# # magazine UNIVERSITY OF KENTUCKY

COLLEGE OF AGRICULTURE



#### THE COLLEGE OF AGRICULTURE AND FOOD

The College of Agriculture could just as appropriately be named the College of Food. That is not just because of the famous pork chops at Roundup. More and

more, the scope of our research and education efforts is reaching beyond on-farm production to encompass the entire food system in Kentucky and the nation.

The fastest growing major in the College? The highly successful Equine Science and Management degree or the newly reorganized Natural Resources and Environmental Sciences program would be good guesses. But the largest increase has been in Nutrition and Dietetics, which has grown from about 150 to well over 400 students in the last six



years. These are excellent students from diverse backgrounds, pursuing careers in a field with tremendous opportunities. Two of our graduates who have built flourishing careers in the food industry are highlighted in Alumni News.

Food safety is among the most prevalent concerns of the American public. Innovative research and educational strategies are a critical need. In the News section, you will find a brief account of a very large research grant underway in our food science group. This is just one of many exciting initiatives, in several departments, expected to create new and better ways to monitor and protect our food supply.

New food processing businesses and value-added food products are a key to the growth and sustainability of the Kentucky agricultural economy. A recent initiative, the Food Systems Innovation Center, provides food entrepreneurs with much-needed business and technology tools, including the MarketMaker program also described in the News section.

Even the opening of the Veterinary Diagnostic Lab is good news for food safety in Kentucky. The work done there is just as much about protecting our food supply as it is about animal health.

The College's history is appropriately rooted in livestock and crop farming, but in the future we will branch out to cover the entire food system, from farm to table.

> M. Scott Smith Dean and Director, College of Agriculture

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# magazine

# contents

#### **FEATURES**



K It's a Family Affair

It's safe to say that the College of Agriculture is entwined in many family trees, as each generation sprouts new alumni.



Fresh Minds,
New Discoveries

They may be undergraduates, but their research could have important and lasting implications for agriculture.



The Veterinarian's Vet

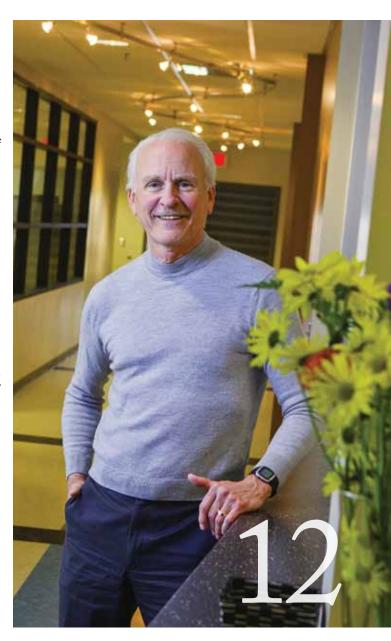
"We're providing diagnostics that give vets and farmers confidence...."

—Craig Carter, director UK VDL



# 16 Alumni News Whether they're in the lab

Whether they're in the lab, the test kitchen, or on the sands of Morocco, College alumni are making an imprint on the world.



#### REPORT TO THE PEOPLE



Academic Programs Annual Report 2010

Advancement Annual Report 2010

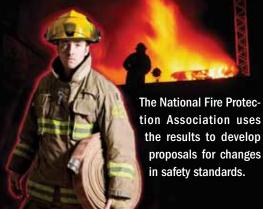
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### **SHORT ROWS**

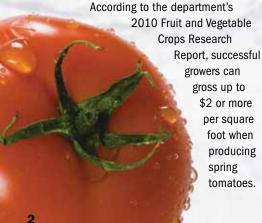
## Fabrics help save lives

Quality turnout gear could mean the difference between life and death for a firefighter. Professor Elizabeth Easter and her students in Merchandising, Apparel, and Textiles conduct post-use evaluation of turnout gear to analyze such things as the garments' breathability, flammability, water penetration, seam strength, and its thermal protective performance after two to 10 years of use.



### **TOMATO** TUNNELS

Red, ripe tomatoes this early in the season? Kentucky farmers are growing savvy when it comes to stretching the tomato season by using either greenhouses or high tunnels (large, plastic covered hoop structures) to produce the fruit earlier in the season. The UK Department of Horticulture has helped install demonstration high tunnels in several counties to educate growers about the system's benefits.





AS POLLINATORS, honeybees contribute to about one third of the American diet, and the U.S. Department of Agriculture estimates their economic value at \$15-\$20 billion a year. Local honey has caught on with consumers, so potential producers are swarming to beekeeping schools offered by UK Cooperative Extension in partnership with Kentucky State University. Beekeeping for profit may look like a honey of a deal, but keeping bees healthy takes a lot of time, says Greg Whitis, McCreary County's agriculture and natural resources extension agent, a beekeeper himself. "Your grandpa's beekeeping is a thing of the past, where the bees took care of themselves, and you robbed them once a year. Colony collapse disorder and a variety of pests have changed all that."



water quality.

# The Art of Recycling

Want original art for the house? Take some newspaper, a little string, used aluminum foil, and a bottle or two and mix them all together. The result? "Fine" art, plus a lesson in recycling. That's what students in grades K-12 took away from the annual Regional Trash Sculpture Contest held in six Western Kentucky counties. "If we can teach kids to recycle at school, they'll encourage their parents to recycle at home," says Janeen Tramble, Trigg County 4-H youth development agent.



