Plant Science Says

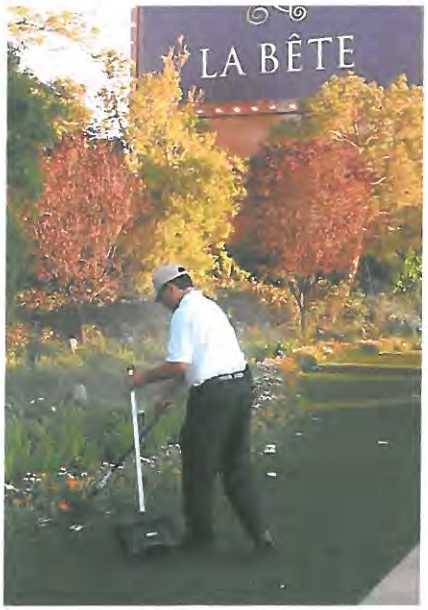
August, 2005

Ivie named Fellow

Michael Ivie, associate professor of entomology at Montana State University, has been named a Fellow of the Royal Entomological Society in London. Nominated by colleagues in London, he was elected to this life-time honorary position by the society's trustees. Ivie has worked at MSU for 20 years and serves as president of the Entomological Society of America. He has spent much of his career in the West Indies.

102nd Annual International Conference of the American Society for Horticultural Science-Las Vegas
by Toby Day

Viva Las Vegas! Tracy Dougher, Robert Gough, and Toby Day attended the 102nd Annual International Conference of ASHS, July 17th-22nd in lovely Las Vegas. O.K. you caught me in a lie, Las Vegas is more like hell on earth and almost as hot-115°F for the high and 107°F by midnight. They say that there was a low of 94°F, but I don't believe them. The intense heat as well as the absurdity and debauchery of Vegas did not detour our fellow horticulturists from enjoying the many seminars, workshops, and posters where you could see and discuss the most recent research in horticulture. As a graduate student, I was pleased to know that I could learn about anything from "Production Systems for Celosia in a Tobacco Transplant Greenhouse," to "De-greening of Early Season Satsumas in Louisiana," and even "Tolerance to *Rhizoctonia solani* and Garden Performance of Wax Begonia Cultivars." In all honesty, I was very pleased to learn about all the research that is being conducted all over the world as well as meet many of the great horticulturists and discuss their work. Considering that our college has a Fellow of the ASHS (Bob Gough) and that Tracy Dougher has many connections throughout the organization, I met many wonderful people. Some of those wonderful horticulture scientists from University of Arizona as well as some NASA folks from Florida and I also bonded at Gilley's, a Country and Western bar in the Frontier, where conversations centered around the seminars of the day as well as who stayed on the mechanical bull the longest. On Friday the 22nd, I took a Horticulture tour of the Bellagio Resort, the Centre for Urban Agriculture and Water Conservation, and the newly opened $2.7 billion Wynn Resort and their $40 million landscape. The CUAC was very informative and it was also very inspiring to see how volunteers have created an oasis of orchards and gardens in the middle of the desert, as a



wave of new homes threatens to destroy their happiness. The resort tours showcased what you could do with a landscape if you had all the money in the world. It was interesting that even if you have all the money in the world that you would choose to use artificial turfgrass. Note the picture: Turfgrass management at the

Wynn Resort meant sweeping up the cigarette butts.

Tracy was mostly busy with committee meetings as she was elected Chair of the Membership Committee and is currently serving a two-year term as Chair of the Controlled Environment working group. She organized a fabulous workshop on "Medicinal Plants in Controlled Environments". The Controlled Environment Working Group is planning a colloquium on "Scaling Gas Exchange Measurements" for 2006 and "Why the US lags behind the rest of the world in commercial controlled environment" for 2007.

Tracy was also busy recruiting for the vice-Briggs position.

Horticulture Display at the 4H Congress
By David Baumbauer

"We could build a greenhouse!" The words slipped out before I realized I had just volunteered to design an "interactive" display for the College of Agriculture's booth at the 4H Congress. Over 500 4Hers participated in this year's congress held at Brick Breeden Fieldhouse, July 12th-15th. With support from the Dean's office and the Horticulture Endowment fund, a 20' by 40' greenhouse frame arrived at the PGC. Now, how do we make plants interactive……

Excited for a diversion from mixing soil and power washing greenhouses, PGC staffers Rich Dunkle, Jessica Knox and Hunter White assembled a portable Nutrient Film Technique lettuce growing system. Culinary herbs were grown for the olfactory effect and an observation beehive was brought in to give the display a little buzz. Tracy Dougher and Youself Zadegan came to the rescue with displays on turf grasses and landscape design. The Potato Lab provided a display on tissue culture technique and floriculture was represented by large floral planters grown by PS 434 students for the College's graduation ceremony.

