We have been in the midst of “Field Day Season” at the many Outstate Research Centers. Many have already been completed but the Forage Systems Research Center, South Farm, and Wurdack events are coming up later in September or early in October. I really encourage you to attend one or more of the activities if you have not been able to in the past. The system of off campus Centers is critical to the Land Grant University mission of CAFNR and our programs represent some great examples of nationally recognized applied research and extension programs. Thousands of Missouri high school students also attend one of the “Agriculture Education” days sponsored by the Centers to expose students to agricultural research and extension and to potential careers in these areas.

Budgets are tight, with the rescission by campus along with unfunded salary increases, but Plant Sciences faculty, staff, and students continue to do great work in achieving the research, extension and teaching goals of our Division. Congratulations on a number of award recipients in this issue, including Gary Stacey who received the Curators’ Professor Award, which is the highest and most prestigious academic honor at MU, given only to the most outstanding scholars. Tamra Reall Lincoln was elected as graduate student representative to the Entomological Society of America Board. Debbie Finke, our newest associate professor, is highlighted in the Know Your Colleagues section in this issue.

Undergraduate enrollment continues to grow in Plant Sciences and we also had the largest number of new graduate students in several years. These student numbers reflect the very strong job market for graduates from our programs. More and more of our students are transfers, either from other institutions or internal transfers from other Mizzou programs.
Gary Stacey, professor of Plant Sciences and Missouri Soybean Merchandizing Council Endowed Professor of Soybean Biotechnology, was named a University of Missouri Curators’ Professor.

A Curators’ Professorship is the highest and most prestigious academic rank at MU. It is awarded to a select few outstanding scholars with established reputations. Each Curators’ Professor becomes a “resource of the entire University and should be expected to contribute to the entire University through such activities as giving lectures on other campuses and engaging in teaching and research across divisional lines.”

Stacey earned his undergraduate degree from Bowling Green State University in Ohio and his Ph.D. from the University of Texas at Austin in Microbiology and Botany.

He is a fellow of the American Society of Plant Biologists and the American Academy of Microbiology. In 2008 he was elected a fellow of the American Association for the Advancement of Science. He received CAFNR’s Distinguished Researcher Award and was presented the College’s Mumford Outstanding Faculty Award in 2013.

Stacey has authored more than 200 refereed journal articles, many in top journals, including papers in Science and Nature. To date he has received more than 13 patents. External funding for his research has come from the Department of Energy, National Science Foundation, National Institute for Food and Agriculture among others.

“Gary is a true scientist who is driven to gain new knowledge in many areas, and is among the broadest minded scholars I have ever encountered,” said Mike Collins, director of the Division of Plant Sciences at the College of Agriculture, Food and Natural Resources. “Gary’s career has been characterized by continual growth and innovation and he represents a tremendous resource for the University.”

Stacey was a founding board member of the Missouri Energy Initiative, an organization promoting Missouri as a source for reliable, clean and sustainable energy through public-private partnerships.

Stacey’s research concerns interactions between plants and microbes. Since the 1980s, his lab has studied the symbiotic relationship between the soil bacterium, Bradyrhizobium japonicum, and soybean. His lab chemically characterized signal molecules released by both plant and bacteria that allow the intimate interaction between these two organisms. His pioneering research into the genetics of the bacterium also resulted in the identification of the biochemical signal that results in the formation of nodules on the soybean. This discovery led to the patents that underlie Optimize, a bacterial compound that accelerates soybean vigor.