# NEWS in brief

# AT THE **ROOT** OF THE ISSUE

**Nematodes** are synonymous with agriculture, but recently the microscopic, root-attacking worms gained national attention, because the more selective, safer insecticides don't control them like previous insecticides did.

With at least six nematode species that attack corn roots either externally or internally, controlling high populations is a more complex issue in corn than in crops like soybeans, which only have to contend with one species.

In a limited 2009 field survey, University of Kentucky extension plant pathologists Paul Vincelli and Don Hershman wanted to determine whether nematodes were numerous enough in Western Kentucky to warrant treatment.

"Kentucky corn fields have always had a low risk of nematode damage because we have heavier, silt loam soils that are not favorable for most nematodes. Plus, we have regular crop rotations, which help keep nematode numbers lower," Vincelli said.

The study found most producers had nematode numbers below treatment thresholds, but a few fields had high enough numbers to cause some concern. For high levels, growers can rotate away from corn or use one of two new seed treatments.





# From Seed to Sale

For years, Art Williams' horseradish sauce has been popular among family and friends. Now retired and looking for a new challenge, the Louisville-based grower hopes his sauce is just as popular among consumers. He has turned to the University of Kentucky to find resources to help him market his product.

Williams attended UK's MarketReady training, which teaches producers how to market their products more effectively to grocers and restaurants. Through the program, he learned about different opportunities available through the UK College of Agriculture and the Kentucky Department of Agriculture.

"UK and the KDA have been superb partners for new growers like us," Williams said. "Both groups bring a lot of resources and expertise to the table."

As consumer demand for local products has grown, many producers are becoming interested in getting involved. But they may not necessarily understand supplier requirements. The daylong

MarketReady training helps producers become more business savvy, learn about buyers' regulations, and design a successful business strategy so they can continue farming. UK began offering the trainings statewide in fall 2010.

"We asked buyers what they're looking for from local suppliers and present that information in the training," said Tim Woods, UK agricultural economics professor who oversees MarketReady. Williams said the training emphasized the value of marketing.

"If you do some marketing on your own, retailers appreciate that because they're not just out there by themselves promoting the product," he said. "Plus, it shows you believe in your product and want it to succeed."

A certified Kentucky Proud producer, Williams said the training also reinforced the importance of the Kentucky Proud certification to retail and wholesale buyers and consumers. He plans to seek out retail supporters of the program as potential buyers of his horseradish.

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# Knowledge

**GHANA, LIKE MANY AFRICAN COUNTRIES**, faces serious challenges when it comes to feeding its people. Agriculture, in large part, drives its economy, yet Ghanaians struggle with poor soil and a dearth of water, among other things.

"It is a lack of money, lack of knowledge, lack of access to things, but certainly not a lack of creativity or hard work," Professor Mark Williams said after returning from a recent trip to the country. "The people over there are incredibly hard working, and they just need some help."

Help may come through Mildred Osei-Kwarteng, who currently teaches at the University for Development Studies in Tamale, Ghana. A little more than a year ago, she came to the University to study sustainable agriculture practices under Williams in the Horticulture Department. Her trip and Williams' return trip to Ghana this year were sponsored by the Norman Borlaug Women in Science and Agriculture Fellowship Program, housed at Texas A&M University.

During her three-month stay, Osei-Kwarteng conducted research on post-harvest handling of sweet potatoes. She also worked with the

# Goes a Long Way

College's Community Supported Agriculture program and learned organic farming and sustainable agriculture techniques.

"Previously, I worked with the Ministry of Food and Agriculture. We always had advised farmers on environmental issues of farming and also practicing farming as a business," Osei-Kwarteng said. "All these theories were well demonstrated in Mark's sustainable ag program. Incredible! Mark's system emphasizes the diverse principles and practices that can be applied depending on a farm's condition."

"The soil in northern Ghana presents significant challenges, and the way it is being cropped makes the situation worse," Williams said. "They're typically not adding organic matter back into the soil, from what I could tell. This limits natural nutrient

cycling and other biological aspects of the system and results in a dependence on fertilizers and pesticides."

When Osei-Kwarteng returned to Ghana, she was committed to sustainable practices such as crop rotation, integrated pest management, and a soil-focused approach to agriculture.

"We can produce a long term solution to fertility problems in the depleted or unproductive soils in Africa by consciously incorporating sustainable farming principles such as cover cropping, green manuring, beneficial intercropping that will make soil nutrients available, and crop rotational plans that would improve the soil structure."

Osei-Kwarteng's enthusiasm is spreading. She and her university colleagues are planning to implement some of the sustainable programs she saw during her visit to UK.





Mildred Osei-Kwarteng examines one of the three types of hand tools used on a five-acre farm near Wa, Ghana. The farmers are blind and their operation is highly successful.



# STARTS EARLY

THE FIELD OF FORESTRY caught Sarah Fraley's attention when she was in high school. First a wildlife course piqued her interest, then a June week spent participating in the Kentucky Forestry Leadership Program solidified it. When the time came to think about a career and choose a college, the relationships she'd built with the program's staff helped point her toward the UK Department of Forestry.

Fraley is not the only forestry student at UK who is a graduate of the forestry leadership program. The weeklong camp, which is sponsored by the University of Kentucky Department of Forestry and the Kentucky

Division of Conservation, has been in existence in its present format since 1994. Over the years, many forestry students got their start from that week in the woods near Jabez. Currently there are four forestry undergraduates who traveled that path to their major.

"What we've done is create a residential program at Jabez where we intensify their understanding of the forestry career," said Doug McLaren, camp instructor and UK forestry extension specialist.