We met some interested youth, their parents and club leaders. One confided that she had a similar hydroponics system gathering dust in her basement. It seems her husband used to grow another 'high' value crop, and she was pleased to find other uses for her system.

The greenhouse frame will be reassembled at the Horticulture Farm and be used by students in a variety of Horticulture classes.

Camelina sativa: A low-input oil crop for omega-3 culinary oil and animal feeds
Alice Pilgeram, David Sands, Duane Johnson and the Great Northern Growers

Camelina sativa, or camelina, is a crop containing valuable oil, fiber and high quality protein. This crop can be economically produced throughout Montana providing a much-needed high value crop with relatively low input costs for Montana producers. The oil content of camelina is 40-48% and contains high levels of omega-3 fatty acids. Omega-3 fatty acids are rapidly emerging as the healthy oil of the 21st Century and are beneficial in the prevention and management of many chronic diseases including cardiovascular disease and arthritis. The most common source of omega-3 fatty acids in the human diet is fish but few Americans consume adequate quantities of this important food. MSU and the Great Northern Growers are working together to scale-up production of camelina in Montana. Currently, there are 400 acres of camelina in production

Camelina sativa

throughout Montana with a projected harvest in early August. The seed will be cold pressed to extract the oil at Peaks and Prairies Oilseeds in Malta. The oil can be used to produce high-value culinary and cosmetic products or environmentally-friendly biofuels and biolubricants. Camelina meal, the seed by-product after oil extraction, retains about 10% oil and can be formulated into omega-3 enriched animal feeds (cattle, poultry, fish and pets). The Montana Department of

Camelina sativa stand at the NWARC in Creston, MT (2004)

Commerce Research and Commercialization funding will support scale up production of *Camelina sativa* in Montana and development, processing, and marketing of high omega-3 culinary oils and animal feeds. Camelina is a great opportunity for Montana growers to diversify their crop profiles and to enhance their profitability. A camelina contact is pilgeram@montana.edu.

Grad student at Montana State University Science and Natural History Film-making Receives ward in Professional International Competition

Amanda Grue, Montana State University graduate student, has received second place in the international film competition of the Association Liaison Office (ALO) for University Cooperation in Development. The award included $750 and premier showing of the film at the plenary session of the Synergy in Development Conference in Washington D.C. 28 July 2005. This was the only student-generated film in the top four. Mentors for the film were Dr. Florence Dunkel, Montana State University (MSU) Department of Plant Sciences, and Dr. Ronald Tobias, MSU Department of Media and Theater Arts, Co-Director of the Program in Science and Natural History Film-making. Assisting in the project was Ms. Grue's undergraduate mentoree, Benjamen Stull, senior in Media Production.

The film is 12 minutes. It is titled "Junior Mentors Synergize Partnerships". On-location filming in Mali by the MSU students was supported by the USDA Higher Education Challenge Grant entitled "Discovery-Based Undergraduate Education: Collaborative Research Support Programs (CRSPs)". On-location mentoring was supported by the graduate level, Mali-based project, Linking Biotechnology and Bioengineering with Mali-based Agribusiness" funded by the US Agency for International Development-Washington through ALO. P.I. of these grants is F. Dunkel, Co-PI is Dr. Cliff Montagne, MSU Department of Land Resources and Environmental Sciences. Malian director of the projects is Dr. Kadiatou Gamby, l'Institut d'Economie Rurale, Sotuba, Mali. Copies and more information are available from F. Dunkel at 406-585-2412 ueyfd@montana.edu

Montana State Seed Lab Update
By Harold Armstrong

Lucy Cooke and John Terry in the Montana State Seed Lab attained accreditation as Certified Seed Analyst in purity this spring. The Certified Seed Analyst (CSA) title is conferred through the Association of Official Seed Analysts. "The Association of Official Seed Analysts (AOSA) is an organization of member laboratories. Members include official state, federal, and university seed laboratories across the United States and Canada.

Membership is extended to allied laboratories (those of government agencies and institutions outside the United States and Canada), affiliate members (those individuals employed in member laboratories), associate members (individuals not assigned to a member laboratory but contribute in a supportive role), and honorary members (those who have distinguished themselves in contributions to the Association and /or industry).

AOSA was formed in 1908 in response to initial attempts by individual states to develop seed laws. This was the beginning of regulated seed commerce in the United States. Initial priorities included, as was defined in the constitution, an attempt to seek uniformity and accuracy in methods, results, and reports. It set as its objective an effort to perfect and make publicly known, through publication, uniform rules for seed testing.

