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Department of Plant Sciences

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Plant Sciences Newsletter

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THE UNIVERSITY of TENNESSEE
INSTITUTE of AGRICULTURE

Student Spotlight: Sarah Boggess

By Neal Stewart

Sarah Boggess is a senior in the plant sciences major with a concentration in biotechnology. Advised by Neal Stewart and mentored by Kellie Burris, a Ph.D. student in the Stewart lab, Sarah participated in an internship opportunity in the Department of Food Science and Technology during summer 2009 to learn about other research programs. Together, Sarah and Kellie explored the potential for use of compounds derived from natural sources to provide an alternative or adjunct to regulatory-approved antimicrobials for use in foods.

Sarah Boggess

Sarah is motivated and enthusiastic, open to learning new techniques and always asking questions (a sign of a good scientist). Since the first day, she rolled up her sleeves and really took initiative in the laboratory. She has a desire for science and a willingness to do even the

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A Note from the Department Head

by Bob Augé

Dr. Bob Augé is department head for Plant Sciences, serving as an advocate for all areas of teaching, research and outreach in the department. His past research has included plant environmental physiology, mycorrhizal symbiosis and tree response to climate change. Past teaching responsibilities included plant physiology, internet technology and scientific writing.

Food, beauty, physical and psychological well-being, recreation, conservation, respect …

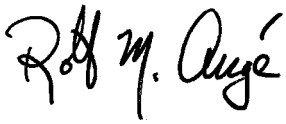
Our fourth newsletter spotlights another handful of the multitude of ways we work with plants in the department and beyond.

Our faculty has engaged with the Eastern Band of Cherokee Indians, an archeologist (and former acting president of UT) and several others to commemorate our campus burial ground of the Woodland People, who lived in our locale almost 1,400 years ago. Our systems agronomist defines the broad range and contours of his discipline. We give an update of our new MLA program and describe one of its more intense elements, synergistic marathon brainstorming on a mountaintop. Spanning the breadth of horticulture in our state, we interview the regional Extension ornamental horticulture specialist based in Jackson. UT Extension just celebrated its 100th birthday last year, and we give a quick synopsis of Extension from the standpoint of plants. We spotlight a current undergraduate and a former graduate student and note the critical importance of scholarships in our students' careers. Two among many recent initiatives for us are launching a new student-run UT Harvest Market and creating a center focused on reducing injuries suffered on athletic fields. More and more we are embracing global elements of our disciplines, and we feature a couple of recent European experiences of faculty and students.

We feel very fortunate to be involved with plants in so many critical and creative programs. Sometimes, like in the current season of strategic planning in the UT Institute of Agriculture, we pause long enough to try to wrap our heads around the vast diversity and the many linkages, to appreciate and articulate how it all coheres. Looking across the incredible range of activities in Plant Sciences, we can distill who we are and what we do into two main areas: improvement and security of agricultural production, and landscape stewardship. The former speaks to our programs in production efficiencies, health and safety, new crops and cultivars, and bioenergy and bioproducts. Our programs in turfgrass, landscape design and architecture, and horticultural outreach and education address the latter. This year we have hired two new faculty members, with sustainability a key focus for each.

There are so many partnerships and intersections among our disciplines and mission areas that when we drew lines to illustrate this during a strategic planning process, it looked like we produced the diagram with a Spirograph (anyone remember those?). And this is good. The diversity and connections give the Department of Plant Sciences unique opportunities and approaches in helping students learn, in serving our clientele, and in discovering new knowledge.

We hope you enjoy reading through the newsletter. Many other news stories can be found on our homepage at http://plantsciences.utk.edu and specifically about undergraduates at http://plantsciences.utk.edu/ug_news.htm. We would love to hear from you. Drop us an email or share some news with fellow alums on our new Facebook site: search "Plant Sciences Alumni UTK" to find us there. We wish you a fulfilling 2011. ☘



Two More Good Peach Crops

by Mark Clark

Mark Clark is a UT alumnus from Millington, Tennessee, and has seven years of experience working in Alumni Affairs and Development. He primarily works with three academic departments, including Plant Sciences. Additionally, he provides support to the College of Agricultural Sciences and Natural Sciences, assists with Ag Day, the Fall Scholarship Banquet, and the Spring Awards Banquet. He can be reached at mclark4@utk.edu or 865-974-5315.

In the fall of 1982, Evelyn T. Bird signed a memorandum of agreement honoring her recently deceased husband and committing to the establishment of the J.J. Bird Horticultural Scholarship Endowment. In a note later sent to then Vice-president for Agriculture Bob Pentecost, she wrote:

"I am happy the scholarship fund is set up. This was so important to him. He had hoped to establish a Horticultural Fund himself and had felt he could do so 'with two more good peach crops.' However, he told me about a month before his death that he needed just ten more years to carry out his plans! I realize that had he had those ten more years, there would have been more plans he was working on. He was always busy, both mentally and physically."

Created with an initial gift of $10,000 in 1982, the J.J. Bird Horticultural Scholarship Endowment has a current balance of nearly $100,000. That endowment allows us to award approximately $5,000 annually (that's half of the original donation!) to students studying horticulture. Furthermore, it continues to grow through the university's investment strategy and additional gifts from friends and family. Most importantly, it will forever honor the legacy of J.J. Bird while providing scholarships to our students.

Some of you reading this might have benefited from the J.J. Bird Scholarship. And some of you might be waiting for "two more peach crops" before giving back to your alma mater. But if we follow the example set by Mrs. Bird, we'll realize that there is no time like the present and that our decisions to help today create unimaginable benefits down the road. Her decision in 1982 has provided thousands of dollars worth of scholarships to many, many students.

