The past quarter has been very productive and eventful for our faculty, with a large number of awards and honors for our students, faculty and staff (pages 2-4). Dr. Nguyen was recently elected Fellow of AAAS. Also, I rode over to Kansas City with Emily and Tim to see them receive scholarships at the Western Seed Association’s Annual Convention. Nine scholarships were awarded nationally and Mizzou Plant Sciences received two of them. These folks and the many others listed in this section are to be congratulated for the honors they bring to our group. We also have a tremendous list of new grants and publications in this issue (pages 11-13).

Won Kyo Jung joined our faculty to work on rice production research at the Delta Research Center in Portageville (page 4). Feel free to contact Won Kyo if you would like to visit with him on one of his several planned trips to Columbia this season.

Perry Gustafson just stopped by the office today to say that the International Plant Molecular Biology Congress, held recently in St. Louis, was very successful even with the economic situation around the world. A number of faculty and others from Plant Sciences participated in the program and represented us well.

On the recruiting front, Jim Schoelz, Walter Gassmann, and many others, are intensely involved with organizing invitations for a strong group of prospective graduate students to campus on February 5th and 6th. If you have an interest, please contact Christa to find out more details. They have scheduled multiple opportunities for faculty and current graduate students to interact with the visitors.
Awards & Honors

Awards at North Central for Weed Science program

The 64th Annual North Central Weed Science Society meeting was held December 7-10 in Kansas City, Missouri. Two members of the Division received awards. Kevin Bradley, Associate Professor, was awarded the outstanding young scientist award; Reid Smeda, Associate Professor, was awarded the outstanding educator award, one of the most distinguished achievements the society bestows. Graduate student Tye Shauck represented the division well by placing second in the Weed Biology and Ecology paper presentation contest.

Kallenbach receives Extension Teamwork Award

Rob Kallenbach, Professor, was awarded the Extension Teamwork Award. This award honors faculty and professional staff members who have collaborated on an interdisciplinary and/or cross-campus team to develop, implement and evaluate a specific educational response to a specific need of the people of Missouri.

Heinz Recognized for 30 years of Service at MU

Bob Heinz, Research Specialist with Dr. Melissa Mitchum and Coordinator for the Extension Nematology Lab at MU, was recognized for 30 years of service at MU in 2009. For the last 30 years, Bob Heinz has been an integral component of the Nematology program at the University of Missouri. He began his career at MU in 1979 when he started as a Research Assistant working with Dr. Victor Dropkin, a Nematologist in the former Dept. of Plant Pathology. Bob worked with Dr. Dropkin until his retirement. Following Dr. Dropkin’s retirement, Bob worked temporarily with Dr. Virgil Leuders until Dr. Terry Niblack, a Nematologist, was hired in 1988. Bob worked with Dr. Niblack until she left for the Univ. of Illinois in 2001. Soon after Bob was appointed as the Coordinator for the MU Extension Nematology Lab and joined Dr. Mitchum’s Nematology program in 2003 as a Research Specialist. In these roles, Bob manages the everyday operations of the Nematology Clinic and provides critical support functions for Dr. Mitchum’s Nematology Research and Teaching program. Thank you for your outstanding contributions over the past 30 years to the nematology research, teaching, and extension mission of the University of Missouri. Congratulations Bob on 30 years of worms!

Reinbott and Trinklein receive Honorary FFA Degrees

Tim Reinbott, Research Associate and Superintendent of the Bradford Research and Extension Center, and David Trinklein, Associate Professor, recently received Honorary FFA Degrees. The honorary degree recognizes individuals who make extraordinary long-term differences in the lives of students and inspire a new generation of agriculturists. "The award acknowledges their outstanding personal commitment to agricultural education and the FFA," said Bryan Garton, CAFNR Associate Dean and Director of Academic Programs.
Awards & Honors

Nguyen receives two honors

Henry Nguyen has been invited to join the editorial board of the journal, *Molecular Breeding*. *Molecular Breeding* is an international journal focused on applications of plant molecular biology: research most likely leading to practical applications with demonstrable benefits for farmers, the seed and processing industries, the environment and the consumer in both the industrialized and the developing world. His term will be for three years.

