Plant Science Says

September, 2002

XVIth International Horticultural Congress & Exhibition
by Tracy Dougher

The national meeting of the American Society for Horticultural Sciences was held in conjunction with the week-long (Aug 11-17) International Horticultural Congress in Toronto, Canada. Attending the meetings from MSU were Bob Gough, Cheryl Moore, and Tracy Dougher. Over 2400 delegates from 82 countries attended the meeting with over 1600 poster and oral presentations divided into 23 Symposia including biotechnology, sustainability, environmental stress, protected cultivation, nursery crops and genetic resources.

On Sunday, 11 August, the first day of the congress, Bob Gough was inducted into the 38th class of ASHS fellows in recognition of his outstanding contributions to horticulture in research, teaching, and extension and for his direct and effective participation in the affairs and activities of the Society. (Congratulations Bob!)

Bob spent most of the congress in meetings since he chairs the ASHS Publications Committee and serves on the ASHS executive committee, ASHS finance committee, and the ASHS Board of Directors. Bob also serves on the ASHS Centennial Committee and so will be very busy with the preparations for the celebration of the ASHS Centennial(2003)! He also presented a poster entitled "Planting date influences garlic yield, but not time of bulb differentiation".

Cheryl Moore, whose work is funded by MSU Foundation Seed and USDA-NRCS, presented preliminary results of her ongoing work on Bur Oak. Her oral presentation entitled "Asexual propagation of northern plains native bur oak for commercial release", was well attended and received. Because researchers of both standard nursery species and native species are very interested in bur oak, many relevant questions and suggestions followed her talk. Cheryl came home with enough ideas to complete a PhD program!

Tracy Dougher presented a poster on the "Effect of light quality on the growth of lettuce and pansies" and was

elected secretary of the controlled environment working group for a two year term. Following the two year term, she will become chair of that working group. The poster was co-authored by Cheryl Moore and Bob Gough.

Delegates were treated at midweek to a bus tour of the Niagara Falls area of Ontario, a region rich in horticulture. The first part of the excursion was a 'mystery tour' to a vineyard & winery, maple syrup production facility, nursery, research center, garden ce[illegible], and orchard. Delegates were then taken to the Niagara Fa[illegible] Park to tour the Horseshoe Falls, Botanical Garden, and School of Horticulture.

Giroux Receives Receives Young Investigator Award

The American Association of Cereal Chemist's Biotechnology Division recently recognized the outstanding contributions made by Dr. Michael Giroux in the area of cereal chemistry and biotechnology. He is the recipient of the Bruce Wasserman Young Investigator Award. Dr. Giroux will give a presentation discussing his research at the annual meeting in Montreal, Quebec October 15.

American Phytopathological Society Meeting
By Oliver Zietlow

T[illegible]merican Phytopathological Society meeting in Milwaukee was attended by John Sherwood, Barry Jacobsen, Don Mathre, Nina Zidack, Rebecca Bargabus, Oliver Zietlow, Eva Grimme and Ben Larson. Hot topics at the meeting this year included agricultural bioterrorism, commercialization of biological control agents, programmed cell death, and functional genomics of plant pathogen interactions. The graduate students especially benefitted from diverse information given in the symposia. Most appreciated were the poster presentations where we had the opportunity to see the work of other students and to socialize with them.

Beside the activities offered at the APS meeting, there was enough time to enjoy Milwaukee. We attended a city tour to receive an impression of the city. During this tour, we visited the East Side, the Lakefront and the Frederick Pabst Mansion.

Milwaukee is not only a town with wonderful architecture, but it is also rich with good food. For example, we tried German bratwurst with sauerkraut at the Turner Hall, which is located in an old gym which was built by the Milwaukee Turners Gymnastic & Fraternal Society in 1883. A sip of the famous beer from the Miller brewery was a nice ending to a busy day.

P[illegible]ation

Stout, R. G. and T. S. Al-Niemi. (2002) Heat tolerant flowering plants of active geothermal areas in Yellowstone National Park. **Annals of Botany** 90:259-267.

This paper was featured in the "Content Select" section of this issue of the Annals of Botany, including the following synopsis:

"If you can't stand the heat . . .

Although many thermo-tolerant micro-organisms have been described, habitats such as hot springs are a very hostile environment for more complex life-forms; it is thus not surprising that only a few vascular plants grow in geothermal areas. Previous studies suggest that soil temperature is the major limiting factor for plants in these habitats. In a fascinating study carried out in the Yellowstone National Park, USA, Stout and Al-Niemi (Montana State University, pp. 259-267) have found only nine angiosperm species, four of which are grasses, that can grow in soils with a mean temperature of above 40 degrees C at 10 cm depth. Both perennial and annual lifestyles are represented and several of the species are actually confined to hot soils; the dominant grass is *Dichanthelium lanuginosum* (formerly *Panicum thermale*). The mean temperature of 40 degrees C hides the extremes that these plants survive: rhizosphere temperatures as high as 65 degrees C have been recorded and it is not uncommon for temperatures to remain above 50 degrees C for extended periods. How do these plants survive? The authors have started to tackle this question by surveying the distribution of small heat-shock proteins (sHSPs) and of one larger HSP (HSP101). Taking *D. lanuginosum* as an example, sHSPs are expressed in roots at soil temperatures above 35 degrees C but are not present in leaves until the soil temperature reaches 45-50 degrees C. (Leaf temperatures are generally 15-25 degrees C lower than rhizosphere temperatures.) The expression of sHSPs is also induced by transferring laboratory-grown plants to 40 degrees C for 2 h. HSP101 is present under all conditions in both roots and leaves but the amount of protein increases with increasing temperature. This is an exciting start to understanding the extreme thermo-tolerance of this fascinating group of plants: it is particularly encouraging to

see molecular biology being applied to wild plants in the field."
Professor J. A. Bryant
University of Exeter, UK