To assure a high standard of quality, many individuals within the AOSA member laboratories have acquired AOSA Certified Seed Analyst status through extensive training followed by a mandatory certification testing process." AOSA home page: http://www.aosaseed.com/.

Montana State Seed lab analysts have now obtained the following accreditations: Harold Armstrong, Registered Seed Analyst (RST), Lucy Cooke, CSA in both purity and germination, John Terry, CSA in both purity and germination, and Bridget Westfall, RST and CSA-Purity. These tests can only be taken after at least two years in a seed lab, Angelia Sufferidge has been a seed lab analyst for only one year.

The RST title is conferred through the Society of Commercial Seed Analysts. This accreditation is broken into two segments; purity (seed identification and rules) and germination (viability testing). This title is achieved only after passage of all sections of the exam in

a single day. There are 140 RST's in the United States, Canada, Australia and New Zealand. "The Society of Commercial Seed Technologists is an organization comprised of commercial, independent and government seed technologists. Formed in 1922, the SCST functioned as a liaison between the Association of Official Seed Analysts (AOSA) and the American Seed Trade (ASTA). The SCST has developed over the years into a progressive organization that trains and provides accreditation of technologists, conducts research studies and proposes rule changes, and serves as an important resource to the seed industry." SCST home page: http://www.seedtechnology.net/
The certificates were presented at the AOSA/SCST/Commercial Seed Analysts Association of Canada (CSAAC)/International Society of Seed Technologist (ISST) joint meetings in Saskatoon, Saskatchewan, Canada, attended by Harold Armstrong. Harold is active in education and training committees in AOSA, SCST and ISST. Harold also attended workshops on grading seed by the Canadian Methods and Procedures as well as a workshop on comparing the Rules for Testing Seed between the United States, Canada and the European Union.

Faculty Searches
Our new Landscape Design Professor, Bill Pond, arrived August 3. He comes to us from UniCeub, Educational Center for Brasilia, School of Architecture and Urban Planning) in Brazil. Also, we have concluded the search for an oilseed geneticist. Dr. Chaofu Lu will be starting approximately August 25. He was working at Washington State University in Pullman, Washington. The searches to fill the positions of Jack Riesselman and Jeanne Briggs will begin this fall. The search committee for the vice-Briggs position is Tracy Dougher (Chair), Rich Stout, Norm Weeden, Mike Giroux and Bill Dyer and the for the vice-Riesselman position, it is Phil Bruckner (Chair), Alan Dyer, Lynn Paul (Extension Specialist), Dave Phillips (Regional Director), Larry Hoffman (County Agent). Both searches will start this fall with the goal of a start date next summer.

New Graduate Student
Paul Trusty – Cathy Cripps, 109 ABS

My name is Paul Trusty and I am from Bismarck, ND. I attended Lewis and Clark College in Portland, OR where I received my undergraduate degree in Biology with a focus in Ecology. Currently, I am working on my master's degree with Dr. Cathy Cripps in her mycology lab. My research interests are in working with mycorrhizal fungi and their application in reforestation or remediation. I enjoy hiking, biking, snowboarding, taking long walks on the beach and holding hands while watching the sunset.

Grants
Mareike Johnston, Office of Sponsored Programs, "Epidemioogy and Control of Barley Leaf Diseases Caused by Fungal Pathogens".

Mike Giroux, Office of Sponsored Programs, "Dissection of Yield Enhancement in Cereals".

Tom Blake, Office of Sponsored Programs, "Development of Malting Barley Varieties Adapted to Montana".

Publications
Lavin, M., P. Herendeen, and M. F. Wojciechowski. 2005. Evolutionary rates analysis of Leguminosae implicates a rapid diversification of lineages during the Tertiary. Systematic Biology 54: 530-549.

Bob's Byte
By Bob Johnston

This is a helpful hint for the instructions in the department that would like to contact all the students in their class with just 1 email message.
This information is supplied by ITC.

MSU-Bozeman Class Roll E-mail Lists
For each section class roll that is available for the current term, a corresponding e-mail list exists on the MSU-Bozeman list server. The lists may be used by classroom instructors to communicate with their students, or as a forum for classroom discussion. The lists are updated nightly to track drop/adds and e-mail address changes.

What are the list names?
The list names are the concatenation of the subject area, the course number, and the section. Example list names are **BIOL27701** and **ime37802**. The case of the name is not important.

How do you send e-mail to a list?
Simply send an e-mail message to the list name at the list server. Example list addresses are **BIOL27701@listserv.montana.edu** and **ime37802@listserv.montana.edu**.