Recently, Stacey’s lab was instrumental in sequencing the soybean genome, the first major crop legume species with a published complete draft genome sequence. The lab is currently testing out a number of tools to help determine the specific function of genes in soybean, which could lead to more targeted plant improvement.
Awards & Honors

Reall Lincoln twice honored by Entomological Society

Tamra Reall Lincoln, entomology doctoral candidate working with Richard Houseman, was recognized twice for her involvement with the Entomological Society of America (ESA) this summer. First, she was awarded one of ten 2014 Medical, Urban, and Veterinary Entomology (MUVE) scholarships. The winners submitted strong applications that included senior and junior authored refereed publications, non-refereed publications, teaching experience either as teaching assistants or guest lectures, outreach and extension experience with specific emphasis on service to the ESA. Her research explores ecological influences of urban and forest fungal antagonists and their relationship with subterranean termites. Scholarships will be presented at the ESA Annual Meeting in Portland, OR, November 16-19.

Reall Lincoln’s second achievement was to be elected the Student Representative to the ESA Governing Board. She has been actively involved in the Entomological Society of America since 2010 serving on the Student Affairs Committee as Vice Chair and currently as Chair. In these positions, she represented students’ needs and assisted in organizing the student symposium, the student debates, and the student reception for ESA’s 2013 and 2014 Annual Meetings. Presently, she serves as a student representative on the ESA 2014 Program Committee and the ICE 2016 Student Affairs Committee.

Reall Lincoln recently served as president of Mizzou’s graduate student organization and the CV Riley Entomological Society. She participates in many outreach activities, including organizing hands-on science events and speaking at schools about the importance of science, research, and insects.

Undergraduates win weed science award

2014 NCWSSA Undergraduate Team Field Sprayer Calibration Contest winners Gatlin Bunton, Isaiah Akers and Austin Straatmann.

Plant Sciences majors Isaiah Akers, Gatlin Bunton, and Austin Straatmann recently finished 1st in the undergraduate team field sprayer calibration competition at the 2014 North Central Weed Science Society of America (NCWSS) annual contest.

The team was given a word problem and had 15 minutes to calculate the necessary herbicide mix size and herbicide application speed; choose the correct spray tips and nozzles; and calibrate the pressure of the spray boom in order to spray a research plot correctly.

The three students have spent the summer working in the Mizzou weed science program; Gatlin under the direction of Reid Smeda and Isaiah and Austin were supervised by Kevin Bradley.

The NCWSS is comprised of 15 states and one Canadian province; Dupont Pioneer hosted this year’s NCWSS competition at Johnston, Iowa.

Bock interns at Fruit Experiment Station

Plant Sciences Senior, Nathan Bock, positions vines as part of his summer internship at the Missouri Fruit Experiment Station in Mountain Grove. Bock also assisted teaching a Viticulture Enology Science & Technology Alliance (VESTA) workshop at Darr Station in Springfield and guest authored an article for the Ozarks Fruit & Garden Review.

University of Missouri, Division of Plant Sciences, Columbia, MO 65211 • http://plantsci.missouri.edu/
Big Shoes to Fill... by Melissa Daniels

I want to first thank everyone within the Tiger Garden and CAFNR families for such a warm welcome! I am absolutely over-joyed to be working in such a fun and inspiring environment with the most exciting and creative group of individuals a girl could ask for!

After graduating from the College of Agriculture, Food and Natural Resources with a Bachelor of Science in Hotel & Restaurant Management and a minor in Business, I jumped right into the world of special events. As an event manager I learned the significance of thinking on your feet, being creative on a limited budget and the importance of comfortable shoes. The mentoring skills I have developed throughout my time in Hospitality Management as an Academic and Career Advisor, as well as through my Master’s degree in Higher Education will allow me to provide students with advice during a vital and challenging time in their lives. With that being said, I hope to bring each of these experiences to my new position in Tiger Garden!

BUILDING PLANT SCIENCES

The MU Division of Plant Sciences has been developing a plan to BUILD. Not only have we been building outstanding research, extension and teaching programs but we are ready to build a new facility that will allow greater collaboration amongst our outstanding faculty, staff, students and the world.