If you would like to contribute to the J.J. Bird Horticultural Scholarship Endowment, or any other fund, you may do so by indicating your gift designation and returning the enclosed self-addressed envelope or by giving online at http://agriculture.tennessee.edu/development. Your support and interest in our department is greatly appreciated!

If you would like more information about endowments or supporting the Department of Plant Sciences, please contact Mark Clark at mclark4@utk.edu or 865-974-5315.

Fundamentals of endowments:

1. Contributions to endowments make up the principal.
2. The principal is never spent, assuring that it honors the donor and serves the university forever.
3. Interest is earned from the principal of the endowment.
4. A portion of the interest, typically about 5 percent, is awarded to support the endowment's purpose, like the scholarships in the example of the J.J. Bird Horticultural Scholarship Endowment.
5. Another portion of the interest is reinvested into the original principal of the endowment. This reinvestment assures the growth of the endowment so it may keep up with inflation through the years.
6. The donor's legacy is forever preserved and the University of Tennessee, its students, faculty and staff are forever grateful!

UT and AstroTurf Break Ground on Research Center for Athletic Field Safety

by John Sorochan

Dr. Sorochan is responsible for the department's academic turf programs at both the undergraduate and graduate level.

As parents, we take the utmost care to prevent our children from suffering injuries during sport activities. From mouth guards to shin braces, we cover our children from head to toe with equipment designed to keep them safe. Even the vehicles that transport them to and from games/practices are engineered with numerous airbags, safety restraints, reinforced impact protection frames and traction-control tires to safeguard against an accident. Regardless of these measures, little attention is paid to the safety of the athletic field on which the majority of sport-related injuries take place.

In the United States, more than 30 million children annually participate in organized sports. Of those 30 million, 3.5 million children ages 14 and under suffer some sort of sport-related injury each year. Furthermore, of the 3.5 million injured, 775,000 children had to be treated by hospital emergency rooms for their injuries sustained from athletics. The cost of injuries to 14-and-under children in 1997 amounted to more than $49 billion, to be paid by U.S. citizens.

In July of last year, UT and AstroTurf announced the creation of the multi-year research initiative that will compare natural grass playing surfaces to synthetic surfaces. With the goal of improving athletic performance and reducing injuries, the initiative will provide the most comprehensive, ongoing comparison of synthetic surfaces to natural grass.

The geographic location of the site will enable scientists to conduct research on a variety of surfaces from both cool- and warm-season climates. The unique outdoor research facility will comprise 60 small-scale athletic research fields constructed from a variety of playing surfaces. Field qualities will range from those employed for professional-level sports to surfaces used by schools, public parks and recreation fields.

Members of UT and AstroTurf break ground at the new Center for Athletic Field Safety.

While determining the safety and performance of synthetic turf products compared to various natural turfgrass systems, UT turfgrass scientists will also monitor these relationships over time. Additionally, they will evaluate the environmental impacts of each system. The research should lead to the development of new, more accurate methods for testing the safety and performance of all natural and synthetic turf systems.

Initial research started fall 2010, and the center will be fully operational by later this year. This unique partnership is the foundation for the University of Tennessee Center for Athletic Field Safety. Additional research includes biomechanics evaluation for athlete safety and physical stresses.

The University of Tennessee Center for Athletic Field Safety is a one-of-a-kind facility where cutting-edge research for athletic field safety, playing surface development, best management practices for turfgrass maintenance, and even new shoe and cleat development for athlete traction and safety, to name a few, will be researched and developed. This center will also act as an outdoor classroom where turfgrass science and management students will learn firsthand how to manage different playing surfaces and will be exposed to the latest technologies to better prepare them for their eventual careers as future sports turf managers. ☘

Viticulture/Enology Studies in Italy

By David Lockwood

Dave Lockwood spent part of May 2010 in Cortona, Italy, where he taught a portion of a University of Georgia Maymester course entitled "Viticulture and Enology in the Mediterranean Region." Nineteen students learned about grape growing, winemaking and wine appreciation while visiting vineyards and wineries in a country where grapes and wines have been important parts of the culture and economy for centuries.

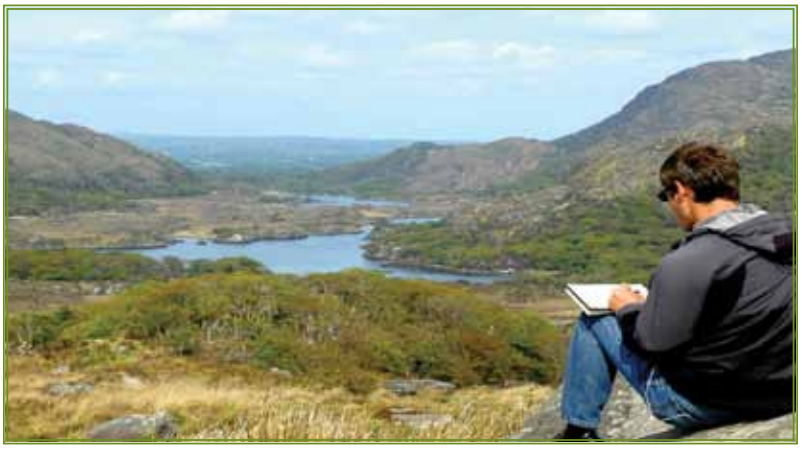
Students enjoy a meal together as part of a class held in Cortona, Italy.