For students like Sarah Fraley, that understanding is leading to a satisfying career in the forestry industry in Kentucky.



FROM LEFT: Youling Xiong, Jamie Greene, and Gregg Rentfrow are part of the team researching ways to prevent food contamination through a grant from the National Institute of Hometown Security.

# safety barrier

Could adding a simple and natural antimicrobial film to some food products protect them from harmful contaminants? That's what UK researchers Melissa Newman, Youling Xiong, Gregg Rentfrow, and Joe O'Leary are trying to determine. The team is in the early stages of research, supported by a \$2 million grant from the National Institute of Hometown Security.

"Our main goal is to determine what GRAS (Generally Recognized as Safe) substances will work to thwart a food defense or food security situation," Rentfrow said. "We also want to determine how GRAS substances affect other pathogens and spoilage bacteria."

They are working with food science doctoral candidate Jamie Greene, who said the food industry has added edible films and coatings for decades to increase food quality and shelf life in products such as fruits, vegetables, nuts, cereals, and tablet drugs.

"Incorporating antimicrobial agents into a film or coating could also provide an extra barrier against harmful contaminating microorganisms, whether the inoculation was

intentional or accidental,' she said.

Once the team identifies a GRAS substance that works in the lab, they try to incorporate it into food products to see if it will work outside the lab.

They've had some success with nisin, a widely used food preservative. They added nisin to a film made from whey protein which successfully inhibited the growth of *L. monocytogenes*, a bacteria that causes one of the world's most virulent food borne diseases, listeriosis. Greene said the team found measurable protection zones around the film discs, indicating the substance was working.

"We want to determine the concentration of GRAS substance it takes to prevent intentional contamination," Newman said. "But we also want to know what level of that substance we can add without altering the taste of the food."

The team plans to continue incorporating other compounds such as basil, garlic, cardamom and eugenol, an essential oil found in cloves.

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It's been said, and repeated many times, the UK College of Agriculture is like a big family. One reason is probably because so many generations of families attend and graduate from the College of Agriculture. Just three examples of many are the Ellis family, the Cultons and the Halls.

# It's a

#### **An Early Connection:**

The Culton family

**Eugene and Maggie Culton** raised 10 children on their family farm in Parksville and dreamed their children would go to college. Prompted by their involvement with the Cooperative Extension Service and 4-H, seven of the 10 Culton siblings

enrolled in the Colleges of Agriculture or Home Economics. One brother, Tom, '38, even got his doctorate in poultry science from UK.

"We were so comfortable attending UK," said Helen Culton Price, '42. "Because of all the connections we had with UK through Extension, we didn't think of going any place else."

That comfort level was evident in young Helen, then a senior at Parksville High School. Needing a commencement speaker for graduation, she decided to ask Francis McVey, wife of then UK president Frank McVey, to address the class. Price

made the trip to Lexington and rang the doorbell of Maxwell Place, the UK president's home.

"Mrs. McVey said to me, 'Child, I'm not the speaker in this family. You want my husband,'" Price remembers.

So UK President Frank McVey was the commencement speaker for the Parksville High School 1938 graduating class of six girls and one boy.

In 2006, the Cultons were the first recipients of the Family of the Year award given to the family with a history of dedicated service and attendance to the University of

Kentucky College of Agriculture and School of Human Environmental Sciences. The Cultons have strongly supported various scholarships and established two UK professorships. They contributed toward the renovation of E.S. Good Barn and named the Culton Suite in memory and honor of their parents.

The Culton-UK connection will continue this fall when Price's great-great niece Alexis Thompson, from Arizona, enrolls as a freshman.

"We were comfortable attending UK. Because of all the connections we had, we didn't think of going any place else."

# Worth the Sacrifice: The Ellis family

The Ellises were a farm family who saved and scraped to send their 11 children to college in the 1940s post-Depression era. Eight of them came to UK.

"It was always talked about that we would go to college," said Shirley Ellis Sheperson, '52. "Our parents watched their money, my mother made our clothes, we had jobs on campus, and we didn't go home very much."

For Sheperson and her sister Jewell Deene Ellis, '51, a train trip back to Lexington from their Forkland home in Boyle County might have deterred students with less resolve. A huge snowfall over the Thanksgiving weekend found the women scrambling to get back to campus. The train out of Danville was full, so Sheperson and Ellis were forced to ride in a freight car with no seats. It was standing room only, except for one passenger who was lying down... in a box. The corpse made the ride more than a little creepy for the sisters.

They returned to campus only to find out Monday classes were cancelled.

Sheperson and Ellis earned home economics degrees, and eventually sisters Barbara Ellis Taylor, '54, Wilma Ellis Ewbank, '59, Kaye Ellis Thurman, '68, and Karen Ellis Marsee, '71, followed them to UK to graduate in home economics, too. Brothers Cecil and Dale attended the College of Agriculture. The UK-Ellis Family tree has many, many branches.



# family affair by Jeff Franklin

A total of 18 children, grandchildren, and great grandchildren of Sheperson's parents, Cecil and Alma Ellis, have attended UK, and 13 of those have attended the College of Agriculture and the School of Human Environmental Sciences.

Family members have established two endowed scholarships in Human Environmental Sciences and the College. Sheperson, Ellis, and Taylor are members of the UK School of Human Environmental Sciences Hall of Fame.

"The education and training this family received from the University of Kentucky has produced administrators, teachers, extension agents, college professors, business and agricultural leaders, and loyal alumni who continue to support the University," Taylor said.

