

Department of Horticultural Science Newsletter

Fall 2004

North Carolina State University, Raleigh, NC 27695-7609

http://www.cals.ncsu.edu/hort_sci/

NEWS FROM THE DEPARTMENT HEAD

Julia Kornegay

What an incredible time I have had this past year as the new Head of the Department of Horticultural Science! The learning curve has been very steep, but I now feel like I have a pretty good grasp of the programs and activities within our department, college, and across the state. Without a doubt, the Department of Horticultural Science at NC State is one of the premier horticulture departments in the nation! Our faculty and staff are innovative, resourceful, collaborative and 'push the envelope' in all areas relating to basic research, applied research, extension and teaching. It has been a pleasure getting to know their programs and share their pride in the department's many accomplishments that advance science, support North Carolina's agriculture, and train the next generation of horticulturists.

It has not been an easy year, however. We have faced significant reductions in our budgets, faculty and staff positions have been cut, and hard choices have been made. Everyone has tightened their belts, taken on more responsibilities, and aggressively sought additional grant and special project funding to support their programs. As a result, we have become more flexible, competitive, and stronger as a department. With the increasing role that horticultural crops and related industries have on the state's economy, now, more than ever, North Carolina needs a dynamic and forward-looking Horticultural Science department that works closely with commodity associations and other groups to set priorities and support research and extension.

Over the next year, we will be filling three faculty positions within the department. The

Western North Carolina Nursery Crop Specialist and the Viticulturist positions became open this past year and both will be filled as tenure-track faculty appointments with extension and research responsibilities. In addition we will also be recruiting a new position, as requested in the department's 2004-2005 Compact Plan, to provide leadership and vision for the department's 'Horticulture in the Urban Environment' initiative. Three new faculty hires in one year will bring new ideas and programs to the department, and provide us with additional opportunities for research, extension and teaching.

In fact, over the next five years a number of our senior faculty will be retiring. Faced with a 'changing of the guard', reduced budgets, and an evolving agricultural and economic environment within the state, it is critical that the department anticipate what will be needed for the future in terms of positions, facilities and funding, and establish a plan for meeting those needs. Over the next year, we will hold a series of reviews of our teaching, research, and extension programs. These reviews will result in a 'template for the future' to guide the department as it goes through upcoming changes. These are definitely exciting times! I'm looking forward to my second year as department head.

DEPARTMENTAL HIGHLIGHT

Todd Wehner

The **Southern Region Small Fruit Consortium** was established in January 1999. It is chaired by **Tom Monaco**, and works with small fruit growers and grower organizations, industries and service organizations allied with small fruit growers, agricultural extension programs and research stations to enhance the

development of the small fruit industries in the region. The consortium currently involves Clemson University, the University of Georgia, North Carolina State University, and the University of Tennessee. See: <http://www.smallfruits.org/>



INTERESTING WEB SITES

Mary Peet

Congratulations to Doug Sanders and John Dole for their leadership in getting the **Graduate Certificate Program** for Hort. Sci. under way with team members Mary Peet, Ted Bilderback, David Monks, Paul Nelson and Dennis Osborne. Originally a grant to DELTA <http://delta.ncsu.edu/splash.cfm>, but will be funded by Dr. Kenneth Esbenshade.

The University already provides many resources for faculty and others who want to develop courses to be offered through distance education, online courses, or just to add a web component to existing courses. The CALS **Distance Education committee** has developed a new section of the CALS webpage at <http://www.cals.ncsu.edu/index.cfm?showpage=100>. Particularly read the Frequently Asked Questions.

NCSU supports several course management systems. Most popular is **WebCT** at http://webct.ncsu.edu/frontpage/webct_frames.html. In WebCT, you can post grades, offer quizzes, post documents and links, and have online discussions. You can teach a complete online course in WebCT, or use it to enhance a

traditional classroom course. The other option is **WolfWare** which offers a homepage and gradebook. For current Hort. Sci. courses on Wolfware, see: <http://courses.ncsu.edu/hs.html>.