Glorious Gardens Tour a Hit

By Bill Klingeman

Amazing gardens, abundant sunshine, and baked beans for breakfast … these are but a few of the memories students from Plant Sciences and several other majors will treasure forever as a result of the trip of a lifetime! Associate Professor Garry Menendez saw almost a year's worth of planning reach a climax as he and colleague, Dr. Bill Klingeman, lead 20 students throughout Ireland and England for 15 days in May 2010. This three-hour credit course entitled "The Glorious Gardens of Ireland and England" taught not only students focused on landscape design and horticulture but also several in engineering, theater, English, veterinary medicine and business to name a few, the value of experiencing other lands.

The group began its trek on the Cliffs of Moher on the west coast of Ireland and threaded their way through The Ring of Kerry, Cork, Dublin, Wales, Bath, Stratford-upon-Avon and Oxford before coming to rest in London. A few even got to experience the mother of all garden displays as they were lucky enough to nab tickets to the infamous Chelsea Flower Show. "An amazing, eye-opening experience," "definitely worth the investment," and "I would encourage all students to seek similar experiences and go beyond their comfort zone," are just a few of the comments participants mentioned when asked to evaluate their adventure. Several students were able to secure some scholarship funding to help with finances. Menendez is currently planning future garden adventures. If anyone would like more information or would like to donate resources to be used for student scholarships, he or she is encouraged to contact Garry at Menendez@utk.edu or call 865-974-0216.



Students studying abroad are encouraged to keep journals of their day-to-day activities

Continued on page 1

most mundane of tasks (i.e. making media, cleaning, autoclaving). Sarah understands that the "dirty" jobs are what make science possible. She has been highly involved in the research of the Stewart lab, helping to determine the antimicrobial activity of botanical extracts against food-borne pathogenic bacteria. While working with Kellie in the laboratory, she gained both microbiology skills including aseptic technique, performing antimicrobial time-kill assays, pour plating and enumeration of microorganisms, and protein chemistry skills including dialysis, concentration techniques and protein quantification using the Bradford method.

Sarah is an enthusiastic, inquisitive and outgoing individual — that makes her a motivated student and talented scientist. As a high school student, Sarah initiated an art therapy program in her hometown of Lafollette, Tennessee, which received a grant from the magazine Cosmo Girl. Sarah shared with us a little more about the project and her time here in the Department of Plant Sciences, in the following interview.

How did you become interested in Plant Sciences? I was very involved with the 4-H garden project throughout high school and always knew I loved plants. I met with Dr. Augé when I came for orientation and he told me about all the concentrations. Biotechnology drew my interest almost immediately!

I understand that you received a grant from Cosmo Girl for some non-plant related work you do. Can you tell us a little more? A group of my friends and I got together and created an organization to provide art therapy at a center for abused and neglected children. We planned weekly afternoon art activities for kids that included painting, paper art, puppet-making, and creating scrapbooks.

What impact has this work made? Art from the Heart served as a safe haven for children, allowing them to release their fears, make new friends, and above all have a little fun.

What's going on with the project now? The project has currently been halted. All nine members are attending college away from our hometown.

What are the future plans? We hope to either be able to get a group of high school students to pick up the project and get it going again, or when some of us move back to LaFollette, Tennessee, we plan to continue where we left off.

What do you plan on doing after UT? I plan on going into graduate school to receive my master's. After achieving my master's I hope to one day work for the USDA or another organization in a laboratory setting. I also plan to continue my involvement in mentoring children as a volunteer. ☘

Neal Stewart, a professor of plant sciences, holds the Ivan Racheff Chair of Excellence in plant molecular genetics and is the director of the Tennessee Plant Research Center.

Plant Sciences student Sarah Boggess (left) with other students involved with "Art from the Heart"

MLA Students partcipate in a regional service learning project.

Master of Landscape Architecture Program Continues to Grow

by Garry Menendez

If five years ago you were to ask someone about landscape architecture and higher education in Tennessee, you would no doubt get a quizzical look. However, times are changing. As the Master of Landscape Architecture interdisciplinary program of the College of Architecture and Design and the College of Agricultural Sciences and Natural Resources marks its third year, it is very evident that the University of Tennessee is cultivating a precious gem.

The studio work that is being produced by current students is truly impressive as several professionals and outside jurors can attest. Another Plant Sciences faculty member who deserves a big cheer and thanks is none other than Sam Rogers. Sam inherited the extremely time consuming and demanding title of interim chair of the program in December 2009 and has recently passed the baton to our new, permanent chair, Ken McCown. Ken is a professor of landscape architecture who comes to us from Arizona State. He has a very impressive record of professional and academic achievement both nationally as well as internationally.

The accreditation review for this shiny new program began last fall. With the impressive array of courses, student work and faculty commitment, there should be little doubt that all will go smoothly during this process. ☘

Future Leaders

By Brandon Horvath

Andrew Lane is a senior from Murfreesboro, Tennessee, who graduated from the Plant Sciences program in fall 2010 as a turfgrass science and management student. In early 2010 he participated in the spring block schedule of classes. This schedule enables students to finish classes after 10 weeks, and provides an intensive set of classes to prepare students for their formal internships. Andrew's internship this year has been an exciting one; he interned with the NFL's Tennessee Titans Football Club.

The Titans have two facilities where Andrew worked: Baptist Sports Park, where the team practices, and LP Field where games are played for eight Sundays each fall. Andrew said the spring block schedule was very important. "The spring block prepared me a great deal for the internship. Before last semester I can say that I wouldn't have been able to contribute as much as I do now and wouldn't have been able to grasp the concepts for what I am doing on my internship."