For more details visit the project website: http://BuildingPlantSciences.missouri.edu

2014 Spring/Summer Graduates

Undergraduate

Cody Cornelius, Crop Management
Eulynn Davis, Crop Management
Jaime Farmer, Crop Management
Timothy Gaebler, Turfgrass Science
Michael Grissum, Crop Management
Wayne Long, Horticulture Science & Design
Dalton Ludwick, Plant Protection
Shawn Martin, Breeding, Biology & Biotechnology
Chance Mullins, Turfgrass Science
Jessica Norman, Horticulture Science & Design Kayla Petree, Crop Management
Joseph Schneider, Crop Management
Jonathan Steo, Breeding, Biology, & Biotechnology
Caitlin Vore, Breeding, Biology, & Biotechnology
Dustin Wilkerson, Breeding, Biology & Biotechnology

Graduate

Derek Cottrill, M.S.
Plant Stress Biology, L. Miller
Lauren Diepenbrock, Ph.D.
Entomology, D. Finke
Nicole Doerr, M.S.
Crop, Soil & Pest Management, R. Smeda
Mohammad Fereidouni, M.S.
Plant Breeding, Genetics & Genomics, J. Schoelz
Michael Frank, M.S.
Crop, Soil & Pest Management, F. Fritschi
John Haguewood, M.S.
Crop, Soil & Pest Management, X. Xiong
Hyun Jo, M.S.
Crop, Soil & Pest Management, G. Shannon
Sha Lu, Ph.D.
Plant Biology & Genetics, Z. Zhang
Andres Rodriguez, Ph.D.
Plant Biology & Genetics, J. Schoelz
Leah Sandler, M.S.
Crop, Soil & Pest Management, K. Nelson
John Schultz, M.S.
Crop, Soil & Pest Management, K. Bradley

Schedule a One-on-One Appointment with CAFNR Career Services

Use the MU Connect feature at Blackboard.Missouri.edu

CAFNR Career Services appointments are available for sign-up for at Blackboard.Missouri.edu. Log into your account using your pawprint and password. The career services team is also holding office hours in ASRC on Tuesdays and Wednesdays this semester. See the complete schedule online through the MU Connect system!
Meet Your Extension Specialist, A.J. Foster

Anserd (A.J.) Foster decided early on that he wanted to be a chemist. But, sometimes a class during those undergrad years can shift your focus in an unexpected direction. For Foster this was soils science at Louisiana State University, and what he didn’t expect was that you could do chemistry outside.

Foster would go on to get his M.S. in soil chemistry from LSU followed by an internship with an ag consultant. Here, working directly with farmers, “spending time with the plants,” and watching them grow, his focus would shift again. Foster still enjoyed soil chemistry, but he loved being out in the field where he could observe the whole system rather than modeling one aspect. He completed his Ph.D. in crop science at Oklahoma State University and then took his soil and crop experience to Bloomfield, Missouri where he became an Agronomy Specialist in 2004.

As of late, Foster has been working a lot with rice in both traditional and organic production systems. He has a passion for being a resource that people can come to and takes great pride in the resources and knowledge available to him as part of Extension. Foster believes that if anything holds back future progress in agriculture it will be a lack of people, not a lack of technology. This fuels his effort to inspire young people towards careers in science and technology through 4-H and FFA. “They are a technological generation,” Foster said, “and the more of that they see in agriculture the more they’re engaged with it.”

Bozzolo picked for viticulture research

Arianna Bozzolo will join the College of Agriculture, Food and Natural Resources’ Division of Plant Sciences as Assistant Research Professor, effective September 1, 2014 to conduct viticulture research. Arianna joins us from a postdoctoral position with the Missouri Grape and Wine Institute on the MU campus, where her research has focused on vineyard management experiments at the Southwest Research Center near Mount Vernon, MO and other Grape and Wine Institute test sites.

Bozzolo earned the Ph.D. Degree from the University of Padova, Italy, in 2010, in Viticulture, Enology, and Wine Marketing Companies, with a dissertation entitled “Compost application in the vineyard and its influence on soil characteristics and vegetative and productive behavior of grapevine”. Prior to that, she received the M.S. degree, also from the University of Padova. The University of Padova is among the oldest in Europe, with its beginnings in 1222.