Other good campus sources of information are the **Learning Technology Service** site: <http://lts.ncsu.edu/index.cfm> which lists upcoming workshops and online resources and the Delta site, which has more information about distance education courses: <http://delta.ncsu.edu/splash.cfm>. The Summer Institute put together by LTS is a great way to start!

For **financial resources**, check out the LITRE (Learning in a Technology-rich environment) site: <http://litre.ncsu.edu> for their grants in support of teaching innovations using technology. Deadline for pre-proposals is Oct. 1!

More about obtaining WebCT **course space** at http://www.ncsu.edu/ncsu/lts/frontpage/faqs_instructor.html#getwebct or WolfWare course web space at: <http://wolfware.ncsu.edu/faq/#request>. DELTA staff can assist you; send email to learntech@ncsu.edu for assistance.

To improve your overall computing savvy, you can subscribe to the **Information Technology Division (ITD) electronic newsletter**. To subscribe send the following email message to MJ2@LISTS.NCSU.EDU: subscribe prompt. The most recent issue announces wireless internet access on the brickyard, provides tips on how to meet the requirement for anti-virus software on all computers and how to increase accessibility of websites to the visually impaired, as well as the services offered by ClassTech, ITD's new support unit for classroom technologies.

ALUMNI NEWS

Todd Wehner

Letter from Chin-Chin Lee. Thohirah Lee Abdullah was a graduate student with Ted

Bilderback, and at the time was known as Chin-Chin Lee. She has since taken on the Malaysian version of her name and her husband's name.

"Johari and I graduated from NCSU in the Spring of 1990; we were happy to have made it, but sad that we were leaving Raleigh. We have 3 sons. Johann (23) is a final year Med student here at University Putra Malaysia; Rizal (21) is in Purdue in his senior year (Electrical Engineering) and Adam (20) is a sophomore at University of Illinois in Actuarial Science.

"At University Putra Malaysia, I was promoted to associate professor in Dec 2001; for me it was a long and difficult time. Horticulture in Malaysia has not been fully recognized as a discipline and is always behind Agriculture, where food production is given priority. My colleagues who graduated from the UK continue cooperative research with their major professors upon their return to Malaysia and I feel they have an advantage over us who graduated from the US. I hope that I can do joint research with my peers in the US and I wish to extend this invitation to anyone in the Hort Dept at NCSU to come and see us or talk to us and help develop Horticulture in Malaysia."



Mary Peet visited Chin-Chin Lee in Malaysia this summer (see photo).

FACULTY NEWS

David Monks

Allan Thornton and Julia Kornegay visit with **Roger Lane** during a tour of the 'Pride of Sampson' packing house to observe grading and packing of sweetpotatoes in July (photo courtesy of Doug Sanders).



Steven Clouse and **Michael Goshe** (Biochemistry Dept.) received a \$2 million grant from the National Science Foundation to study molecular mechanisms controlling plant development using a proteomics approach. They will collaborate with researchers at the University of Illinois and the University of Oklahoma to determine the molecular properties of cell surface receptors in *Arabidopsis thaliana*, a small flowering plant that is widely used as a model organism in plant biology. The grant is N.C. State's first through the 2010 Project, an NSF initiative to determine the function of 25,000 genes in *A. thaliana* by the year 2010. Clouse and Goshe also received \$350,000 in USDA competitive grants for research on the brassinosteroid receptor in tomato and *Arabidopsis*.

Faculty awards

Barclay Poling won the Extension Materials award in the slide set (Powerpoint) category at ASHS for 'Pruning mature muscadine grapes'.

Sylvia Blankenship was elected a fellow of the American Society for Horticultural Science.



Doug Sanders, Dennis Osborne and Donn Ward received the ASHS award for best extension publication for their video 'Bridging the GAPS'.

Stu Warren received the Porter Henegar Memorial award for horticultural research at this year's meeting of the Southern Nursery Association.

UNDERGRADUATE PROGRAM

Betty Coleman

We had a busy beginning to the Fall 2004 semester. Horticultural Science has **42 new students** (16 freshmen and 26 transfer). Each student was welcomed into the department and assigned to an adviser. Most courses are at capacity, and we are enjoying the second semester of our new teaching greenhouses in MAF (formerly USTL).