The UK-Ellis Family tree has many branches. A total of 13 children, grandchildren, and great grandchildren have roots in the College.

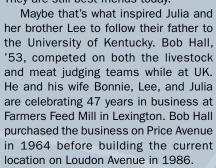


### Foundation for Success:

Julia Hall says one of her lasting memories as a child is of her dad, Robert "Bob" Hall, hosting an annual reunion for his UK Alpha Gamma Rho fraternity brothers—a tradition he still maintains. "I saw that camaraderie at a very early age

HALLWAY FEEDS 4

between Dad and his fraternity brothers.
They are still best friends today."



"I said nobody but a fool would have done that, because it was the worst time in the horse industry, low cattle prices,

and high interest," he said. "Lenders thought we were fools because of the economic situation. But I figured somebody was going to build it in Lexington, it just as well be us, so we bit the bullet and went after it."

Hall's hunch paid off. Hallway Feeds, the Halls' brand name, is recognized globally. In fact, the international business is one of their fastest growing segments, with the equine industry accounting for 85 to 90 percent.

Bob Hall is president, Lee Hall, '83, serves as vice president and oversees the day-to-day operations. Julia Hall, '86, is vice president of IncrediPet in Lexington, a division of Hallway Feeds.

Lee Hall competed on the livestock judging team just like his dad. He says the principles he learned still guide him today.

"Like recommending a product to a client, you have to be able to support that, just like we had to do in livestock judging—giving reasons and having to defend those reasons before the judges," he said.

"I saw the camaraderie at a very early age between Dad and his fraternity brothers. They are still best friends today."







Students Philip Houtz and Juliane Deacutis (center and right) in Bruce Webb's (left) entomology lab are studying the beneficial wasp *Campoletis sonorensis* and its host, the tobacco budworm (above).

# new discoveries

They found a second virus in the wasp larvae DNA that could be responsible for the wasps' deaths and critical for effective biological control of the caterpillars.

Research
like this could
have important
and lasting
implications in
the agricultural
industry. And it's
being conducted
by students in
the College of
Agriculture.

#### **HIGHLY MOTIVATED**

Carilynn Gravatte, with the help of fellow undergraduate Curtis Coombs, used a new technology for monitoring cow behavior to tie a dairy cow's lying time to her milk production. Studying 15 Holstein herds in freestall barns across the state, Gravatte found that providing cows with plenty of opportunities to rest is a key factor in maximizing milk production. Additionally, she was able to quantify factors that influence cow lying time. This information can help producers learn how to change management conditions to maximize cow lying times.

"This project is a perfect example of the land-grant univer-

sity's research mission," said Jeffrey Bewley, assistant extension professor in Animal and Food Sciences. "It is valuable research that allows commercial farmers to better manage and improve the health of their herds and simultaneously provides students with an opportunity to learn about research and extension."

UK seed biologist Bruce Downie has had three undergraduate students and one high school student who are co-authors on research publications.

"Students who pursue undergraduate research are highly motivated, because they want to learn and contribute," the horticulture professor said. "Their research is of immense quality—valuable and publishable in reputable journals."

In only her first year in Downie's lab, agriculture biotechnology major Taylor Lloyd published papers in *Kaleidoscope* and *Journal of Biological Chemistry* and had a grant funded by the National Science Foundation's Research Experience for Undergraduates. Her studies explore how temperature and light affect seed germination at the molecular level.

"The initiative that UK is taking to get undergraduates involved in the lab is phenomenal. The university is really making great strides to support us," Lloyd said. "I had only one semester in the lab and was able to write a grant application for the National Science Foundation. Being listed as an author of a publication in my first year in the lab is great."

Webb has had several under-



In her first year in Bruce Downie's seed lab, agriculture biotechnology major Taylor Lloyd had papers published in Kaleidoscope and the Journal of Biological Chemistry.



Carilynn
Gravatte and
Curtis Coombs
monitored the
correlation
between a
cow's lying time
and her milk
production.



# Students have the opportunity to interact with and learn from world-renowned researchers. It's a tremendous educational experience . . .

graduate research students in his lab over the years. He said larger research universities like UK can offer undergraduates research opportunities that some smaller schools cannot.

"Students who are interested in a possible career in research can take the next step and join a lab," Webb said. "For those who decide to make research a career, it helps them tremendously. Most researchers support it, because at some point somebody gave us that opportunity."

Offering the chance to work with some of the best researchers in their fields can give large land-grant universities another step up in a student's college selection process, said Larry Jones, the College's associate dean for academic programs.

"Here, students have the opportunity to interact with and learn from world-renowned researchers," he said. "It's a tremendous educational experience for them that they can't get everywhere."

#### A STEP TOWARD SUCCESS

It was the opportunity to conduct research early on that led Philip Houtz to choose UK. The agriculture biotechnology and chemistry major chose to jumpstart his college experience by working in Webb's lab the summer before his freshman year. He knew his lab experience would give him the opportunity to explore a career in entomology. Bugs have fascinated him since he was a young child growing up in rural Clark County, but it wasn't until the end of his high school career that he began to think about research as a career path.

After working two years in the lab, he's hooked and plans to get a master's degree and possibly a doctorate in entomology upon finishing his undergraduate work.

"Science is all about taking things we don't know about the world and finding answers to them," he said. "It's a big curiosity satisfier."