In her 100% research role with MU, Bozzolo will be responsible for addressing the needs of the grape and wine industry in Missouri and the surrounding region through a nationally recognized program of applied and fundamental research. She will work closely with the industry to prioritize viticulture research needs and conduct research that addresses those needs and will work closely with other faculty and staff members in the Missouri Grape and Wine Institute to meet challenges facing Missouri’s grape and wine industries. Bozzolo will work as part of a highly collaborative team of faculty in enology, plant physiology, plant pathology, entomology, weed science, chemistry, meteorology, soil science and others as appropriate.

South African scholar visits DPS labs

Dr. Ndiko Ludidi, Associate Professor, Department of Biotechnology, University of the Western Cape, South Africa, visited the labs of Bob Sharp, Zhanyuan Zhang and Mel Oliver during April-May 2014 to conduct research and initiate collaborations in plant water stress metabolism and maize and soybean transformation. His visit was sponsored by the University of Missouri South African Education Program.
Mizzou Wireless Update

Providing wireless services at the scale of the Columbia campus is a significant challenge, and the Division of IT is proud to employ many exceptionally talented staff members who focus on this challenge with diligence and professionalism.

Over the course of the summer, DoIT worked tirelessly with the two primary vendors responsible for delivering the wireless network. In addition, we expanded the network’s reach into the residence halls in cooperation with Residential Life. We have made significant investments to refresh, sustain, monitor, and grow the wireless network. Unfortunately, it is apparent that our efforts and those of our vendors have not resulted in the stability that all of us expect, and we empathize with the impact of all service disruptions.

As with all services, the Division of IT posts status messages to its outage page at status.missouri.edu and the content of this page feeds numerous other sites in an effort to transparently communicate system status with our customers.

We assure the customer community that we are working diligently, professionally, and aggressively to hold our vendors accountable and improve the wireless service. As we work through these challenges, we encourage our customers to explore the numerous means by which one may continue to be productive, be it via the wired network available in many campus locations and all residence hall rooms, public computing sites, and other venues that allow us all to continue to thrive during technology failures.

Protect your password by following these best practices:

• Never share your password with anyone.
• Do not enter your password into suspicious websites.
• Be cautious when using a public space.
• Routinely change your password.
• Avoid the “save password” feature.
• Do not record passwords in a place where they can be compromised.
• Watch for signs of misuse.

View full article and additional security information at http://makeitsafe.missouri.edu/topics/index.html.

Trivia Night and Silent Auction benefits Turf Research Program

The Mississippi Valley Golf Course Superintendent’s Association (MVGCSA), a long-standing social organization for turf industry professionals that is centralized in St. Louis, arranged their 3rd annual fund-raising event benefitting turf research at MU. This year, MVGCSA members gathered for a night of trivia, a silent auction, door prizes, and raffles. The Division of Plant Sciences and CAFNR both donated gift baskets of MU souvenirs and goods for the silent auction.

Held on July 2th at the St. Anne Community Center in St. Louis, MO, the event was attended by over 200 MVGCSA members and their families. Professors Xi Xiong, Lee Miller, Jim Schoelz, and Reid Smeda, research technicians Daniel Earlywine and Brett Loman, and graduate student Joe Schneider represented MU at the event. The total dollar profit amount has not been finalized, but the proceeds generated from this event are expected to be significant.
Deborah Finke began her academic career at Centre College, a small but notable liberal arts school located in her hometown of Danville, Kentucky. A biology major, Finke’s work would so thoroughly impress her advisor that she was all but required to pursue a graduate education. This encouragement, coupled with the curiosity spurred by a course on plant-insect interaction, led her to the University of Maryland where she was conferred a Ph.D. in Entomology in 2005. After two years as a postdoc at Washington State University, Finke made her way to MU and the Division of Plant Sciences as an assistant professor of entomology in November 2007.

