tom Blake)



Hello, my name is Duke Pauli and I am a new graduate student working with Dr. Blake. This will probably not come as a surprise to most of you, seeing as how I have worked here for almost

three years now, but it is the logical next step for me. I will be working on the Wheat and Barley Coordinated Agriculture Project (CAP) for the next few years which I am sure will provide me with some extremely exciting opportunities to work within our research community.

I am a native of Montana and hail from the small town of Cascade. In my spare time, I love to mountain bike and basically have a good time enjoying our wonderful surroundings that we are so fortunate to be part of. I feel as if I know the majority of you but look forward to meeting those I don't know.

Growing Hazelnuts By Toby Day

I recently got a question from a Master Gardener about whether you can grow hazelnuts in the Bozeman area. The traditional hazelnut you find in the store, also called filberts, are grown from common filberts (*Corylus avellana*) or even giant filberts (*Corylus maxima*). However, as per the USDA Plants Database, these two desired hazelnut species will not grow in our area. That's interesting because according to Michael Dirr, the author of the *Manual of Woody Landscape Plants*, he lists common filberts, the ones grown for nut production as USDA zone 4-9, adaptable to different pH's, and liking a well-drained



Flower and foliage of Corylus americana. Photographed by Sally and Andy Wasowski, Naperville, IL

soil. Sounds reasonable to me?

Yet, when I spoke with Jerry Cashman, a local nurseryman who has sold plant material locally for decades, even he **wasn't sure. He told me that he sold ten last year, but he didn't know how they** fared. And, I suspect that he was growing the American filbert (*Corylus americana*), a less desirable nut.

Upon further inspection of the USDA Plants Database website, I saw that beaked hazelnut (*Corylus cornuta*) grows in Montana. Robert Dorn, the Author of *Vascular Plants of Montana*, also shows beaked hazelnut listed as a plant that grows mostly in wooded thickets. However, if I am correct, the nuts of the beaked hazelnut are hardly palatable even for squirrels.

Overall I believe that hazelnuts (especially American and beaked) could be and should be experimented with in Montana, but I doubt that they will be very popular. They are small (around 10 feet tall) scraggly shrubs that really aren't that attractive. Durr's description of the hazelnuts landscape value is "reserved for naturalizing...not sensational...too large for contemporary landscapes." This is probably why you don't see many of them in the nurseries today.

If anyone knows of a *Corylus* growing in the Gallatin valley would you let me know? I would love to take a look at it and see how it is performing.

Don't Let the Bed Bugs Bite!

By Michael A. Ivie

Stealthy creatures that have lived embedded in unsuspecting human culture for thousands of years. Shadowy forms that hide from sunlight, only creeping out in the dark of night to enter your bed and



suck your blood for their only sustenance. Then, having done their deed, bloated and sated, retreating from their sleeping host's bodies to re-enter their dark redoubts before the sun catches them. Sound like a teenage girl's

vampire fantasy? Rather, it is the real life story of bed bugs.

The pre-WWII generations were well aware of bedbugs. They were common, nearly ubiquitous, and devilishly hard to control. Some of us now in late middle age may remember grandmothers sniffing when they entered a motel, making comments about "buggy" smells, demanding that mattresses be periodically aired in the sun and turned, pictures be taken down from the wall and "dusted" on their backs and having an innate distrust of used mattresses and movie houses (which were nearly all infested). That was the vigilant housewife protecting her family from bed bugs.

Then came DDT. Cheap, easy to apply, nontoxic (to humans), long-lasting and devilishly effective, literal tons of it were



applied to public and private buildings in the post-WWII years, and like magic, bed bugs virtually disappeared. For many entomologists who entered the profession in **the 1960's through 1980's, bedbugs were** only a curiosity to be found in a few labs. I remember feeding a lab colony at Davis as an undergraduate in 1974, watching them feed through mesh covering the opening of a vial taped to my forearm. That was the only time I saw a live bed bug for the next 15 years.

Starting in 1967, indoor use of DDT and other chlorinated hydrocarbons was banned in the USA, and the clock started ticking. In a dry, dark crack behind the baseboards of a house or under the seat in a movie theater, DDT has a half life of about 12 years. Given the maxim "if a little is good, a lot is better" and the tendency for pest control companies to recommend periodic and repeated applications, it is likely that far more DDT was present in many buildings than was needed to kill the immediate infestations of bed bugs, and since roaches became resistant in many places, requiring higher and higher dosages, there was enough residue to kill any wandering bed bugs for about 2 half-lives, or 24 years.

Then, right on schedule, in the late 1980's we started getting sporadic reports of bed bugs again. I remember submissions from a barracks at Maelstrom Airforce Base, a home in a fashionable neighborhood of Bozeman, and a crib in Missoula from that period. These were so odd, it required a detailed study to make sure they were human bed bugs, not errant bat bugs (a related and similar group).

Fast forward to **3 half-lives to the 2010's** and add a preponderance of new, never-treated buildings and we are in the midst of an epidemic of bed bugs. They are now potentially anywhere. Reports out of New York City make the news, but do not feel complacent. In the recent past, infestations have been dealt with right here in MSU buildings, and Bozeman motels have



not been immune. So, how to protect yourself and your home from them?