In November, the AAAS Council elected 531 members as Fellows of AAAS. Division of Plant Sciences professor, Henry Nguyen was one of the members elected. These individuals will be recognized for their contributions to science and technology at the Fellows Forum to be held on February 20, 2010 during the AAAS Annual Meeting in San Diego, CA. The new Fellows will receive a certificate and a blue and gold rosette as a symbol of their distinguished accomplishments.

Arelli elected ASA Fellow

Prakash R. Arelli, a Division of Plant Sciences Adjunct Faculty member, was awarded the honor of ASA Fellow at the American Society of Agronomy annual meeting held November 1-5 in Pittsburgh, PA. Arelli is a supervisory research geneticist and agronomist with USDA-ARS midsouth area in Jackson, TN. His program focus is on soybean breeding to genetically manage cyst nematode. Arelli served as an Associate Editor for *Crop Science* and the *Journal of Plant Registrations*.

Students receive awards and scholarships

Roland Holou, PhD student, received the International Plant Nutrition Colloquium Fellowship for “Plant Nutrition for Sustainable Development and Global Health” held August 26-30 in Sacramento, CA. This was a competitive fellowship offered to students by the International Council for Plant Nutrition to attend the XVI International Plant Nutrition Colloquium.

Holou also took third place in the ASA-CSSA-SSSA Graduate Student Minority Poster Contest and Kenneth Binkholder, Master’s graduate student, was awarded second place in the Graduate Poster Competition held November 1-5 at their annual meeting in Pittsburgh, PA.

Enzhan (Steve) Song, Master’s graduate student supervised by Dr. Xiong, was awarded $1,000 for the Turfgrass Student Scholarship by Mississippi Valley Golf Course Superintendents Association (MVGCSA) on November 19 in St. Louis, MO.

John Daniel, a senior in Turfgrass Management emphasis area, was awarded $2,000 for the Turfgrass Student Scholarship by Heart of American Golf Course Superintendents Association (HAGCSA) on December 16 in Overland Park, MO.

Students win awards at ESA Meeting

Ian Keesey, Lisa Miehls and Megan Zeller each took first place in their respective posters competition at the Entomological Society of America national meeting, which took place December 13-16 in Indianapolis, IN. Keesey’s poster was titled “Identification of plant volatiles and their affect on the behavior of the lesser chestnut weevil, *Curculio sayi* (Coleoptera: Curculionidae)”; Miehls’ poster was titled “Greenhouse selection and field performance of western corn rootworm (*Diabrotica virgifera virgifera*) colonies selected on Cry3Bb1-expressing corn”; Zeller’s poster was titled “A Comparative Analysis of Aquatic Insect, Amphipod, and Isopod Communities in Missouri Spring Systems.” The ESA is the premier entomological society in this hemisphere, and the national meeting was attended by approximately 2,500 entomologists from around the world.
Students awarded scholarships at WSA Convention in November

Nine students from around the country received scholarships at the Western Seed Association’s 110th Annual Convention. Plant Sciences undergraduate students Emily Brunk, junior, and Tim Noellsch, senior, were two of the nine that received scholarships at the convention held in Kansas City, MO, November 7-10, 2009. Brunk, emphasizing in crop management, is a member of the Agronomy Club and has worked for Dr. Anne McKendry’s wheat breeding lab for two years. She plans to graduate in December 2010 and begin a career in the agriculture industry. Noellsch, emphasizing in crop management, is a member of the Horticulture Club and has worked at the campus greenhouses for two years, as well as MU’s Bradford Research Farm as a Research Assistant. He plans to graduate in 2010 and start a career in crop management.

Programs & People

Jung joins Division for Rice Production Research in Portageville

Dr. Won Kyo Jung joins the Division of Plant Sciences, College of Agriculture, Food and Natural Resources as Research Assistant Professor in rice production research in January, 2010. He will be located at the Delta Research Center in Portageville, MO. Dr. Jung joins four other Plant Sciences faculty members currently located at the Center. The Bootheel represents the northern edge of US rice production and provides a unique opportunity to conduct research to improve profit potential for Missouri’s rice growers. Dr. Jung’s goal is to conduct applied research that meets the needs of our producer clientele and the scientific community.