It is evident that Finke’s colleagues have also been thoroughly impressed by her work. In 2013 she was named CAFNR’s Distinguished Early Researcher. The award is presented for excellence in research performance that indicates a trajectory toward national or international recognition through individual research or contributions to research team efforts. She has been invited to speak at dozens of departmental seminars and symposia from Idaho to New Zealand. “I know presentations by Dr. Finke and her students are considered ‘must see’ events by other insect ecologists,” said Micky Eubanks, professor and Texas AgriLife research fellow.

Finke’s research focuses on the environmental consequences of controlling insect pests through naturally occurring predators. Finke has been turning heads by reexamining the predator-prey relationship. Her most recent work suggests that the typical view of food webs as an accounting of who eats whom may overlook dynamically important interactions among species. “Dr. Finke was among the first insect ecologists to explicitly investigate the relationship between predator diversity, herbivore abundance and plant yield from a mechanistic perspective,” said Xi Xiong, assistant professor in turfgrass science. In addition to numerous publications in top journals and over 1,100 citations, Finke is co-author of *Insect ecology: behavior, populations, and communities* the authoritative textbook on the subject. It is little wonder the division recently promoted her to Associate Professor.

Finke’s work isn’t all in the lab. Her appointment also includes teaching, another area in which she has received substantial recognition. At the University of Maryland, Finke was named a Distinguished Teaching Assistant for being in the top 10% of all campus TA’s. She currently teaches both graduate and undergraduate courses that students evaluate highly for her enthusiasm, accessibility, and organization. Finke finds the opportunity to interact with students the most rewarding aspect of the job. She enjoys guiding them through projects from analysis to presentation.

“Debbie is already on her way to a long and productive career,” commented Claudio Gratton, professor of entomology at the University of Wisconsin. “She is a stellar experimental ecologist that has made significant impacts on the field of food web ecology. Her work on whether species diversity matters has both practical and basic significance.”
The first annual Agriculture Technology Fair was held July 17 at the MU Bradford Research Center in Columbia, MO. Topics presented included planter prescription maps, sensors that monitor forage growth and cattle activity, nitrogen management using in-field sensors and aerial photographs and the role of unmanned aerial vehicles in crop assessment and management. This first-year event showed 100 participants how they might incorporate technology into improving their productivity.

Over 200 attendees braved the heat and participated in the Turf & Ornamental Field Day on July 22nd. This Mizzou event is held with administrative and financial support from the Missouri Turfgrass & Ornamental Council. Ten sponsors also warranting particular recognition for defraying the costs of the event include Syngenta, Bayer, BASF, Redexim, GR Robinson Seed, Dow, Hummert, John Deere Landscapes, Macro-Sorb, and Erb Turf Equipment. Twenty-three vendors also participated in the event, and we thank them for their support. Faculty programs led by Bruce Barrett, Brad Fresenburg, Pat Guinan, Hank Stelzer, Dave Trinklein, Xi Xiong, and Lee Miller discussed topics ranging from weather patterns and stations, billbug control, tree pest issues, lawn fertilization and management, flower selections, native plant selections, turfgrass herbicide use, current NTEP trials, turfgrass disease control, and disease diagnosis. In the afternoon, groups were provided additional tours and viewed exhibitor demonstrations. Many thanks to the South Farm and Bradford Farm crews for their support of the event.

The Crop Injury Clinic was held at the Bradford Research Center July 29-30. The two-day event treated participants to over a dozen presentations from faculty and research staff. Topics included Corn Growth and Development (Brent Myers), Herbicide Symptomology (Kevin Bradley), Weed Identification (Reid Smeda), and Pest Identification, Damage and Management of Corn and Soybean Insects (Wayne Bailey and Ben Puttler). Craig Roberts and Julia Sexton presented an update from the Alliance for Grassland Renewal.

