

PLANT SCIENCE SAYS



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2nd Annual Alternative Energy **NOW**

February 20–21, 2008

Shades of Green Resort, Lake Buena Vista, Florida



By Chaofu Lu

Although snow seems to start melting and spring is not far from Montana, it was still very irresistible to visit the Sunshine State this time of year. The 2nd annual meeting of Alternative Energy NOW was held in the Shades of Green, a US armed forces resort in Disney World in Florida. I was there to talk about our research program on “Development of superior germplasms of camelina oilseeds as biofuel feedstocks”.

There is a very good reason for the Air Force and the Office of Secretary of Defense (OSD) to sponsor this conference, as the Air Force is the Federal Government’s largest consumer of energy, whose annual use of fuel exceeds 2.56 billion gallons, mostly (81%) in aviation. However, as most people may not know, the Air Force and the military as a whole have made significant strides in green procurement, especially those related to alternative fuels (synthetic fuels, biofuels) and fuel efficiency, biobased products, energy and water efficient products. The Air Force was the largest buyer of alternative energy in this country for the last couple of years. They are playing a leading role in national energy security by reducing demand (improving energy efficiency), increasing supply (synthetic fuel programs), and changing the culture of energy use. Their vision “ Make

Energy A Consideration in All We Do” should be applicable to our energy thirsty society.

Biofuel is an important component in the alternative energy portfolio. While cellulosic ethanol or butanol represents an attractive future fuel, corn ethanol and biodiesel provide a short-term solution to an increasing global demand for energy. Compared to bio-ethanol mainly derived from corn (in US) or wheat (in Europe), as Mr. Joseph Jobe, CEO of the National Biodiesel Board indicated, biodiesel from soy oil or other sources is more economical to produce and generates less conflict with food or feed uses of crops, and provides a more positive effect on the carbon footprint. The primary concerns of biodiesel, however, are storage stability and fuel quality, which are determined by fatty acid composition of the oil/fat feedstocks. As the US biodiesel industry is increasing rapidly, it is necessary to find economical and sustainable feedstocks. Non-food crops such as jatropha and camelina, and microalgae (cyanobacteria) are among the favorable candidates. Following the recent success in Montana and the Pacific Northwest region, camelina has spread into other areas such as the Dakotas, Kansas, and Georgia.

Next time you go to Disney World, you should know that they use B100 biodiesel for the steam trains, and B20 (20% biodiesel blend) for buses and horticultural equipment.

Schutter Diagnostic Lab Hosts Great Plains Diagnostic Network Web Seminar Series

By Nina Zidack

The Schutter Diagnostic Lab has been hosting a web seminar series for the Great Plains Diagnostic Network this winter and spring. The topics revolve around the identification and control of plant pathogens and insects.

This seminar series is conducted like a departmental seminar series, except the participants attend via computer from nine states from Texas up through Montana and

and diagnostics for potato viruses. Seminars are held Wednesdays at 10AM through March 26 (March 5 – no seminar) and can be viewed live using the web address

The screenshot shows a Windows Internet Explorer browser window displaying a seminar slide. The slide title is "DWARF BUNT and KARNAL BUNT: Politics, Identification, and Biology". Below the title is a photograph of Dr. Don Mathre, a man with glasses wearing a plaid shirt, sitting at a desk with a microscope. Underneath the photo, it reads "Dr. Don Mathre -Professor Emeritus Montana State University". The browser's address bar shows the URL "http://extn-breeze.msu.montana.edu/p39949617/". On the left side of the browser, there is a sidebar with an "Attendee List (18)" including names like Don Mathre, Jay Van Voast, Nina Zidack, Adams, Gary, Amy Ziems, and Kasia Kinzer. Below the list is a "Chat" window with a message from Nina Zidack: "Nina Zidack: The teleconference will start at 9:55 MST and 10:55 CST". At the bottom of the browser window, there is a "Resume Playback" button and a timer showing "0:00:01".

<http://connect.oznet.ksu.edu/gpdnseminars/>. All of the completed seminars are recorded and are available on the GPDN website <http://www.gpdn.org/>. Contact Nina Zidack or Mary Burrows if you would like more information.