G[illegible]s
Rich. Stout (Co-P.I. with Joan Henson, Microbiology), "Fungal-Plant Mutualism for Protection from Acidic, Thermal Soil in Yellowstone National Park", DEPSCoR

New Employees
René McGruger - 324 LJH - Account Tech
Hi, my name is René McGruder and I am the new Account Technician for this Department. I am back to work after a two-year hiatus, following the birth of my second child. My husband, Pat, and I have two girls. Melanie is five and Malorie is 2. I graduated from the University of Nevada - Reno in 1993 with a BA in secondary education. My major was math and my minor was E[illegible]h. I am originally from Northern Nevada, but have been in Bozeman eight years now. I enjoy playing volleyball, camping, swimming and spending time with my family. I am very excited to be back to work and look forward to meeting all of you.

Bob's Byte
(Irene Decker filling in)
If you're in frequent email communication with somebody, you can avoid the exhausting task of selecting their email address from your address book or entering it in the **To:** field by creating a Desktop shortcut instead.

First, right-click on a clear area of your Windows Desktop. Then select **New > Shortcut** from the menu that appears.

In the **Command Line** field, type **mailto**: followed immediately (no spaces in between) by the email address of the person you're frequently emailing. **Bonus Tip:** Don't forget to include the c[illegible] immediately after "mailto".

After entering the email address, click **Next**, and in the **Select A Name For The Shortcut** field, type in the person's name.

Click **Finish** and a new shortcut will appear on your Windows Desktop.

Using Your New Shortcut
The next time you want to email Uncle Rudy, double-click his icon and your email program will open with Uncle Rudy's email address automatically entered in the **To:** field.

Lettuce - Bolting and Bitterness
by Bob Gough

If you're like me, you had tons of lettuce this year. I always plant 'Black Seeded Simpson' and I'm never disappointed. But lettuce and hot weather don't mix. Lettuce is a cool-season crop and if you leave it in the garden too long, it bolts. What is bolting, what causes it, and what can you do about it?

Simply put, bolting is the premature formation of a seedstalk. A lot of crops, including beets, spinach, cabbage, and lettuce, sometimes form seedstalks too early. The quality of the edible portion of the plant goes to pot and there's nothing to do but plow it under. Fortunately, we've studied bolting in lettuce quite well.

We used to say it was caused by high temperatures. But if you've gardened for a while, you'll know that is too simple of an answer. Nothing is that simple. Yes, high temperatures are a contributing factor, but the length of the day and the cumulative number of hours of light are also important players. Long days favor bolting; short days favor vegetative growth. And the more long days you have, the faster the process moves. Now, in the gardens of our region, long days and high temperatures go hand in hand, so there you have it. To further complicate things, the high temperatures can bring on moisture stress, which itself may speed bolting. And the amounts of bitter compounds, the sesquiterpene lactones, increase as the plants approach flowering. That's why bolted lettuce tastes bitter. What to do about this problem? Plant lettuce early and push it to harvest before the weather gets too hot and the days too long.

September Birthdays

Tracy Dougher	1
Debbie Willits	3
Irene Decker	5

Oliver Zietlow	13
Melody Schimpf	15
John Terry	17
Garv Strobel	23
W m Dyer	26
Mark Young	27
David Baumbauer	27

On the Personal Side
Lynn Goosey Ties the Knot

Lynn Goosey and Eric George were married August 3 at the Jones Ranch on Fleschman Creek west of Livingston. Lynn's son Emmett had the privilege of walking his Mom up the aisle. Congratulations Lynn, Eric and Emmett!

Recipe of the Month
Ice Cream Cake
1 box white cake mix
1 1/4 cups water
1 up vegetable oil
3 egg whites
1/2-gallon box pralines and cream ice cream
4 cups (2 pints) vanilla ice cream

1 Make your cake following the directions on the box. If you are making the white cake you will likely blend the cake mix with water, oil, and 3 eggs. Pour the batter into a greased 9 x 13-inch baking pan and bake at 350 degrees for 30 to 35 minutes. This will make a thin cake for our bottom layer. When cake is done, let it cool to room temperature.
2. When the cake has cooled, carefully remove it from the pan and place it on a wax paper-covered cookie sheet, or a platter or tray that will fit into your freezer.
3. Use a sharp serrated knife (a bread knife works great) to slice the ice cream lengthwise through the middle,

box and all, so that you have two 2-inch thick sheets of ice cream. Peel the cardboard off the ice cream and lay the halves next to each other on the cake. Slice the edges of the cake all the way around so that the cake is the same size as the ice cream on top. Work quickly so that the ice cream doesn't melt. When the cake has been trimmed, place it into the freezer for an hour or two.
4. When you are ready to frost the cake, take the two pints (4 cups) of vanilla ice cream out of the freezer for 20 to 30 minutes to soften. Stir the ice cream so that it is smooth, like frosting. Use a frosting knife or spatula to coat your cake with about 2 cups of ice cream. Cover the entire surface thoroughly so that you cannot see any of the cake or ice cream underneath. Pop the cake into the freezer until you are ready to serve it.
6. When you are ready to serve the cake, leave it out for 10 minutes before slicing. Cut the cake with a sharp knife that has been held under hot water. Makes 1 large cake (16 - 20 servings).

Tidbits
You may wish to use another flavor cake mix such as chocolate or devil's food for this dessert - even low-fat cake mix works. It's up to you. Just follow the directions on the box for making the cake in a 9 x 13-inch baking pan.

You can also use any flavor of ice cream. Just be sure to get it in a box.