The historic flooding that took place in spring 2010 in Nashville has certainly challenged everyone, and the Titans facilities were not spared, with water rising to the fourth row at LP Field. "Fortunately the fields didn't suffer severe damage, but rebounding from it was tough," said Andrew. "It required a lot of extra hand labor, and much overtime. In addition, our regular weekly routine was pushed back an entire week, because we couldn't get to work as a result of road closures. It was a very strenuous time for everyone in Nashville, but it provided me with a unique internship experience too." ☘

Andrew Lane

Native American Interpretive Garden to Provide Beauty and Education

Dr. Allen performs research on selection techniques aimed at improving the efficiency of plant breeding programs and research on genetic control of important agronomic traits in soybeans.

By Fred Allen

The Indian Mound on the UT agricultural campus at the corner of Joe Johnson Drive and Chapman Drive is deeply rooted in Native American tradition dating back as early as 644 AD when the Woodland People used burial mounds as a way of burying and honoring their deceased. Today, it serves as a landmark on the campus, and the surrounding green space is a valued amenity to the network of UT Gardens. In the mid-1970s Professors Hendrick van de Werken and Don Williams (former faculty members in the Department of Ornamental Horticulture & Landscape Design) began the planning and research process for a Native Plant Park for the green space area contiguous to the Indian Mound. Due to their efforts, the Indian Mound was placed on the National Register of Historic Places in 1978. In addition, they produced a plan for the area that included native plants with an emphasis on plants used by the Cherokee, circulation paths, berms, a lawn area, seating areas and signage. At that time, berms were constructed and several native trees were planted along with the additions of a lawn area, seating and signage. In 2008, Dr. Fred Allen, then president of Gamma Sigma Delta (GSD) and chair of the Projects Committee, proposed that the UT chapter take on the Indian Mound Park as a long-term service project to enhance the educational opportunities and aesthetic beauty of the site by adding additional native plants with interpretive signs for plants and the Indian Mound. The chapter approved, and on the advice of Dr. Sue Hamilton, director of UT Gardens, Allen enlisted the help of Sam Rogers, a registered landscape architect and associate professor in the Department of Plant Sciences, to update and enhance the original plan design and concepts.

After developing the revised master plan for the site, meetings have been held with several constituents to get advice and input. These meetings included Dr. Joe DiPietro, president of the University of Tennessee and former chancellor of the UT Institute of Agriculture; Dr. Jan Simek, professor of anthropology; Mr. Russell Townsend, historic preservation officer, Eastern Band of Cherokee Indians; Dr. David Cozzo, project director, Revitalization of Traditional Cherokee Artisan Resources; Kimberly Smith, president, Native American Student Association at UT; Chief Michell Hicks, Eastern Band of Cherokee Indians; and Nathan Oliver and Zeke Cooper, Master of Landscape Architecture students. From the above meetings we received very positive support and many helpful suggestions for the project. In particular, Smith gave us specific suggestions on some of the species of plants to include, and to use the Cherokee name for the plant as the prominent name followed by the English common and scientific names and the description of use by the Cherokee people on the signs. Hicks also recommended that we use the Cherokee name as the prominent name for the plants, and that we place the seal of Eastern Band of the Cherokee in the center of the Council Ring. We have incorporated all of these suggestions into the current master plan for the site.

It is our goal to make the Indian Mound site one of the most attractive green spaces on the entire Knoxville campus. The site receives major "eye traffic" on a daily basis. All of the daily campus bus and automobile traffic on Joe Johnson Drive pass directly by the site. In addition, the students, faculty, staff and visitors, including visitors for football, basketball and other sports events who park in the large lot adjacent to the mound pass directly along the adjacent pathway or along the street beside it.

Because the Indian Mound and the associated native plant garden are a part of the UT Gardens, the site will receive large public exposure due to the many social events and activities planned for the Gardens. Due to its close proximity to the academic programs on campus, we believe that the site will be a valuable educational resource for many courses in plant sciences as well as other disciplines. Furthermore, we believe the site will be a valuable public outreach resource in the future via exhibits and demonstrations that focus on the Cherokee Indian culture.

Job Profile: What is a Systems Agronomist?

By Frank Yin

A systems agronomist is expected to provide statewide leadership in conceiving, designing, executing and reporting of innovative research on conventional, sustainable, and organic multifunctional cropping systems to improve the profitability and sustainability of crop production while conserving soil, water, air and energy resources. An agronomist uses a systems research approach by taking into account multiple variables and their interactions of crop production systems simultaneously, while discovering how certain interventions might impact these variables and their interactions.

The potential research areas for a systems agronomist include variable rate and precision applications of inputs (such as fertilizers, herbicides, etc.) to optimize cropping systems using remote sensing, GIS, GPS and other precision technologies; sustainable and environmental sound nutrient management in rotational cropping systems; economic evaluation and sustainability of various row-crop production strategies; utilization of water management with irrigation systems in Tennessee; determination of the value to farmers of new agronomic traits and end-product uses; and sustainability of diverse pest management approaches including crop rotation, use of resistant or transgenic varieties, chemical and alternative pest control programs, etc.

Finally, a systems agronomist should integrate new and existing technologies into comprehensive cropping systems that are profitable and environmentally sustainable for Tennessee producers. He or she needs to adopt an integrative approach by working collaboratively with multidisciplinary teams of faculty and in close cooperation with people from Extension, industry, and production.

Plant Sciences Faculty and Staff Impact the State through Extension Programs

By Gary Bates

The Department of Plant Sciences is committed to the Extension mission of bringing educational programs and research-based information to the citizens of Tennessee. Faculty members in the department use a variety of techniques to accomplish this mission.