Won Kyo earned B.S. and M.S. degrees in Agronomy focused on crop science at Yeoungnam University and Kyunghee University in Korea. He worked for the National Academy of Agricultural Science, Rural Development Administration in Suwon, Korea as an agricultural researcher beginning in 1989. He earned the Ph.D. degree in Soil, Environment and Atmospheric Science here at the University of Missouri. Won Kyo’s research in rice production and soil management technologies involved the application of satellite remote sensing, precision agriculture, and geo-statistical technologies. He has also studied organic carbon dynamics and global warming impacts of long-term rice cropping systems.

Voothuluru appointed member of MCASPB

Priya Voothuluru, doctoral student in Bob Sharp’s lab, was appointed as the graduate student member of the Membership Committee of the American Society of Plant Biologists, effective October 1st. This is a five-member national committee. The membership committee is responsible for organizing society membership promotions. Such promotions include development of membership recruitment and retention strategies, development of membership promotional materials, establishment of membership goals, and organizing a network of society members to assist in these efforts.
DPS Technology Information, Tonya Mueller

DESKTOP ENHANCEMENT
As the university continues to restrict spending, your technology options have changed. Most faculty are probably aware of the desktop enhancement computer purchasing program. The division is allotted a specific amount of income to upgrade faculty/staff computers annually. In the past we were given a lot of room to decide how we distributed this money. The policies for spending this money have become more defined, and we are vastly limited on who is allowed to use the money and what we are allowed to purchase.

The 2010 allotment has been restricted to individuals that are “paid on Academic Programs and/or AES GO Dollars and be a full FTE.” This vastly restricts who even qualifies for the money this year. The other qualification is that an individual must have a critical need for a new computer. Computers that are four or more years old and that no longer run the programs you require for your job may qualify you for a new computer. I hope to put a proposal together for the division in the next few months.

EQUIPMENT PURCHASING
Gary Tyler and I continue to discover technology purchases that we were not consulted on prior to purchase. We ask that before making the purchase of a computer or anything you plan to plug into a computer, you notify us or ask for our assistance. This is particularly important if you expect us to set up or service the device. By asking for our assistance, we may be able to get you a better price or offer an alternative that may better suit your needs or be of better quality. This early notification also allows us to set aside time for setup and to get network connections or other services installed prior to the device arriving on site.

Changes in Antivirus Software
The Division of Information Technology (DoIT) has not renewed their long standing license agreement with Symantec for the universities system wide computer antivirus protection. This change will take affect January 1, 2011. This change will impact pretty much every faculty, staff and graduate student in the division. Over the next year Gary and I will be uninstalling your current Symantec product and replacing it with the freely available “Microsoft Security Essentials.” This change will also need to be done on your personal computer if you are using the universities’ licensed software at home. If you do not uninstall and this software by January 1, 2011 you will be breaking the law. I will be putting together and/or making available an instruction sheet on how you can successfully uninstall Symantec and replace it with Microsoft Security Essentials.

KATE RILEY
I have had some questions as to what the job responsibilities of Kate Riley, our division part-time multimedia specialist, include. Keep in mind this is not an exhaustive list. Kate is assigned other jobs as her services are needed and time allows.

• Web design and updates (this does not currently include extensive web applications)
• Print publications (including division brochures, flyers, advertising, etc.)
• Plant Sciences Division electronic newsletter
• Create displays for and update division bulletin boards (new in 2010)

If you have need of Kate’s expertise, please contact me to get on her calendar.