Who can send e-mail to a list?
Anyone who is on a list can send e-mail to the list using the exact same address. As well, e-mail messages are

accepted from any montana.edu domain address. If you are the classroom instructor and wish to use an address outside of montana.edu, simply subscribe yourself to the list first as detailed below.

Who is on a list automatically?
Any student who is on the current class roll and has a known e-mail address is on the e-mail list. The lists are updated nightly at approximately the same time as the class rolls.

What e-mail address is used?
The e-mail address for each student is taken from the student database. A student's address can be checked by accessing the MSU Student Directory.

How do students change their e-mail address?
Students can change their e-mail address by using MyInfo. Addresses that are changed by 9 p.m. will be changed on the e-mail lists overnight. Students can get help if needed at the ITC Help Desk.

Can I add myself to a list?
Classroom instructors and teaching assistants may need to be on the lists. You can add yourself by sending the following commands in the body of a plain-text message to **listserv@listserv.montana.edu**. Replace ***listname*** with the name of a specific list, like BIOL27701. This process needs to be done once per term.

subscribe ***listname***
quit

Need additional assistance?
Please send e-mail to classrolls@montana.edu.

Elm Trees Leaking Sap
By Bob Gough

Do you notice your trees oozing a sour-smelling liquid from cracks and crotches? It stains the trunk gray or tan where it flowed, affecting the ornamental value of the plant. Leaves on affected branches may wilt and even fall prematurely. If these symptoms describe your trees, they may have been wetwood.

A lowly bacteria, *Erwinia nimipressuralis*, can bring your great trees low. The bacteria enter small cracks in weakened, drought-stressed plants. They enter the heartwood and begin to ferment the tree sap. The gasses caused by fermentation increase the sap pressure, forcing the now foul, bacterial-laden sap to ooze out of the tree. This is called the flux and because it is often slimy, we sometimes call it "slime flux". The condition may persist for years. It is most common on poplar, ash, and elm, but can attack most trees.

There is no effective chemical treatment for slime flux. About the only thing you can do is to bore a hole into the trunk, slanting upward, below each oozing wound. Insert a half-inch diameter plastic tube into the hole until it stays in place. Don't push it too far in or you'll clog it with wood tissue. Let the tube extend an inch or so beyond the trunk so that the dripping flux will fall to the ground and not run down the tree. And be sure to disinfect your tools with rubbing alcohol after each use.

Recipe of the Month
Tin Can Ice Cream contributed by Elaine Nichols

1 cup milk
1 cup whipping cream
1/2 cup sugar
1/2 teaspoon vanilla extract
Nuts or fruit as desired

Put all ingredients in a 1-pound coffee can with a tight fitting plastic lid. Place lid on can. Place can with ingredients inside a 3-pound can with a tight-fitting plastic lid.

Pack larger can with crushed ice around smaller can. Pour at least ¾ cup of rock salt evenly over ice. Place lid on 3-pound can. Roll back and forth on a table or cement slab for 10 minutes. Open outer can.

Remove inner can with ingredients. Remove lid. Use a rubber spatula to stir up mixtures; scrap sides of can. Replace lid. Drain ice water from larger can. Insert smaller can; pack with more ice and salt. Roll back and forth for five more minutes.

You will need about 2 bags of ice for 3 cans of ice cream.

August Birthdays

Barry Jacobsen	6
Thamir Al-Niemi	6
Al Scharen	9
Sheryl Quigley	22
David Sands	30

The fifth annual Frontiers in Biotech class has almost come to a close. Eleven high-school seniors from around the country are participating in a yearly biotechnology internship program under the tutelage of Dave Sands, Tami Goetz (Salt Lake Community College) and Cheryl Powers (Cate School in Carpentaria, California). As you can see from the picture above, one of the highlights was a visit by Sandra Day O'Connor, former Supreme Court Justice. A student, Becky Nielson stated, "It was such an honor to meet her. She had intelligent input on whatever subject we talked about."

One of the goals of the program is to expose students to many different areas of biotechnology, primarily through discussions with numerous MSU researchers, library research, and significant hands-on individual laboratory research projects. At the end of this year's four week session, the students will each gave a presentation on their project. This will occur on Friday, August 5th, at 9:30 a.m. in 108 ABS. The titles of the presentations are, "The invasion of Kudzu: A Comparative Study", "France's Big Problem: The Phage that will save France's Cash Crop", "Systemin and the Plant Defense Response", "Weaknesses of the Plasmodium: A possible cure for Malaria", "Bees, Goats and Systemin", "Anti-microbial Effect of Camelina sativa", "Acrylaminde: A Toxin Found in Many Fried and Baked Foods" and lastly, "Ice Nucleating Bacteria: Saving the World's Polar Ice Caps". You are welcome to come to any or all of the seminars.