- Websites provide a constantly available source of the latest research and recommendations for successful production. Crop, forage, garden, turf, vegetable and weed control websites produced by members of the Plant Sciences Department were visited more than 20,000 times during the last year. To check out these websites, visit the departmental page at http://plantsciences.utk.edu.
- Educational field days provide an excellent opportunity for faculty to show and explain results from plant science research. Plant Sciences faculty members have been major contributors to all of the UTIA field days, including the Organic Crop Production tour, Beef and Forage Expo, UT Weed Tour, Turfgrass Field Day, Blooms Days and Summer Celebration.
- Examples of work from Extension faculty:
    - Developed and distributed information on controlling glyphosate-resistant weeds.
    - Evaluated the adaptation and production of crop, forage, ornamental, turf, vegetable and fruit crops.
    - Provided training for almost 10,000 Master Gardener volunteers, who in turn gave more than 200,000 hours of service.

Alumni Q&A

Name: Keith Mickler

Hometown: Chattanooga/Gallatin

Current City: Rome, Georgia

Employer: University of Georgia Cooperative Extension

Title/Occupation: County Extension Coordinator and Agriculture Extension Agent

UT Information: B.S. (1990) and M.S. (1994) Ornamental Horticulture and Landscape Design, OHLD Club and Pi Xlpha Zi Alpha Beta Chapter

Thinking back, why did you choose UT?

I didn't really have a choice, I was living with my parents and Knoxville was where they were living. I had started out in business but really had no interest in the subject. Growing up, I had spent time raising vegetables and planting gardens with my parents and even had a summer job working for a rosarian in high school. Maybe this is why I decided to try out OHLD as a major.

How do you stay connected with UT?

I donate to the UT Gardens and the alumni association so I can receive the UT Gardens, alumni magazine and ag updates for UTIA. I really appreciate seeing how much the gardens have changed and how they are used by the Plant Sciences students. While in south Georgia, I was president of the UT Tallahassee Alumni Chapter for several years; I am looking to get one started here in Rome.

Do you remember a person who inspired you at UT?

No question — Don Williams. He really took me under his wing and inspired me. My GPA went from a 1.0 in business to a 3.0 by the time I graduated in OHLD. I wanted to get A's; Dr. Williams really made me want to do well. I wanted to try graduate school and Dr. Williams took me on as a graduate student. He believed in me and found me jobs while the department looked for assistantship funding. Some of these jobs were the best part of my UT experience; working for Mike Keel [UTIA director of services] doing landscaping, Mayo's Garden Center, Oaks Nursery, the UTIA mailroom and even working at the creamery.

Did UT prepare you for working as an Extension Agent? What part of your experience at UT has helped the most?

It was probably the "on-the-job training." The basics are good but it is the practical experience that I learned at UT that has helped me most as a county extension agent. Working for Extension you need be able to work with people and solve problems using systematic approaches. As an ag agent you wear many hats and need to know how to solve problems and be aware of the resources available.

What would your advice be to current students in Plant Sciences?

Do internships, as many as possible — the connections you make now will be your connections for the future. Encourage UT to hire its own graduates (specialties such as Plant Science) for County Extension positions; extension does not have to consist of nothing but the well-rounded agriculture program graduate. There can and should be specialty graduates, that's why I went to Florida Extension when I received my master's.

Name: Mark W. Shankle

Hometown: Trenton, Tennessee

Current City: Pontotoc, Mississippi

Employer: Mississippi State University

Title/Occupation: Associate Research Professor/Agronomy

UT information: B.S. 1987, B.S. 1991, M.S. 1993, Gamma Sigma Delta Honor Society, and Alpha Tau Omega Social Fraternity

Other school information: Ph.D. (1999) Mississippi State University, and Sigma Xi, The Scientific Research Society

Thinking back, why did you choose UT?

I wanted to learn agricultural production systems and the University of Tennessee was the best and most exciting land-grant university that had a reputation of providing an exceptional education.

How do you stay connected with UT?

The main connection with UT is through interaction with alumni at professional meetings and association with current faculty through research projects.

How would you like to reconnect with other Plant Sciences alumni?

I think that alumni/student/faculty receptions that are planned in conjunction with other events (field days, professional meetings, etc.) are a great way to stay connected.

Do you remember a person who inspired you at UT?

Dr. Bob Hayes and Dr. Tom Mueller. Dr. Hayes gave me a chance to get an advanced degree with an emphasis in weed science and conduct research at the West Tennessee AgResearch and Education Center in Jackson, Tennessee. He instilled in me the values of integrity, work ethic, and trust that are important for success in any work environment. Dr. Mueller helped to direct and encourage me and other students to "stay the course" while I was on campus in Knoxville.

Did UT prepare you for work as an Extension Agent? What part of your experience at UT has helped the most?

I currently have a 100 percent research appointment, but I do have phantom extension responsibilities since I am located at a branch station. The most beneficial training that prepared me for real-world extension questions was problem solving exercises related to crop performance issues. This training targeted herbicide performance, but in many scenarios crop status was related to other factors (environment, planting method, seed quality, soil nutrient status, applicator error, etc.). Therefore, knowledge coupled with problem solving skills has helped me apply reason and see the "big picture" when making on-farm visits in the agricultural community.

Tell us a little about what you have been doing since graduation.

After graduating from UT with a Master of Science degree, I worked in the corporate arena with several crop protection companies. I then re-entered graduate school at Mississippi State University to study plant science, while focusing on weed management in crop production systems. Following graduate school I accepted a faculty position with MSU at the Pontotoc Ridge-Flatwoods Branch Experiment Station. My current responsibilities as a research scientist include research in sweetpotato, corn, cotton, soybean, plant based bio-energy crops, and

precision agriculture. The branch station environment is different than being on the main campus because there are other management tasks that must be considered in addition to scientific research and university service. For example, planning is necessary to organize community events, field days, and demonstration tours; employee management and financial planning are additional tasks that have to be addressed; and station appearance and security are essential. The experience I gained while working at UT experiment stations in Jackson and Milan, Tennessee helped prepared me for what it takes to maintain an efficient branch station and lead an effective research program, simultaneously.