Faculty Photo Updates
I have scheduled a two hour block of time with Roger Meissen at the Cooperative Extension Media Group for faculty to have their official university photos updated. We continue to run into trouble with poor quality, outdated photos for the website and other publications. You can walk in to their location on Rock Quarry anytime between 9:30 -11:30 am this Friday, February 5. Directions to the studio can be found at this website.
Remembering Om Sehgal

Om Sehgal, 77, of Columbia passed away Sunday, Nov. 15, 2009, in Columbia. He earned a Ph.D at the University of Wisconsin-Madison in 1962 and began teaching at the University of Missouri School of Agriculture in Plant Pathology in 1963. He retired as professor emeritus in 2000. He is survived by his wife, Toshi, of the home; a son, Ravi Sehgal of Columbia; a daughter, Ritu Sehgal of Los Angeles, Calif.

“Om was a good friend and one that will be missed by all that knew him. He was always upbeat about things. When his research hit a rough spot he never complained, he just continued to pursue his goal. I believe Om had that most unusual talent of always looking to the positive side of all he encountered. I often spoke of his wife as Sogi rather than Toshi. This always brought a smile to his face. That is how I will remember him. Positive, with a smile on his face.” - Tom Wyllie, Professor Emeritus.

Study Abroad-Thailand update

Bob Sites and some of his class in front of a strangler fig tree in Khao Yai National Park.

Bob Sites, Professor, leads the Study Abroad-Thailand program, which consists of a 3-credit fall semester course followed by a 3-credit winter break expedition to Thailand. The fall course is designed to familiarize students with much of what they will experience when in Thailand regarding conservation, biodiversity, and culture. To read more about this year’s adventure go to http://mizzouthailand09-10.blogspot.com

2009 December Graduates

Undergraduate Students

Dara Boardman, Plant Breeding, Biogenetics and Technology
Brett Craigmyle, Crop Management
John Daniels, Turfgrass Management
Stephen Douty, Turfgrass Management
James Essner, Turfgrass Management
Kellar Nelson, Crop Management
Kellar Nelson, Precision Agriculture
Kellen Stark, Turfgrass Management
Matthew Stump, Precision Agriculture
Kelli Wagner, Landscape Horticulture

Graduate Students

Carlos Angel, PhD Plant Pathology, J. Schoelz
William Franck, PhD Plant Pathology, G. Stacey
Satish Guttikonda, PhD Agronomy, H. Nguyen
Sang-Hee Kim, PhD Plant Microbiology & Pathology, W. Gassmann
Xiao-Hong Liu, PhD Plant Pathology, M. Mitchum
Kristin Payne, MS Crop, Soil & Pest Management, K. Bradley
Huong Tran, MS Agronomy, H. Nguyen

Debbon coauthors on Prevention of Bug Bites

Mustapha Debbon, a former MU student of Robert Hall and a doctoral graduate in Entomology, recently coauthored a book entitled “Prevention of Bug Bites, Stings, and Disease,” which is being printed by Oxford Publications. This volume presents the full spectrum of methods necessary for prevention of bites and stings from the worldwide variety of bloodsucking and venomous arthropods. This book is packed with helpful tips on using barriers--window-screens, bed nets, smoky coils, and proper clothing, and on choosing the right repellent for the right bug in the right place.
KNOW YOUR COLLEAGUES:
The Soil Testing and Plant Diagnostic Services Teams

Soil Testing

Manjula Nathan, Ph.D., is an Extension Associate Professor in Soil Testing and Plant Analyses in the Division of Plant Sciences. Her extension program focuses on promoting soil testing and plant analyses as a best management practice for farmers, vegetable and fruit growers, homeowners and lawn and golf course managers in the state of Missouri. The extension education and outreach program emphasizes the use of soil testing, plant and water analyses, and diagnostic techniques for economically viable and environmentally sustainable crop production. Her research program focuses on the development of effective analytical methods, improvement and updating of soil test procedures, soil test correlations and calibrations for efficient nutrient management and environmental protection. She directs and coordinates the operations of the Soil and Plant Testing lab at Columbia campus, Soil Testing lab located at the Delta Research Center at Portageville, and the Extension Nematology lab at Columbia campus. She is also in charge of the Missouri Soil Testing Association (MSTA) approval program, which is designed to assure that the soil test results provided by the participating public and private labs serving citizens of Missouri fit within allowable statistical limits.