North Dakota. The first seminar was on dwarf bunt and karnal bunt and was presented by our own Dr. Don Mathre, Professor Emeritus in Plant Pathology at MSU and Gary Adams, State Plant Health Director (APHIS). Other topics presented to date include emerald ash borer, soybean rust, white pine blister rust, and legume virus identification. The seminars are delivered using Adobe Connect web-conferencing software.

The seminars have been very well received and the recordings provide a valuable resource for presentation of special topics for the classroom and extension education. The seminars are currently being used in an IPM course at the University of Nebraska and for training of tree health professionals in North Dakota. Other regions of the National Plant Diagnostic Network are interested in developing their own regional seminar series and perhaps even a national diagnostic seminar series. It's a great way to learn about plant pathology and entomology from the world experts. Upcoming topics include Pyemotes itch mite, rapid diagnostics, fungicide resistance in *Cercospora beticola*,

CPBR Symposium By Jinrui Zhang

I attended the Consortium for Plant Biotechnology Research (CPBR) Symposium in Washington, DC, February 11- 13, 2008.

This symposium is not set up like a regular scientific meeting in that its purpose is not just to present research. CPBR is an organization that facilitates research interactions among academic, industry and government scientists. The symposium focuses on pre-proposal poster presentation, industry roundtable discussions, and funded projects reports. There were about 13 company representations and 76 university people presented in the meeting. Among the pre-proposals, 2/3 of them will be invited to submit a full-proposal, and about 20 proposals get funded finally.

I was fortunate to have the opportunity to present the pre-proposal that Mike Giroux and I wrote entitled "Improving Maize Processing Properties". I had the chance to talk with several company representatives who were very interested in our project such

as Dow AgroSciences LLC, the Biotechnology Research and Development Corporation, and Arcadia Biosciences Inc. We are hoping to get more funding for my project.



There were also 17 funded project presentations given by scientists from across the country. Many of them focused on biomass, biodiesel, or otherwise increasing biofuel yield. Some were about engineering, like fibers from corn stover for textiles, or bioplastics degradation. What interested me most were the presentations on new selectable markers for plant transformation as well as a new technique to remove GM-genes from pollen and seed. I learned a lot from this symposium.

The conference was held at Georgia Washington University, from which it is only about a 10-minute walk to the National Mall. So, I was lucky to have the chance to see the sites: White House, Lincoln Memorial, Washington Monument, and Capitol Hill. It was beautiful even in the cold winter!

Overall, except the bad weather, which rained hard all day, it was an educational and nice trip.

TRUSTY RECIEVES NSF GK-12 FELLOWSHIP

by Cathy Cripps



Paul Trusty recently received one of four 2008 GK-12 fellowships from the National Science Foundation offered through Montana State University. Paul is a master's student studying with

Dr. Cathy Cripps. The MSU GK-12 Science and Society Fellows program is an NSF-funded program that partners graduate and undergraduate fellows at Montana State University (MSU) with teachers in rural K-12 classrooms. Through participation in the program fellows support enhanced science education while refining their communication and teaching skills. Paul will be teaching young students about his research on whitebark pine, fire ecology, and mycorrhizal fungi. In February he attended the "Fireworks" program in Missoula developed by the US Forest Service which provides materials for teaching about Fire Ecology, Lodgepole Pine, and Whitebark Pine. Paul's stipend is \$30,000 for a 12-month tenure starting July 1, 2008. NSF also provides a cost-of-education allowance of \$10,500 per student per 12-month tenure. Paul will also be finishing up this thesis during this time. We certainly congratulate Paul on this award!

Horticultural Student Awards

By Tracy Dougher

Horticulture faculty announce their American Society for Horticultural Science Student Awards

ASHS Collegiate Scholars

This award honors the academic achievements of junior and senior undergraduates from departments of horticulture, or of plant and crop science, who are majoring in horticulture. Students are in the top 15% of their class, based on academic standing. The students are selected

on the basis of their scholarship achievements, leadership abilities, participation in campus/club activities, and services to their departments.