What would your advice be to current students in Plant Sciences?

If you are undecided on a career path in agriculture and are just starting undergraduate studies, put some thought into what classes are challenging to you. A challenging class that you are successful in may be one of your more rewarding undergraduate achievements and may create a better understanding about the direction you want to go toward fulfilling career objectives. Just remember that life is like canoeing the "Buffalo River," be prepared to expect the unexpected and have fun along the way!

Alumni Update

Bryn Takle, Zoo Horticulturist

(Bryn graduated with a bachelor's degree from the Plant Sciences' public horticulture program in 2006.)

Since leaving UT, I have been in Kansas City, Missouri, working at the Kansas City Zoo. I was hired as the horticulture supervisor, but took the title (and added responsibility) of horticulture manager in the spring of 2007. This job entails care for all plant life inside our 202-acre facility. My department handles mowing, tree and shrub care, annual and perennial bed maintenance as well as our animal manure composting facility, among other things. All of this with a staff of five including myself. A daunting task!

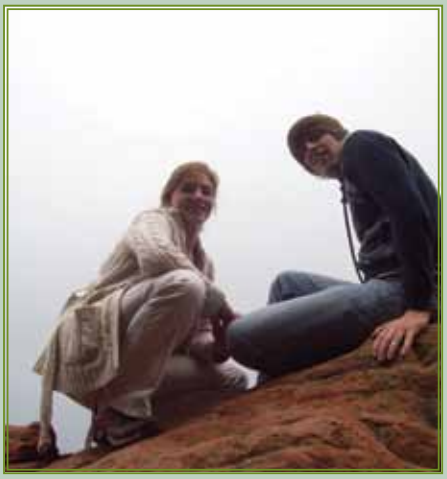
My education gave me a leg up over others in one particular section of the job description, the dreaded "other duties as assigned." This is where I feel all of those other little important items fall. Some include budgeting when the city is cutting your funding faster than you can spend it, trying to maintain staff enthusiasm about their jobs when working for a nonprofit means you get paid much less than the commercial world, smiling when a group of school kids runs directly through a bed you just finished planting and then stop to pick a few flowers only to drop them on the path 10 feet away, etc. I could go on all day.

However, I was enlightened to some of these issues before I took them on. Dealing with the public and people in general is an issue that some embrace and for me, it is why I chose this path. Although I STILL have a hard time smiling when the group of kids tears through a bed, I DO take pride in being able to "grab" a few of them and at least teach them what flower they ripped out and maybe a neat fact about it and remind them that it is there for others to enjoy. Sometimes it works, sometimes not …

Budgeting and managing in the nonprofit sector are also items that I studied during my time at UT and I am glad I did. Again, this is a different animal than working in the private sector. If I am out of money in my budget, I cannot just go out and hustle more work, I have to make do with what I have which makes for some creative planning and thinking. I have developed some close relationships with vendors who are always letting me know about "fire sales" or back lot trees which I can get for a steep discount. While these crooked stems and odd shaped heads might be unacceptable in a highly manicured front yard, they tend to blend in my park-like setting.

As for the staff, just keep it fun. Working at a zoo is always exciting anyway, but if you can keep your staff excited about the work they are doing and keep them in the loop or let them see the light at the end of the tunnel, I feel it helps keep them motivated and gives them a sense of pride about their work. I think I have run out of ways to say "it's not all about the money" without saying those words!

Do you have an update?
Send your alumni update to us at plantsciences@utk.edu



Alumni on the move: Jessica Hartley

Spring 2009 graduate Jessica Hartley is attending the University of Stirling in Stirling, Scotland, where she is learning about sustainable usage of water resources, how to cut back the degradation of soil, wildlife habitats and aquatic resources and how to reduce the impact of pollution in a practical manner. This course of study will incorporate her love for plant sciences and national parks. She hope it will lead to a career in the National Park Service, EPA or consulting in the private sector.

Faculty/Staff Spotlight: Carol Reese

Who is Carol Reese?

I'm a country girl that grew up on a dairy farm just outside Mississippi State University. The farm is still in the family, but is now an orchard, featuring Oriental persimmons as our main crop. I went back to school in my thirties, discovered I loved studying plants, and graduated in horticulture with a master's degree. While pursuing the degree, I taught plant materials and a landscape design class.

What do you do at UT?

I'm the regional Extension ornamental horticulture specialist, serving all aspects of the horticulture industry (growers, nurserymen, landscapers and retailers). I assist the county Extension agents by providing educational programs for them and teaching Master Gardener classes, plus affording plant identification and diagnostic support. I also help link together the growers with the buyers of plants.

What do you like about your job?

This job offers a great variety of opportunities that fit with my passions. Being an ex-English major, I enjoy writing a weekly column on gardening for the Jackson Sun. I enjoy landscape photography, teaching, and storytelling about historical aspects of plants. I'm one that actually likes getting up in front of a crowd, especially when presenting programs on integrated landscapes that provide both aesthetics and wildlife habitat, especially good habitat for pollinators. Teaching people to love bees is a pet project of mine. One of my favorite things is to tour visitors through the WTREC Gardens. It's wonderful when your job dovetails with your hobby!

What are the advantage of being located at the West Tennessee AgResearch and Education Center?