The MU Extension soil testing program has two soil testing labs, the MU Soil and Plant Testing lab located at Mumford Hall, Columbia campus and Delta regional lab located at the Delta Research Center, Portageville. The labs provide soil analyses for field crops, lawn and gardens and commercial horticulture crops and turfs. Samples are received throughout the state of Missouri from county Extension offices, Agra Industry firms, producers and other clientele by mailing in or direct submission. Together both labs analyze about 32,000 soil samples each year and provide unbiased, research based, crop specific nutrient management recommendations for agricultural producers, Agra Industry, lawn and landscape managers, turf industry, homeowners and researchers. In addition the Columbia lab offers manure, plant tissue, compost, greenhouse media, water and environmental tests.

Steven Abernathy, Senior Research Lab Technician, ensures that the daily soil fertility analyses are done in timely manner and quality soil test results are provided to clients. He trains student lab assistants in soil testing procedures and supervise their work. He makes sure that the lab equipment is maintained in good working condition.

Yichang Sun, Senior Research Lab Technician, conducts plant, manure, compost, water, soil-less (greenhouse) media and environmental analysis and special tests for researchers using state of the art technology. He assists the lab director with research on lab method developments by performing lab analysis and data analyses. He generates the quality control and quality assurance charts for the lab and assists with the quality assurance program for the labs.

John Stecker is the Chief Clerk for Soil Testing and Plant Diagnostic Service labs. He manages the lab’s main office, answers client’s questions regarding the services offered and sample submission. He also does data entry, mailing of test reports, billing, maintains fiscal and lab data records.

Katy Mino and Kendra Foster are student lab assistants that help with sample logging, processing and soil analysis. They also help with keeping the lab clean.
**Delta Lab Staff:**
David Dunn is the supervisor in charge of overseeing the day-to-day operations of the Delta Soil Testing lab. His extension programs promote the use of soil and plant testing for efficient nutrient management. He conducts research in collaboration with other faculty on improving soil test procedures and interpretations. Most of his research activities focus on rice and cotton. Anne Johnson is an administrative assistant. She manages the Delta lab's office, answers client's questions regarding the services offered and sample submission. She also helps with soil analysis, data entry, billing, and bookkeeping. Tammy Hernandez is a lab assistant and helps with sample logging, processing and soil analysis. Tammy also helps with keeping the lab clean. Chris Turner is a senior at Portageville High School. He works in the lab as a participant in a work/study program. Each afternoon he helps with sample processing and soil analysis.

**Nematology Lab**
This laboratory tests soil and plant samples qualitatively and quantitatively for the presence of plant parasitic nematodes. Recommendations are provided for management strategies to reduce the effect of nematodes on plant growth and yield. The lab runs agricultural samples for producers in the state and research samples for MU professors and private companies. The lab mainly offers three types of tests: Soybean Cyst Nematode egg counts, complete nematode identification and enumeration, and HG Type race tests for SCN. The lab also does bioassays that certify samples are nematode-free and does quarantine work on ag products to be shipped to foreign countries.

Robert Heinz, Coordinator of the Extension Nematology lab, manages the day-to-day operations of the lab, train lab assistants and student workers in sample processing and in counting nematodes. He participates in extension education and outreach activities in bringing awareness about soybean and plant parasitic nematode infection in field, turf and gardens. He carries out special research projects for Agra industry personnel in evaluating nematicides in the greenhouse.

**Plant Diagnostic Clinic**
The diagnostic clinic identifies plant health problems. In addition to identification of diseases, insects and weeds, the clinic provides research-based management recommendations. The clinic provides support for regional Extension specialists, however many samples are also received directly from agricultural producers, crop consultants, arborists, lawn and landscape managers, turf industry professionals, and homeowners.

Simeon Wright is the coordinator of the University of Missouri plant diagnostic clinic under an advisory committee composed of Laura Sweets, Bill Wiebold, and the Turf Extension Pathologist. With the assistance of plant science faculty, he diagnoses plant problems, as well as insect and weed samples sent to the clinic from around the state. In addition, Simeon participates in and collaborates with the National Plant Diagnostic Network and North Central Plant Diagnostic Network. Simeon is also a regional widely prevalent fungi list coordinator for expedited APHIS-PPQ permits, gives guest lectures within Division of Plant Science classes, and participates in various outreach activities. Examples of recent outreach activities include contributions to newsletters such as *Integrated Pest and Crop Management* and *Missouri Environment and Garden*, as well as weekly growing season teleconferences with regional Extension specialists, Master Gardener training programs, and pesticide applicator training.