> Both Gravatte and Coombs grew up on dairy farms-Gravatte in Western Kentucky and Coombs in Henry County. Gravatte, who graduated in December 2010 with a dual major in community and leadership development and animal sciences, hopes to work as an animal agriculture lobbyist in Washington, D.C. Coombs graduated

in May with a degree in agricultural education and hopes to carry on the family business and possibly pursue a career as a county Cooperative Extension agent.

But undergrads don't always know what they want to do after college. Many undergraduate students enter a lab to gain research experience and further explore a possible career field. While not all undergraduate researchers will stay in the lab for their entire professional career, they are able to refine critical thinking and decision making skills that will help them no matter what career path they choose.

But there are others like Lloyd, who fall in love with their subject and decide to further pursue a career in that type of research.

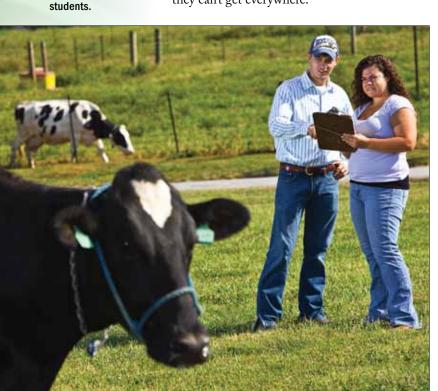
Lloyd, a Boone County native, was a freshman biology major planning a career in veterinary pathology when she got a job in Downie's lab through UK's Office of Undergraduate Research, formerly known as eUreKa! As she worked in the lab, her interest in seeds grew. She eventually added an agricultural biotechnology major and now wants to be a cell biologist and university professor, likely working with seeds.

#### **NOTABLE RESULTS**

The results these undergraduate researchers produce are gaining attention in their respective fields.

Houtz and Deacutis presented their findings during the Entomological Society of America conference in December. The virus they co-found doesn't have a name yet, but it is a cypovirus, which

Curtis Coombs and Carilynn Gravatte are moving toward successful careers by taking advantage of the research opportunities the College offers its undergraduate





normally kills caterpillars—even though it doesn't in this case.

"It's a new research topic because viruses usually work in a different way," Houtz said.

Houtz's work with the virus helped him become a Beckman Scholar, the only one awarded by UK in 2010. He received a \$19,300, 14-month scholarship from the Beckman Foundation to continue to study the relationship between these two viruses and their role in effective biological control.

Gravatte presented the findings of her study at the summer 2010 meeting of the American Dairy Science Association in Denver.

"This project added responsibility to my undergraduate career and made it more practical," she said. "Plus it created an opportunity I never thought I would have—to present my research along with other animal scientists in Denver and meet Temple Grandin, who actually approached me at the meeting to learn more about my research project." Grandin is a widely respected animal scientist.

At the same conference, Coombs presented the results of a solo project in which he surveyed the producers of the top milk production herds in the state to learn what best management practices they use. Survey results were collected into one publication so that other dairy producers in the state can see what the top ones are doing and maybe learn some new ways to increase their milk production.

"The biggest thing about the research project is the doors it's opened and the experience it's given," Coombs said. "I've learned a lot about the dairy industry and how other farms work. It really takes the undergraduate degree up a notch."

Whether in the lab or in the field, research produced by undergraduates provides important information to researchers, farmers, and the agricultural industry. This is why so many in the College continue to mold and support these future scientific leaders.  $\spadesuit$ 

research under
Bruce Downie (r),
Taylor Lloyd added
an agricultural
biotechnology major
to her original
biology major and
plans to continue
working with seeds
as a cell biologist
and university
professor.

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# VETERINA



racticing veterinarians don't always have the same resources a human doctor associated with a health system or hospital has; they can't usually afford it. That was a lot of the reasoning for creating university and state-based diagnostic labs back in the 1950s.

"Vets reached a point where they could only offer so much service to their clients," said Craig Carter, director of the University of Kentucky Veterinary Diagnostic Laboratory. "They couldn't confirm a diagnosis in the field without lab work. So these labs have become the mainstay for practicing veterinarians and in some cases, farmers themselves."

Carter, a 30-year veteran in diagnostic veterinary medicine, has served as the UK VDL director since 2007, when the lab was called the Livestock Disease Diagnostic Center. He likes to think of the VDL as the veterinarian's veterinarian.

"We're providing diagnostics that give vets and farmers confidence in knowing what they are dealing with, so they can prevent it from happening in the future, and so we can prevent disease spread in general," he said.

Michelle Arnold, UK's extension ruminant veterinarian, has made it her mission to stay in the know on the latest research, state and federal directives, new diagnostic tests, and treatment options and then get the information into a usable form. "My most important role with the VDL is communication," she said. "Veterinarians are trained to diagnose disease by a systematic approach based on history, physical examination, and diagnostic testing. At the UK VDL, we are here to provide the tests and results needed as quickly and accurately as possible and get the information back to the veterinarians in the field where they need it. Our necropsy service is invaluable for diagnosis of unexplained animal deaths, especially in an outbreak situation such as calf diarrhea or contagious mastitis that can spread rapidly within a herd."

Carter wants people to see the lab as more than a place that disposes of deceased animals.

"Yes, we do a lot of necropsies at the lab, but I think the message we want to communicate is that it's not just a disposal process," he explained. "It's a very complex and high-tech analysis of every part of an animal, which gives veterinarians and farmers the information they need to protect other at-risk animals through vaccination, treatment, and altering farm management practices."

Carter said they really try to help the veterinarian help the farmer make sure more animals don't die.