This year's recipients are:

Jennifer Hart
 Michael Gilbert
 Chelsey Gilman
 Margaret Kelley
 Yana Neely
 Sarah Payton
 Corri Pfeiffenberger

ASHS Outstanding Horticulture Student Award

The ASHS Outstanding Horticulture Student Awards officially recognizes exceptional undergraduate horticulture students in baccalaureate programs. Students enrolled in horticulture (including pomology, olericulture, floriculture, and landscape or ornamental horticulture) or in a plant science/crop science department with an emphasis or major in horticulture are eligible. Students' photographs plus names and school name are published in the April issue of the *ASHS Newsletter*, and students receive a certificate of achievement. Students should be selected on the basis of their academic achievements, leadership abilities, participation in campus/club activities, and service to their departments.



This year's recipient is Corri Pfeiffenberger. Ms. Pfeiffenberger has been an excellent student in the classroom and also excelled at seeking out educational experiences beyond the classroom. She

is currently an undergraduate teaching assistant for the Herbaceous Identification course and has been a TA for the Woody Ornamental ID course. She works for the Montana State University Plant Growth Center. She is researching with Dr. Tracy Dougher on potential native species for raingardens in Montana. Corri is a very giving person of her time and energy. She is

active in the Horticulture Club, has organized several plant sales both for club excursions and community charities, is involved in Big Brothers, Big Sisters, and participates in the Environmental Club to name a few. She also received the Gallatin Gardeners Club Horticulture Scholarship in 2007.

**New Employees
 Ken Baker (Mary Burrows)**



Hello Fellow Green People. I'm Ken Baker and I am the newest addition to Mary Burrow's lab. Some of you may recognize me from around town and many know me from

MSU Days in the 1980's. I received my B.S. in Horticultural Science from MSU in 1987. Most of my adult life has centered around the green industry with emphasis on arboriculture, landscape maintenance and some colorscaping. I have co-owned businesses in the valley and am now looking to broaden my experiences and knowledge by working in Plant Pathology. Already, what I have learned!! To all I have met so far – I thank you for your patience, helpfulness, and willingness to teach.

Outside of plants and their related matters, my interests include but are certainly not limited to: motorcycling, bicycling, walking the dog, roller blading, ice-skating, scale plastic modeling, collecting art, and plinking away on the marimba. I enjoy travel, but you know how time and/or money can be an issue so the wife and I have not had any recent grand travels. We are anticipating our trip to Salt Lake City this early June for both AMA and World Superbike races. Ultimately, though, my biggest interests are my two girls – Cheryl and Ruby – my wife and our toy poodle.

Be seeing you around PBB and the PGC.

New Graduate Students Mary Brennan Lollis(Jacobsen)



Greetings
Plant
Pathology
Department
and thanks to
everyone
already for
creating such
a great
learning
environment
here. My
name is Mary
Brennan

Lollis (I usually go by "Mary Brennan"). I was born and raised in Forest, Virginia, began my B.S. in Horticultural Science at Va.Tech.(Go Hokies!) and transferred to MSU in 2004. I completed my B.S. last summer(2007) after conducting preliminary research on native grasses as turf for Tracy Dougher. I am now fortunate to work with Barry Jacobsen as well as Steve King in Huntley. My work will involve three varieties of Round Up Ready sugar beets and their abilities to resist *Cercospora* leaf spot, two *Fusarium* wilts, and also *Rhizoctonia*(not all at once!) with and without Round Up applications. My extracurricular interests include skiing, skating, fishing, hiking, camping, boating, gardening, and cooking.

Publications

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Propagation of Houseplants By Cheryl Moore-Gough

We often discuss when to propagate house plants, but we rarely say how to do it.



Most people simply place cuttings in water and hope for the best. The shoots of some species, such as the lipstick plant or creeping Charlie, will root in water, but many species won't. Even after those that root in water have sent out numerous new roots, they must be repotted into soil soon. They may survive on water alone, but they will not thrive. There are several ways to propagate houseplants.



Herbaceous stem cuttings are made by clipping a piece of stem from the parent plant about 4 to 5 inches long, with leaves attached. Make the lower cut just below a node, or the point of attachment of a leaf. Remove

any leaves on the bottom 1 1/2 to 2 inches of

the stem. Dip the base of the stem in water and then into a commercial rooting hormone, which is usually a dry powder. Shake the excess hormone from the stem. With a pencil, pen, or small stick, make a hole in your potting media, and place the stem into the hole. This allows the rooting hormone to remain undisturbed on the stem. Firm the media and moisten it. Place your cutting in a warm place. If you are taking cuttings from plants with sticky sap, allow the base to dry for a few hours prior to dipping in the hormone to reduce infection.