Bryce Lane and Stu Warren are on study leave until December 1. Bryce has been busy filming 'In the Garden II', which is being broadcast on PBS (Saturdays at 12:30 pm) and through distance education. It will be offered in the spring as a 1 credit course. Bryce and Stu are doing some traveling on their own, and will

tour Australia and New Zealand October 17 to November 16. Paul Fantz and John Dole (and other advisers when available) did an excellent job filling in for Bryce Lane, Undergraduate Coordinator. Many thanks!

The **Horticultural Club** kicked off the semester with their annual cookout, followed by a brief meeting. The new Officers are President, Jimmy McClure; Vice President, Lindsey Wescott; Secretary, Martha Hayes; Treasurer, Heather Barkley; Ag Life Representatives, Ben Aceto and Trey Warrick. Faculty advisers are Bryce Lane, Dennis Werner, and Paul Fantz. Club meetings are the first and third Monday nights, 6:30 pm in 121 Kilgore.

Scholarships awarded to our 4-year and 2-year students totaled \$65,657. A little down from last year, but still super! Congratulations to all recipients.

A few **dates** to remember: Tailgate - October 2; CALS Career Expo - October 12; University Open House - October 16. Graduation is December 15. Horticultural Science has 17 students graduating.

GRADUATE PROGRAM

John Dole and Rachel McLaughlin

Michelle McGinnis, working with Stu Warren and Ted Bilderback, received an Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Graduate Fellowship for: Sustainable use of vermicomposted hog waste - the use of worm castings as a nursery growing substrate amendment to increase water and nutrient efficiency in containerized nursery plant production. This is a competitive program and quite an accomplishment.

Peter Conden has accepted the position of nursery supervisor at the Holden Arboretum in Kirtland, Ohio, and will be leaving us in October.

Graduate students starting this fall

Allison Cerulli. Allison was born in Columbus, Ohio. She received her BS degree in August 2001 from the University of Georgia majoring in Ecology. Allison's career goals and research interests are to be a permaculture teacher and an environmentally sensitive landscape designer. She would eventually like to teach at a university or college-accredited permaculture institute. Allison's work experiences include grounds/landscaping crew for gardens at the State Botanical Gardens of Georgia; volunteer environmental education at The Boys and Girls Club; official school tutor and note taker for disabled students; field research ecologist for NGO and The University of Hawaii in Oaxaca, Mexico; intern at Sequatchie Valley Institute and education co-director at The Sequatchie Valley Institute. In addition to all of this, she has lived close to three years in an off-grid, permaculture-style homestead where she learned about landscape design, energy/resource flow through a system, green and natural building, gardening and many other skills. She has traveled extensively in many countries around the world including New Zealand and Costa Rica and has published some of her work. She is a singer/songwriter. Allison will be working on her MHS degree with **Will Hooker**.

Fang-Yi Cheng. Fang-Yi was born in Tainan, Taiwan. She received her BOA (Bachelor of Agronomy) degree in June 2002 from the National Taiwan University majoring in Agronomy. She has recently finished her MS degree from NCSU majoring in Crop Science researching the role of antioxidant metabolism in ozone stress tolerance and identifying differences between two soybean genotypes. From 1985 to the end of 1999, Fang-Yi traveled to many countries including Australia, England, Norway, New Zealand, and Germany. Here is an interesting fact...from late 1997 to the present, she has been a member of the Blue-Sound Harmonica Club at the National Taiwan University. Fang-Yi will be working on her PhD degree with **John Williamson**.

Peter Dittmar. Peter was born in Galena, Illinois. He received his AAS degree in Ornamental Horticulture/General in May 2002 from Kishwaukee College and continued his education by receiving his BS degree in May 2004 from Southern Illinois University-Carbondale majoring in Horticultural Science. Peter was raised on a farm that has been in his family for six generations. He participated extensively in 4-H horticulture programs at the county, state and national level. These activities allowed him to see the extension cooperative service at work. His career goal is to become involved in educating the public about horticulture food crops through either the extension cooperative service or a state or federal department of agriculture. Some of Peter's work experiences include landscape installation at a retail garden center, landscape maintenance at a golf course development, assistant grower at a wholesale greenhouse operation and a horticulture food crops technician. Peter will be working on his MS degree with **Jonathan Schultheis**.