### **Essential Relationship**

**S** tuart Brown, a field veterinarian with Hagyard Equine Medical Institute in Lexington, sees more than 100 equine patients each day. He believes his relationship with the UK VDL is vital.

"The VDL is essential for the work of daily practitioners," Brown said. "We rely on the information from results of clinical testing and necropsy reports as our front line for early disease recognition and outbreak prevention. Without its presence, we lose our ability to identify patterns of disease emergence. The laboratory's ability to compile data from submitted cases throughout the Central Kentucky region allows us to identify risk factors that help us avoid further livestock losses for animal caregivers."

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## **Creatures Large and Small**

The lab provides diagnostics for all food animal species and even companion animals. Although horses and cattle are big business in the Bluegrass, many Kentuckians may be surprised to know it's the poultry industry that is actually the biggest moneymaker in the state—generating more than \$800 million from operations in more than 40 counties. In fact, UK VDL serology section chief Margaret Steinman said more than half of the world's poultry genetics can be traced to Kentucky.

At the VDL, Steinman and her staff support commercial poultry growers by performing regulatory testing in accordance with the U.S. Department of Agriculture National Poultry Improvement Plan. Lab staff monitors salmonella, as well, in commercial poultry houses.

"Usually the big commercial farms are not areas where there's much disease," Steinman said. "Those flocks are highly protected and their disease prevention programs are top notch. The place where you're more likely to find disease problems is the smaller, backyard flocks."



To that end, the VDL is trying to reach out to back-yard growers through the Kentucky Poultry Federation and local veterinarians.

"Usually these smaller, hobby-type growers experience a lot of bird losses before they seek our help," said VDL pathologist Lynne Cassone. "We're trying to get the word out to them. They need us; we want to help them protect their birds and other bird populations around them. The commercial growers even want the

smaller growers to participate with us to let us know what kind of problems they are experiencing, so everyone knows what kinds of diseases are circulating."



Steinman added that if the lab doesn't know what diseases are out there, they can't be much help to veterinarians, and then the vets can't be much help to their clients.

Other Kentucky animal industries, such as goats and sheep, have seen growth in recent years and are reaching out to the VDL. Beth Johnson, a large animal vet for more than 20 years, practices in Boyle County and regularly uses the VDL. Recently she's been doing more work with small ruminants.

"With the explosion of small ruminant herd health in Kentucky, the UK Veterinary Diagnostic Lab has been instrumental in assisting Kentucky veterinarians in management decisions for producers based on their diagnostic findings," she said. "Regarding small ruminant work, many producers do not feel that parasitism is so important. It has helped to have historical evidence of the importance of parasite infestation when you are speaking to producers, and the diagnostic lab is very helpful in providing statistics about this disease process."

### **Protecting Animals Protects People**

Inder Carter's leadership, the UK VDL has developed Kentucky's first fully integrated animal health information and surveillance system. Lab personnel analyze information they gather from cases at the VDL, the Breathitt Veterinary Center in Hopkinsville, and farmlevel reports from veterinarians.

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Craig Carter and the VDL faculty and staff support veterinarians in the field.

"The system fuses a lot of animal health data streams and other communications we have from vets and producers," Carter said. "It gives us a unique vantage point to be able to assimilate all that data and find ways of pushing it back to our vets and farmers. We are really the only state doing anything like this right now, and we feel it could become a model for the entire nation."

The system allows the lab to generate automated

alerts to the state veterinarian and other stakeholders, which helps mount a rapid response to emerging diseases and provide early detection of possible agroterrorism threats. The VDL is capable of diagnosing diseases animals can pass to humans, thus making it a critical component to protecting Kentuckians' health.

### High-Tech Help in the Trenches

To further support veterinarians in the field, the lab is developing an application for mobile devices such as smart tablets and phones. Jackie Cassady joined the staff in 2010 to get the project off the ground.

"Right now, we're trying to figure out what mobile devices are available and what devices food animal vets are using in the field," Cassady said. "We want to know if they are even able to access their data when they travel and if it would be useful for them to have wireless and remote access to the laboratory."

Cassady is working to build a diagnostics database into the application as a way for vets to narrow down the possibilities.

"More and more, students are graduating from vet school with smart devices in their hands," Carter said. "They are adopting new technology at warp speed, and we're trying to meet them where they are. It (the application) is a high-tech way of pushing information to the vets and interacting more closely with our 'army' out there who are actually seeing and touching the animals." The veterinarian would make selections from progressive menus that narrow down the diagnosis and then, based on the tests the vet requests, the application will tell them what specimens to collect and how those need to be packaged and transported.

"The development of the new application as a diagnostic tool in the field has tremendous potential," Arnold said. "Hopefully as technology improves and we have better broadband service throughout the state, we can interact with the veterinarians in the field via webcams and actually bring the experts in the laboratory face-to-face with the situation as it occurs. The opportunities awaiting us can definitely be summed up in one word—amazing."

With the expanded lab facilities, Carter said the VDL is in a great position to enhance its services for Kentucky's animal agriculture industries. One of his highest priorities is to secure funding to purchase the latest instrumentation to support Kentucky animal agriculture with more timely and meaningful diagnostic testing information. •

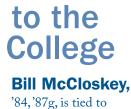


Jackie Cassady

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### **ALUMNI** news

# Committed



'84, '87g, is tied to agriculture and to the College that prepared him for a successful career. He and his wife Linda own a 140-acre farm in Breckinridge County. He worked for Dairymen Inc. in Louisville and on his family's dairy farm and,

currently, is director of Financial Services for the Governor's Office of Agricultural Policy. After he graduated with bachelor's and master's degrees in agricultural economics, he joined the UK Ag and HES Alumni Association to stay connected to his teachers and classmates.