I work in a great building amidst a farm landscape where I can collaborate with Research Horticulturist Jason Reeves, whose office is right across the hall. We have the freedom to evaluate and try new plant materials and ideas. I also take pride in having a part in making WTREC Gardens a destination for gardening enthusiasts. Plus, there are several excellent local nurseries that serve as great cooperators, and I think we've really helped enhance their business flow. The annual Summer Celebration is a terrific opportunity to present my ideas, and to interact with and learn from many others of similar interest.

Sum up what makes a good day at work.

It's the satisfaction of getting a beautiful plant in a consumer's landscape that we are certain is a proven performer. We've saved them from wasting money on poor choices, and give them something to enjoy, sometimes for a lifetime.

New Internship Program Grows Student Experience

By Annette Wszelaki

Thanks to a 1-acre market garden at the UT Organic Farm and the new UT Harvest Market, students now can gain hands-on skills in business planning and management, vegetable and small fruit planning and production, and direct marketing through an internship program.

The market garden internships, established by the Organic and Sustainable Crop Production Program in 2009, target UT students interested in becoming fruit and vegetable growers.

Student interns receive hands-on training in all aspects of production (farm design; seed/variety selection and comparison; equipment operation; crop fertility; transplant production; crop scheduling; crop rotation; pest, weed and disease management; season extension; food safety; harvest and postharvest handling). In the spring semester, they also enroll in Dr. Kim Jensen's class, Agricultural Economics 350 — The Food and Agricultural Marketing System, to learn business planning and marketing. As part of the course, the interns create a business plan for the UT Harvest Market as a group project and help develop marketing materials, including a market logo, for the farm market.

Students directly market produce from the garden to the university community through the weekly UT Farmers Market at the Friendship Plaza of the UT Gardens. The market debuted May 14, 2010, and featured kale, Swiss chard, green onions, greens, lettuce and strawberries. The market sold out in the first half-hour. Each week, new fresh produce selections are featured as they become ready to harvest.

The goal of the multidisciplinary internship program is to stimulate interest in beginning farming and preserving farmland. To follow the interns' progress, you can read their blog at http://utmarketgarden.wordpress.com. And remember to eat your vegeta-VOLS!

The Latest ...

Graphics Guru Visits MLA Students

Students from Plant Sciences, Landscape Architecture, Architecture and several other departments were treated last fall to a two-day workshop on representational drawing taught by renowned graphics expert, Mike Lin and his son, Brian. The October 29 and 30, 2010 event was sponsored by the Department of Plant Sciences, the College of Agricultural Sciences and Natural Resources, and the College of Architecture and Design and was organized by MLA grad student Zeke Cooper and Associate Professor Garry Menendez.

Mike Lin has taught similar workshops all over the world but found his stay in Knoxville and the students from UT to be especially engaging. More information regarding Mike's skills and knowledge may be found at www.beloose.com.

Menendez Wins 2010 Orchid Award

Garry Menendez, in collaboration with architecture firm Frank Sparkman & Associates, was honored in October with a 2010 Orchid Award for landscape design and installation at the Knox County Public Defenders Community Law Office. The Orchid Award is sponsored by Keep Knoxville Beautiful and is given annually to properties in the Knoxville area that display progressive environmental practices and aesthetic beauty. Garry and team's award-winning project can be viewed off Sutherland Avenue on Liberty Street and features an array of beautiful native plantings and stunning natural rock outcroppings.

USDA Grants Invest in Specialty Crop Research and Extension at UT

USDA's National Institute of Food and Agriculture (NIFA) has announced $50,000 in funding to the University of Tennessee to solve specialty crop agriculture issues through research and Extension activities. The grant will allow the Department of Plant Sciences the opportunity to develop a commercial processing industry for edamame in the Eastern United States with the goal of improving the nutritional composition and availability of locally grown vegetable edamame soybean varieties to small farmers and, ultimately, to U.S. consumers.

For more information on this specific project, contact Dr. Carl Sams, professor of plant sciences, at carlsams@utk.edu.

Faculty Members Win Publications Award

Rebecca Koepke-Hill, Dr. Greg Armel and Dr. Gilbert Rhodes won the 2010 Cavendar Outstanding Award for Best Publication for their work, Invasive Weeds of the Appalachian Region. The award recognizes excellence in the development of published material produced by professionals in the Institute of Agriculture.

Organic Crops Unit Receives Organic Certification

As of June 7, 2010, 9.8 acres of the Organic Crops Unit completed the transitional period to become certified organic. This land is used for research by the Organic and Sustainable Crop Production Program. It also provides 1 acre of land for cultivation by student interns within the program, who sell their produce at the UT Farmers Market in the Friendship Plaza of the UT Gardens, Knoxville throughout the summer.

Plant Sciences Faculty Member Honored for Excellence in Advising

Associate Professor Garry Menendez received the 2010 UT Knoxville Chancellor's Citation for Excellence in Advising. A registered landscape architect, Menendez not only helps students meet their academic goals, but he also shares his expertise as they explore future career options. The Chancellor's Excellence in Advising Award recognizes the integral role of academic advising in the teaching mission of the university and honors individuals who are uniquely effective in helping students meet their educational and professional goals.

Alumna Conducts Research in Australia

Jenny D. Clement (M.S. 2006) was awarded a PhD in agronomy, with emphasis in plant breeding, by Texas A&M University in May 2010. Her dissertation is entitled "Effects of Exogenously Applied Indole-3-Acetic Acid in situ to Cotton Cultivars." Jenny has also accepted a three-year postdoctoral position with the Commonwealth Scientific and Industrial Research Organization (CSIRO) to conduct cotton research in Narrabri, New South Wales, Australia.