Mary Helen Ferguson. Mary Helen was born in Bogalusa, Louisiana. She received her BS degree in May 2004 from Birmingham Southern College majoring in Biology. While she was a sophomore, she worked with the Educational Concerns for Hunger Organization (ECHO). This organization trains agricultural development workers. For her senior research project she developed a system to test plant materials for cyanide under field conditions. During her sophomore, junior and senior years, she was both a volunteer and a paid environmental intern. Other jobs that she held included laboratory assistant, math tutor, and camp counselor. In 2004, she received the "Who's Who Among Students in American Colleges and Universities". Mary Helen will be working on her MS degree with **Gina Fernandez**.

Brandy Silvey. Brandy was born in Huntsville, Tennessee. She received her BS degree in May 2002 from Tennessee Technological University majoring in Agriculture with a concentration in Engineering Technology. She briefly interned

with Walt Disney World in Orlando, Florida at Epcot working with hydroponic temperate and tropical plants before accepting a full-time job with the Natural Resources Conservation Service as a soil conservationist providing financial and technical assistance to landowners interested in conservation practices. During the summer of 2001, Brandy had the opportunity to intern with two NASA scientists that focused on remote sensing research for a two-year joint project with EPA involving urban heat islands. As part of this experience, she developed and presented her own research project. Her senior research project, conducted at the Nursery Research Center at Tennessee Tech University, promoted and demonstrated vermicomposting as an efficient and environmentally acceptable soil additives and/or high value plant growth media. Brandy was one of three students of the entering freshman class at Tennessee Tech University selected to work in the Office of the President as part of her scholarship obligation. Brandy will be working on her MS degree with **David Monks**.

Matt Taylor. Matt was born at State College, Pennsylvania. He received his BS degree in December 1999 from Pennsylvania State University majoring in Horticultural Science. In December 2002 he received his MS degree from the University of Florida majoring in Horticultural Science. During his undergraduate and graduate studies, he developed a passionate interest in plant nutrition. His undergraduate research included two individual projects. In the first project, Matt and his advisors determined the impact of ozone on specific growth characteristics of smooth cordgrass. With the second project, he and his advisors helped determine ethylene's role in root hair production by growing ethylene insensitive mutants under high and low phosphorus. Matt's master's research was a two-year study to determine the effect of nutritional treatments and irrigation quantities on the incidence of blossom-end rot of tomato. His investigation of calcium deficiency, cation competition, water stress, and fertilizer source increased his understanding of physiological changes that occur under calcium stress, soil chemistry, and

fertilization. He wrote a total of four publications during his master's program including the literature review for his thesis. Matt will be working on his PhD degree with **Paul Nelson**.

Graduate student awards

Denise McKinney was one of 15 winners of the Anheuser-Busch and National Fish and Wildlife Foundation Budweiser Conservation Scholarships, which are based on merit, the student's academic achievements and their ability and commitment to developing innovative solutions designed to address real and pressing issues affecting fish, wildlife and plant conservation. Scholarship winners will receive up to \$10,000 to help finance their field research, tuition, and other related expenses.

At this year's Southern Nursery Association meeting, the following graduate students received awards: **Jim Owen** - 1st Place in the Bryson L. James Student Research Competition for PhD Candidates; **Michelle McGinnis** - 3rd Place in the Bryson L. James Student Research Competition for PhD Candidates; **Carroll Williamson** - 1st Place in the Bryson L. James Student Research Competition for MS Candidates; **Brian Krug** - Sidney B. Meadows Scholarship Fund (\$2500).

NEWS FROM AROUND NORTH CAROLINA

Horticultural Crops Research Station (Castle Hayne)

Susan Rooks

The station has filled the superintendent position with **Kent Rorem**, who comes to us from Ohio. Welcome, Kent!

JC Raulston Arboretum (Raleigh)

Bob Lyons

The JC Raulston Arboretum received first prize from the **National Agricultural Alumni and**

Development Association for their new membership brochure. They also received the **merit award** for their perennial border from the National Perennial Plant Association.