Throughout the years, McCloskey has remained active in the alumni association, proud to be part of the group that developed the scholarship endowment for the Lincoln Trail Alumni Chapter and eventually becoming that chapter's president. Now, in his first year of a two-year term as president of the association, he said he is excited about the opportunity.

"As president, I pledge my commitment to continue the work of the Ag and HES Alumni Association—to increase awareness of UK College of Agriculture programs, to provide opportunities for networking and fellowship, to fund scholarships, assist with student recruitment, and most importantly, provide a connection between alumni and the College."





### Upcoming Events

 Joe T. Davis Memorial/ Ag & HES Alumni Association
 Golf Tournament
 SATURDAY, MAY 13

#### ■ Area Meetings

BLUEGRASS—July 22
FORT HARROD—June 24
GREEN RIVER—July 26
LAKE CUMBERLAND—June 27
LICKING RIVER—July 30
LINCOLN TRAIL—August 6
LOUISVILLE—July 30
MAMMOTH CAVE—May 29
NORTHEAST—June 30
NORTHERN KENTUCKY—July 29
PENNYRILE—July 25
PURCHASE—July 28
QUICKSAND—August 4
WILDERNESS TRAIL—June 28

- Roundup
  SATURDAY,
  SEPTEMBER 10
- SATURDAY,
  OCTOBER 22
- Scholarship Luncheon NOVEMBER 19

#### **2010 ANNUAL EVENTS SPONSORS**

(Golf, Roundup, and Winter Event)

#### PLATINUM

Kentucky Farm Bureau Federation Kentucky Farm Bureau Insurance

#### GOLD

Kentucky Association of Electric Cooperatives Inc. &
Kentucky's Touchstone Energy Cooperatives
Kentucky Pork Producers
Kentucky Thoroughbred Owners & Breeders Inc.
University of Kentucky Alumni Association

#### SILVER:

Farm Credit Services of Mid-America Lexington Convention & Visitors Bureau University of Kentucky Horticulture Department Whayne Supply Company

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#### **2010 ROUNDUP SPONSORS**

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Hyatt Regency Lexington
Kentucky Portable Toilets
Liberty Mutual
Stith, Wimstatt & Associates, CPAs
University of Kentucky Federal Credit Union

#### **2011 WINTER EVENT**

#### WHITE:

Stith, Wimstatt & Associates, CPAs



#### **PERFECTING THE BROWNIE**

#### (and other adventures in microbiology)

■ Mary L. Sandford, '69, '74g, a food safety and public health regulatory compliance expert, may not have had well-defined career goals while at the University of Kentucky, but after gradu-

ation from the College of Agriculture, doors opened in research and industry food microbiology laboratories. Those doors led to a series of management positions in technical services, quality assurance, consumer



product safety, food safety, and regulatory compliance, during a 35-year career in the food industry, 33 with Burger King Corp.

During her tenure, Sandford has seen advances including the development of novel food products; improvements in Good Manufacturing Practices, Good Agricultural Practices and food processing and manufacturing equipment; and increased training and regulatory requirements that keep pace with an expanding global food economy.

Food security and food defense are emerging career paths, and food microbiology is at the forefront of advances in food safety.

"Emerging science, technology, and

the overall significance of a career that is very relevant to society is still exciting," Sandford said.

■ Lois Ehlers, '75, '77g, a UK nutrition and food science alumna, sees her work at Givaudan Flavors Corp., the world's largest flavor company, as the blending of art and science.

During her career, the complexity of the food industry has increased dramatically. End products are increasingly sophisticated, requiring great taste and reduced amounts of sugar, salt, or fat. Currently, as a sales ac-



count manager with an eye-popping 2.5 million frequent flyer miles, she meets with internal teams and external clients in the quest to create winning products.

"UK provided academic skills, but even more importantly, helped prepare me for life," Ehlers said.

As a student, she focused on product development, well prepared to continue in the field at General Mills and then Pillsbury. One of her first commercial efforts: perfecting a brownie that compensated for the vagaries of the home baker.

### **Along the Environmental Seam**

HUSBAND AND WIFE BILL AND MIRANDA ESTES do spend time in the office, coordinating the large-scale projects they design as landscape architects for international design firm EDSA, but they also often travel to the project site. Over the past six years, Bill Estes, '99, has worked in 20 countries and territories, managing the design of cities, communities, intimate garden spaces and five-star resorts.

There has been increased awareness of the effects of man-made intervention on the environment. According to Bill, landscape architects have always had this understanding.

"It is a profession that works along the seam of the built and natural environments," he said. "It's a testament to the growing awareness globally of the role landscape architects play in creating livable environments and communities."

Bill knew he wanted to work on large-scale, big budget projects.

In contrast, Miranda, '02, first sought a small-scale, hands-on design job after graduating from the College with her bachelors degree in landscape architecture. "I was interested in the relationship between inside and outside," she said.

"EDSA was a complete departure," Miranda said. "I was immediately thrown into large resort design projects, something that I had never imagined doing. Suddenly, I was working on projects for big-name clients such as Ritz Carlton and Kerzner International. I had never even stayed at a five-star resort before, and now I was designing them."