Fribourg Reports on Fescue Monograph

Henry Fribourg reported to the Annual Meetings of the American Forage and Grassland Council, June 19-23, 2010, in Springfield, Missouri, on the recently published American Society of Agronomy/Crop Science Society of America/Soil Science Society of America Monograph 53, Tall Fescue for the Twenty-First Century. The monograph is available online at http://forages.oregonstate.edu/tallfescuemonograph.

Alumna Wins CASNR Award

Jennifer Smith, a Plant Sciences graduate, has been awarded the 2010 College of Agricultural Sciences and Natural Resources (CASNR) Distinguished Alumnus Award, presented for outstanding achievement and bringing distinction to herself, the college and UT. Jennifer is executive director of the Tennessee Urban Forestry Council.

Plant Sciences Faculty Helps Promote Arbor Day

More than 130 people attended the 10th annual Arbor Day celebration featuring grafting and pruning fruit trees held at Echo Acres Farm, one of 31 Century Farms in Claiborne County. Owners Mr. and Mrs. Joe McNew have graciously hosted this event since its inception. It is now a cooperative effort of the Claiborne County Soil Conservation District, the Natural Resource Conservation Service, UT Extension and numerous other sponsors. Residents from Claiborne County, surrounding counties and neighboring states were invited to attend this event to learn how to graft and prune apple trees and to enjoy a day in the country.

Steckel Visits Brazil

Dr. Larry Steckel, along with four weed scientists from the Midwest, was invited to Brazil by Valent chemical company to participate in a two-day glyphosate-resistant (GR) weed workshop. In attendance were about 60 crop consultants from Brazil and 20 from Argentina as well as four weed scientists from those two countries.

Plant Sciences Welcomes New Faculty Members

We are pleased to welcome Dr. David Butler and Dr. Amy Fulcher to the faculty of the Plant Sciences department. Butler's specialty is organic and sustainable cropping. Fulcher is an assistant professor in the areas of sustainable ornamental plant production and landscape management.

Journal Cover Features Student Paper

Hong S. Moon, Ph.D. student in the lab of Neal Stewart, Racheff Chair, is first author on a paper appearing in the January 2010 issue of Trends in Biotechnology. The paper is featured on the journal cover.

UT Gardens Adds Helping Hands Kitchen Garden

New to the UT Gardens is an interactive teaching and learning kitchen garden and adaptive kitchen garden. The area will allow garden staff to teach diverse populations how to create a vegetable garden and the value and benefit of it. A kitchen garden is a garden designed for growing herbs, vegetables and small fruits. An adaptive kitchen garden is a kitchen garden with modified construction which makes the act of gardening easier and more accessible to individuals with mobility or other physical limitations.

Interior Plantscape Hall of Fame Honors Ott

Dick Ott, adjunct faculty member and leader of the Interior Plantscaping Program, is the 2010 inductee into the Plantscape Industry Alliance's Interior Plantscape Hall of Fame. The hall of fame was established in 1996 to honor individuals of integrity whose personal dedication provided great leadership in the development and growth of the interiorscape industry either as an interiorscaping professional or as an allied trade professional.

Ott has been a pioneer in the interior plantscaping industry. He formed one of the first successful interior plantscaping businesses in the United States in Knoxville, and went on to become an industry leader through his participation, advocacy and leadership in several trade associations. He has established a scholarship in the department for students studying interior plantscaping, and he was a founding ambassador of the ALCA Educational Foundation.

Macon State College Honors Plant Sciences Alumna

Dr. Kim Pickens, assistant professor of biology at Macon State College, is the recipient of Macon's 2010 Faculty Award for Outstanding Service. Pickens received her Ph.D. with a plant biotechnology focus at UT, where she worked with Dr. Max Cheng. According to her dean at Macon State College, this award is presented for her service and dedication on "behalf of her students" that has been the "hallmark of her seven-year history with the college."

Dean Kopsell Honored

The UT Chapter of Gamma Sigma Delta recognized Dr. Dean Kopsell with the Excellence in Research Award of Merit at its fall awards banquet November 16, 2010.

Kellie Burris Wins Best Student Poster Presentation

The 2009 Nanomedicine and Drug Delivery Symposium (NANO-DDS) Awards Panel awarded the presentation by Kellie Burris, "In Vivo Mega-Nano Detection for Foodborne Pathogens and Transgenes Using Molecular Beacon Technology," as the Best Student Poster Presentation. Congratulations, Kellie!

High Country Cabin Design Charette

By Curtis Stewart

Charette: a French term describing an intense period of collaborative design activity.

For the past two years the new Master of Landscape Architecture (MLA) program has used this charette experience in Site Design Studio II. This studio combines site analysis with design to teach professional project problem-solving skills.

The High Country Cabin Design Charette takes place on a remote North Carolina mountaintop adjacent to the Tennessee/North Carolina border and the Appalachian Trail. Spanning three days, this gathering places first year MLA students in the middle of a forest where they are to inventory and analyze the physical features of a 40-acre tract. Working in teams of two, they then spend many intense hours developing a conceptual solution for the design of and location for a small "writer's retreat" cabin.

Prior to the weekend, the teams are assigned very different design philosophies ranging from Fung Shui to Olmstead to J.B. Jackson. The intent is for the students to research different approaches to design, teaching the other teams what they've learned and then relying on the individual philosophies to guide their design solutions.

This weekend is also a wonderful social time for all involved. Each class is tasked with creating traditions to be carried forward for future classes. The first tradition is now known as "What the Hell Chili" — the recipe being unique to each class. Exploring the mountain trails, late night discourses on social issues and snowball fights combine with much laughter to create a unique experience for all — one that will be carried on and cherished for many years to come. ☘

Students on their High County Cabin design charette.

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