The Lee Greenley, Jr. Research Center Field Day was held August 5th in Novelty. This year’s event featured a demonstration by Research Professor Kelly Nelson on the installation of a drip irrigation system. The system is a subsurface setup with main water lines feeding into plastic hoses placed 12 to 18 inches into the soil. Holes along the hoses allow water to slowly seep into the ground. The goal isn’t to necessarily use less water, but to get more production with the water that is available and waste less. “We are looking at being about 90 to 95 percent efficient with our water while using this drip irrigation,” said Nelson. “We have to keep conservation more in our minds if we want to keep continuing production in the long run.” Three separate tours geared toward livestock farmers and crop producers will include topics of managing nematodes in corn and soybeans, an overview of the new dicamba and 2,4-D soybeans and recommendations to control horseweed and waterhemp. The Field Day is an opportunity to connect with local farmers, researchers that are doing world-class studies in your own backyard and those involved with making agriculture decisions for the state. Newly appointed director of the Missouri Department of Agriculture, Richard Fordyce, was in attendance as well.

The Graves-Chapple Field Day was held August 26 near the northwest Missouri town of Fairfax. “We listen to what farmers are dealing with out there so we have tailored this year’s Field Day around the questions they have and the issues that they need to know about now,” said Jim Crawford, superintendent of Graves-Chapple Research Center. “We are looking at also showcasing cutting-edge technology as well the best management strategies and how to deal with common policies of today. Tour topics will include cover crops, nitrogen management strategies, current and upcoming insect issues and weed management. Extension Professor Ray Massey will give an economic outlook for cost of production. “We have been getting a lot of questions about tissue sampling for corn and soybean so we will have a talk specifically about the technique and how valuable these tests can be,” added Crawford. The event is an opportunity to connect with local producers, researchers that are doing world-class studies in your own backyard and those involved with making agriculture decisions for the state.
FIELD DAY RECAP

The **Hundley-Whaley Research Center Field Day** was held August 27 in Albany. Topics included information about tile drainage, cover crop selection and systems, summer forage options for livestock and extending nitrogen availability in corn. MU Weed Specialist Kevin Braden presented information on the latest problem weeds, such as water hemp, and how to control them. “As a farmer, the most valuable asset we have is our soil,” said Bruce Burdick, superintendent of Hundley-Whaley Research Center. “Challenge is, how we keep that soil in a good productive nature?”

MU Extension natural resource engineering specialist, spoke about the use of UAVs in agriculture. He gave and update of the latest legislation and what the future holds for the unmanned vehicles. Ty Fowler, product development manager at Deltapine, talked about what is coming in 2015 for new cotton seed technology while Andrea Jones, cotton specialist at FDRC, gave a tour of the cotton variety trials. CAFNR Dean and MU Vice Chancellor Tom Payne spoke to a crowd of more than 200 attendees about the latest news from the college. Some notable visitors in attendance were U.S. Senator Roy Blunt, MO Dept. of Ag Director Richard Fordyce, MO Attorney General Chris Koster, and MO DNR Director Sara Parker Pauley.

The **Southwest Research Center Field Day** was held September 12, 2014 south of Mount Vernon. This year’s event catered to those niche growers with talks on high tunnel greenhouse management and tree nut crops. Information for even the backyard gardener will be provided through talks about composting, tomatoes and what to expect this fall by Kelly McGowan, horticulture educator with MU Extension. For the conservationist, specialists were on hand to talk about quail habitat and how to manage native landscapes.

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UPCOMING FIELD DAYS

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<td>September 23, 2014</td>
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<td>September 27, 2014</td>
<td>South Farm Research Center Showcase - Columbia, MO</td>
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<td>October 3, 2014</td>
<td>Wurdack Research Center - Cook Station, MO</td>
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<td>October 4, 2014</td>
<td>Horticulture and Agroforestry Research Center - New Franklin, MO</td>
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UPCOMING EVENTS:

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<td>Kallenbach, R.</td>
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<td>Missouri Soybean Merchandising Council</td>
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