The recent past has taken its toll on the shade-rich **lath house** structure at the JC Raulston Arboretum. Strong winds, unusual snow loads, and ice storms had weakened several sections to the point of collapse, making it dangerous for visitors and rendering it useless for the plant collections. It became clear that a new structure was needed. Anne Spafford's class proposed several exceptional designs should funding permit a complete overhaul. However, a new environment was needed faster than funds could be raised, so we decided to partner with NCSU Facilities and Construction to rebuild the lath house, sharing the cost 50/50. We were thrilled with the cooperation we received, the excitement on the part of the building professionals, and the ultimate appearance and functionality of the structure. Thanks very much to NCSU Facilities and Construction; we can all breathe easier, feel safer, and know that those special plants are once again protected from the harsh rays of full sun. The accompanying photo was taken shortly after construction ended, and we re-opened the new lath house in mid-summer.



LCPTRS-Cunningham Research Station (Kinston)

Bill Jester

Work at the Specialty Crops Program continues on several projects, including commercialization

of an **industrial hot pepper** (Bill Jester, Mike Boyette and associates), and identifying **adapted Romaine lettuce cultivars** (Bill Jester) for North Carolina.

Mountain Horticultural Crops Research and Extension Center (Fletcher)

Tom Ranney

Hurricane Frances was felt in Fletcher (see photo). With six inches of rain thus far and still counting, the French Broad River is true to its name and now looks like an expansive lake. It is too early to assess the impact on research plots, but some are under as much as four feet of water.



In June, **Jeanine Davis** traveled to Chile where she was invited to speak on production of goldenseal and black cohosh at the International Oilseed and Medicinal Plant Conference. She spent a week there touring local farms, a large oilseed extraction facility, and university research on a variety of specialty crops.

The **Medicinal Herbs for Commerce** project, funded by the NC Tobacco Trust Fund Commission, has held field days at two of the 17 cooperating farms with two more field days planned for September in Avery and Caswell counties (see calendar at <http://ncherb.org>). So far, five of the farmers have successfully grown, harvested, and sold their medicinal herbs to large buyers of botanicals. Herbs being produced in this project include California poppy, dandelion, purple coneflower

(*Echinacea purpurea*), and valerian. **Jeanine Davis** is the PI for the project and Jackie Greenfield is the project coordinator.

Medicinal herbs (<http://ncmedicinalherbs.org>) is a project of the NC Consortium on Natural Medicines which is a program of UNC-Chapel Hill and NC State, supported by the GoldenLEAF Foundation. Principal investigators are **Jeanine Davis** and Susan Gaylord (UNC-CH).

Vernon James Research and Extension Center (Plymouth)

Mark Clough

Lots of potato trials work going on in June and July for **Craig Yenko, Mark Clough**, graduate students **Adam Bruckner, Jim Cervantes, Trevor Chlanda, and Per McCord** and our summer help. Our season ran a bit long because of weather delays. The quality of the crop was okay but small due to inadequate rain during the bulking phase of development.

In July, Craig Yenko and Mark Clough showed off four promising cultivars at the **Specialty Crops Field Day** in Kinston.

WISH LIST
Julia Kornegay

Because of on-going budget restrictions, the horticulture department can no longer purchase all the items needed by our programs. We hope that our alumni and collaborators will review this list and **help us obtain these items.**

For **Kilgore Hall**

- stove and extraction hood
- poster printer (HP 1055CM)
- digital camera (5-8 Mpixels)

For the **greenhouses**

- two golf carts with rear utility beds
- wireless network hubs (802.11b or g)

For the **graduate student office**

- double sided printer
- flatbed scanner
- six replacement computers (Win, Mac)
- computer desks and chairs (8 - 10)

HORTICULTURE FACILITIES

David Monks

The undergraduate Horticulture Club has set up headquarters in 123 Kilgore, and 107 Kilgore is being remodeled for use as the **faculty/staff lounge.**

Departmental Newsletter Committee

- Editor: **Todd Wehner**
- Assistant: **Rachel McLaughlin**

Send items for the newsletter to Todd Wehner (todd_wehner@ncsu.edu)