Bedbugs hitchhike on luggage, bedding, furniture, sleeping bags, laundry, or whatever you have that you carry from an infested building to a new one. For those of us who travel frequently, motels and hotels are the most likely source. Those with kids may have that sleeping bag that comes back from camp or a sleepover be the vehicle for much subsequent excitement. And, that free couch or mattress your roommate found on the corner is likely to yield unexpected benefits.

Determining which places are "safe" may be getting easier. If you Google the city name where you are headed along with "Hotels" and "bed bugs" you will discover websites that report infestations. These are not necessarily places to avoid, but provide a good place to start. Remember, these reports may be spurious, old or simply mistaken. Call and ask the manager about the report. If they deny ever having bedbugs, especially if there are multiple reports, go elsewhere. If, however, they give you a good explanation of how they monitor and control the problem, it is probably OK. No hotel can be certain to keep bed bugs from entering their property short of inspecting every guest and their luggage with bed-bug-sniffing dogs (yes, there are such things). But, no good hotelier is going to allow a bed bug infestation to persist once it is detected either, and if they have a good plan, you can probably trust it.

A quick method of checking a motel room, not altogether perfect but reassuring, is to lift the head of the mattress and look in the crease of the piping on the box springs where it is against the headboard. If it looks like someone has dribbled tobacco

juice along it, that is a bad sign. Of course, if there are bed bugs in there too, that is another bad sign. Another good way to be sure is to travel with an entomologist. Bed bugs have a distinctive "buggy" smell (sort of a light version of the smell of a garden stink bug) that entomologists recognize, and they know where to look for the little buggers. At the 2010 Entomological Society of America meetings in San Diego, bed bugs were detected in two of the convention hotels within hours of participants starting to arrive. Alternatively, you can choose hotels that have just been used by entomology meetings, as they will have been thoroughly checked!

If you do find yourself waking up with bedbugs, do not panic. First, they are nearly unique among bloodsucking insects (and vampires) in that they do not spread disease (nor cause future changes in your own feeding habits). They may cause itchy and unsightly spots where they bite, but that is about it. If you are away from home when you discover you have spent the night with bed bugs, do not take your luggage into the house when you get home, and remember that putting it into your car can transfer them there too (yes, in warm climates, bed bugs can live in cars, taxis, buses and trains). Thoroughly clean all luggage, clothing and other possessions before taking them into the house. If you find you have an infestation at home, do not try to deal with it yourself. Call a professional. The web is laden with silly (and expensive) methods of eradicating bedbugs. Bed bugs are tough, and they are sneaky. You will need professional help.

Recipe of the Month

Caramel Pecan Rolls (made by the Cereal Quality Lab, Deanna Nash, Harvey TeSlaa, and Jackie Kennedy) for Friday coffee on 1/21). Delicious!

Basic Sweet Roll Dough

In large mixing bowl, combine 2 cups all purpose or bread flour and 1 pkg active dry yeast. Heat 1 c milk, ¼ c sugar, ¼ c



shortening, and 1 t salt until warm (115–120 degrees). Stir until shortening melts. Add to dry mixture along with 2

eggs. Beat at slow speed with electric mixer for 30 seconds, scraping bowl. Beat 3 minutes at high speed. By hand, stir in 1½ to 2 cups flour to make a moderately stiff dough (do not make dough too stiff). Knead on lightly floured surface until smooth (8 to 10 min.). Shape into ball. Place in greased bowl, turning once. Cover; let rise until double (45 to 60 min). Punch down; divide in half. Cover, let rest 10 min. While rolls are either rising or resting, make caramel sauce.

Caramel sauce:

1½ c packed brown sugar
½ c butter
4 T corn syrup – light or dark

In saucepan combine all ingredients listed above. Cook and stir just until butter melts and mixture is blended. Distribute mixture into bottom of well greased 9 x 13 **inch pan or two 9 1/2" round baking pans**. Sprinkle with 1 c coarsely chopped pecans on top of caramel sauce.

When dough has finished resting, take each half and roll in a rectangular shape, **approximate 12" x 8"**.

Dough Filling:

3-4 T softened butter
½ c granulated sugar
1 t cinnamon

Smooth half of softened butter over top of each dough rectangle. Combine sugar and cinnamon, sprinkle over dough. If you like a sweeter filling, add more cinnamon/sugar mixture.

Roll up each piece of dough starting with long side; seal seams. Cut roll in pieces **(about 1½ ")**, place rolls in prepared baking pan or pans. Cover, let rise till double (about 30 min). Bake; cool about 30 sec-

onds, invert pan with rolls into a cookie sheet or parchment paper and remove the pan. Enjoy!!

Burrows Baby



Sean and Mary Burrows became the proud parents of a second daughter, Cora Elizabeth, on December 30, 2010. She weighed 8 lbs. Cora joins her sister Abi who is two. Congratulations to all of you!

February Birthdays

Jeff Johnston	2
Linnea Skoglund	10
Norm Weeden	12
Alan Dyer	15
Phil Bruckner	17
Pam Border	23