Leaf Cuttings: Take healthy leaves from your mother plant and stick their petioles into the potting media. New roots and shoots will form from the base of the petiole.

Lay leaf blades of Bryophyllum, jade plant, and begonia flat on the media, with their lower surface pressed gently into the media for good contact. New roots and shoots will form from the leaf, which eventually will decay.

Using just a leaf of some plants will produce only roots and no shoots. In this case, the leaf-bud cutting is in order. Take a leaf plus its axillary bud and a portion of the stem. Dip the stem portion into rooting hormone, make a hole in the media with a pencil, and stick the cutting into the hole.

Swordshaped leaves on plants such as Sansevieria can be cut into cross sections, each of which is then placed in the rooting media. New shoots and roots will form from the bottom, or basal end of each cutting.

When you propagate houseplants, you should not use garden soil unless it has been sterilized. There are microorganisms in garden soil that could damage your houseplants or reduce the possibility of successful rooting. Use a mixture of sand and peat or of sand and vermiculite in which to root cuttings, or a good potting soil blend. Add no fertilizer to the rooting media.

Whatever container you choose to use in which to root cuttings, be sure it is clean, particularly if you have used that container

before. Wash your container in soapy water, rinse in clear water, disinfect in a 10% bleach solution, rinse again, and dry prior to use. After placing the propagule in the media, firm and moisten it around the base of the cutting and cover the container with plastic to maintain a high relative humidity. A plastic sandwich bag works well placed over your container. Leave the bag loose at its base to allow for some air flow.

Some houseplant species become overcrowded in their containers. Simply dividing the crowns into several segments provides plenty of planting material to fill empty pots. Be sure the soil is moist when you divide the clumps to help it remain intact against the root surfaces. Remove the rootball from the container and gently tease apart individual plantlets.

Computer clock daylight saving time information from Microsoft

By Bob Johnston

In 2007, the start and end dates for (DST) in much of the United States and Canada was changed, extending the overall duration. DST now begins



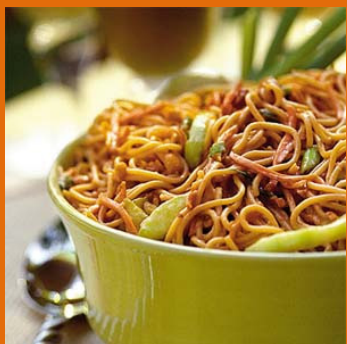
on the second Sunday of March (in 2008, March 9), several weeks earlier than in years prior to 2007. DST will end later than usual, on the first Sunday of November (in 2008, November 2). This results in a new DST period that is approximately three to four weeks longer than in previous years. Unless certain updates are applied to your computer, the time zone settings for your computer's system clock may be incorrect during this four-week period. In particular, you must make sure that both your Windows operating system and your calendar programs are updated.

Do I have to update my computer? - If your computer time is not correct on March 9th, go to this site

http://support.microsoft.com/gp/dst_hu1 and download the correct update for your operating system.

Recipe of the Month

Peanut Noodle Salad



2 large cucumbers
1/2 cup soy sauce
1/2 cup coconut milk
1/2 cup rice wine
vinegar
1/2 cup chunky
peanut butter
4 garlic cloves,
minced
1 teaspoon sesame

oil

1/2 to 1 teaspoon dried crushed red pepper

1/2 teaspoon salt

1 (16-ounce) package soba noodles or angel
hair pasta, cooked

1 (8-ounce) package shredded fresh carrot

6 green onions, cut diagonally into 1 1/2-inch
pieces

Peel cucumbers; cut in half lengthwise,
removing and discarding seeds. Cut
cucumber halves into half-moon-shaped
slices.

Whisk together soy sauce and next 7
ingredients in a large bowl; add cucumber,
pasta, carrot, and onions, tossing to coat.
Cover and chill 8 hours, if desired.

March Birthdays

Eva Grimme	9
Dai Ito	11
Yousef Zadegan	17
Tamara Vook	24
Vicki Blake	28
Elaine Nichols	31