Leslie Shaw is a senior lab technician working in the diagnostic clinic. She assists with plant diagnostics, including sample processing, microscopy, culturing, data entry, report generation, and sample preservation. Leslie also helps supervise summer student helpers, organize the lab and maintain equipment.
Crop Management Conference highlights farm technology improvements

For crop farmers like Clay Mitchell, perfection seems almost within reach.

The Iowan explained precision technologies that boost his yields at the University of Missouri Crop Management Conference, Dec. 2-3 in Columbia.

“Controlled traffic helps create soil qualities in which we see yields 30 percent higher than the rest of the county,” Mitchell said.

Mitchell used a real-time kinematic guidance system where tractors, combines, sprayers and planters drive on exactly the same paths from one year to the next. GPS devices allow Mitchell to plant seed, apply fertilizer and spray herbicides with centimeter accuracy.

Driving the same path reduces compaction of topsoil that can dampen yield and lets Mitchell precisely track performance row by row.

Mitchell said that after five years, soil tests showed better water flow in his no-till operation than on neighboring farms.

“By using a no-till system with a lot of residue cover, we’re trying to simulate the soil conditions of a forest floor. Soil is protected from direct rainfall, allowing it to maintain its sponginess,” Mitchell said.

For the full story go to http://extension.missouri.edu/news/DisplayStory.aspx?N=617

A Series of Chesnut workshops take place in New Franklin for 2010

The University of Missouri Center for Agroforestry is offering a series of workshops on chestnut production in 2010. The four-day workshops will span the chestnut growing season, from site selection and planting to harvesting and sales. The workshops, which will take place at the MU Horticulture and Agroforestry Research Center in New Franklin, are aimed at current and prospective growers, extension agents and students. Course dates and topics (all sessions are on a Tuesday): March 23: Site selection, planting, graft planning and pruning. May 4: Grafting. Aug. 17: Orchard maintenance, weed control, insect scouting, pest management and disease control. Sept. 14: Harvest, marketing and sales.

Tree workshop set at FSRC, Linneus, Feb. 27

A pruning and tree-stand improvement workshop will take place February 27 at the University of Missouri Forage Systems Research Center (FSRC) in Linn County. Hank Stelzer, MU Extension forester, will start with slides on how to improve walnut stands. Mark Coggeshall, tree improvement specialist with the MU Center for Agroforestry, will show how to prune young trees to encourage quality growth. Stelzer will lead a walk in a nearby woodland to identify native trees to be released to improve growth. The workshop is free and open to the public. Coffee, hot chocolate and snacks will be provided. Advance registration is requested by February 26 by calling 660-895-5121.
## Recent Grants

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<tr>
<th>Investigators</th>
<th>Title</th>
<th>Sponsor</th>
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<td>Gowdy, M.</td>
<td>High Tunnel Production of Green Beans and Sweet Pea Cut Flowers</td>
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<td>Nguyen, H.</td>
<td>Discovery and Characterization of Candidate Genes for Resistance to Soybean Cyst Nematode</td>
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<td>Molecular-genetic regulation of seed oil accumulation in soybean</td>
<td>MSMC</td>
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<td>To develop productive Group IV and V Soybeans Resistant to Nematodes and Diseases</td>
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<td>Warmund, M.</td>
<td>An Economic Analysis of a Paddock Vacuum for the Mechanical Harvest of Chestnut Trees</td>
<td>MDA</td>
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<td>Screening Germplasm and Breeding for Resistance to Phomopsis Seed Decay in Soybean</td>
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<td>Mitchum, M.</td>
<td>Biology and Management of Heterodera glycines</td>
<td>USDA/CSREES</td>
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Recent Publications


Recent Publications