Each points to different career highlights: for Bill, the six months in 2010 working in the EDSA/Orient office in Beijing; for Miranda, a hotel project in Morocco, south of Casablanca, where a one-week, five-city whirlwind tour got them up to speed on local materials, which saved costs and added authenticity. But they agree that it has been

their good fortune to learn about different cultures and then translate that into designs specific to the region, whether Mexico or Montenegro, Spain or South Africa.



Mazagan, a luxury five-star beach resort in El Jadida, Morocco. Miranda Estes worked on this project, which was completed in 2009.

# HALL OF FAME

Our alumni and faculty are

sources of pride for the College of Agriculture. They are the visionaries and the roll-up-yoursleeves-and-get-it-done supporters of community, farm, and home. In 2010, we honored six remarkable individuals for their lifetime achievements and their contributions to the University and beyond.

LEFT TO RIGHT: Opal Hurley Mann Green, Betty Jane Downer Eastin, Anna Bernice Lucas, Raymond E. Forgue, Kathy Allen Jansen, Dennis Liptrap.







#### **HUMAN ENVIRONMENTAL** SCIENCES HALL OF FAME

Betty Jane Downer Eastin, who was inducted posthumously, is probably best remembered for establishing the school's Betty D. Eastin Historical Costume Collection. She wanted the collection to illustrate the importance of textiles and design in the growth and development of the state. She also was instrumental in establishing the UK Department of Clothing, Textiles, and Merchandising in the late 1960s and early 1970s in what was then the College of Home Economics, chairing the department from 1971 to 1973.

Raymond E. Forgue served on the faculty of the Department of Family Studies for 28 years beginning in 1980, holding the positions of director of graduate studies and department chair within that time span. He and his students managed the Consumer Protection Hotline, which connected Kentucky residents with the state attorney general's office. Though now retired from UK, Forgue continues to serve, as treasurer of the Personal Finance Employee

Education Foundation and on the board of the National Association of Personal Financial Advisors.

Opal Hurley Mann Green, inducted posthumously, graduated from UK in 1944. She had a life-long career in Cooperative Extension, becoming the first woman to serve as county coordinator in 1958. She became the deputy assistant administrator to the U.S. Department of Agriculture's Home Economics and Human Nutrition Extension Service in 1971, providing leadership for the Expanded Food and Nutrition Education Program. With her assistance and support, the Extension Homemakers grew to become the largest volunteer educational and community service organization in the United States.

Anna Bernice Lucas has spent her life in 4-H. After obtaining a bachelor's degree in home economics from UK, she took a job as Grant County's home economics agent, also overseeing the county's 4-H program. Lucas left the state in 1967 to become a county agent in Tennessee and received her master's degree from the University of Tennessee,

where she served as an assistant professor on that school's 4-H staff. She returned to Kentucky in 1976 as a state extension specialist focusing on curriculum management in 4-H. Now retired, Lucas volunteers with the Lincoln County 4-H program and the Kentucky 4-H office.

Kathy Allen Jansen has a passion for teaching and textiles. With a bachelor's degree in vocational home economics from UK and a master's and doctorate in textile science from the University of Wisconsin, she has taught at home and abroad, holding faculty positions at the University of North Carolina-Greensboro, University of the Philippines, Howard University, and the International School of Islamabad. Jansen retired after nearly 30 years in teaching and now works as a national and international education consultant and senior project manager. Wherever she's lived, Jansen has always been active in community service and has received many awards for her volunteer work.

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### ANIMAL & FOOD SCIENCES HALL OF FAME

Dennis O. Liptrap received his bachelor's degree in animal science from UK and his doctorate in animal nutrition from Michigan State University. Returning to the UK College of Agriculture as an assistant professor and swine specialist, he began a long tenure of service to the commonwealth. During his career in UK Cooperative Extension, Liptrap developed visionary programs. He consulted with many producers to interpret research results and tailor recommendations to the unique situations they encountered. Currently, he works as a nutritionist and technical consultant for Ralco Nutrition. Liptrap was named a Fellow of the American Society of Animal Science and inducted into the Kentucky Pork Producers Hall of Fame in 2002.

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# Academic Programs

ANNUAL REPORT 2010-2011

HE OFFICE of Academic Programs continued to provide students with a quality education taught by quality faculty in 17 different academic programs across the College of Agriculture, including the School of Human Environmental Sciences.

The College continues to see increasing enrollments with a total undergraduate enrollment of 2,372, nearly a 7% increase over last year. Major program growth occurred in Dietetics and Human Nutrition, Equine Science, and Community Communications and Leadership, including Career and Technical Education.

One major initiative we began this year was examining how distance education and classroom technology can be used to enhance student learning in a diverse student body. We are upgrading technology in several classrooms in the College including improved delivery of distance learning courses.

A second initiative involved examining the most effective and efficient means for improving student advising. Our goal as a college is to see that students are served by excellence in academic advising, career, and internship counseling as well as by methods to enhance

the interaction between faculty and students.

Other major issues on which the Office of Academic Programs continued to work included:

- Implementation of the University's new General Education Program
- Strategies for enhancing student retention
- Assessing student learning outcomes
- Strengthening the Agriculture Residential
   College as it enters the second year of programming

We thank you for your support of our college and the many ways that you provide financial, career, and other opportunities for our students. We look forward to working with you in the future.

Larry D. Jones, Associate Dean Office of Academic Programs N-6, Agricultural Science Center University of Kentucky Lexington, Kentucky 40546-0091

E-mail: Larry.Jones@uky.edu

# 2,854

### **TOTAL College Enrollment**

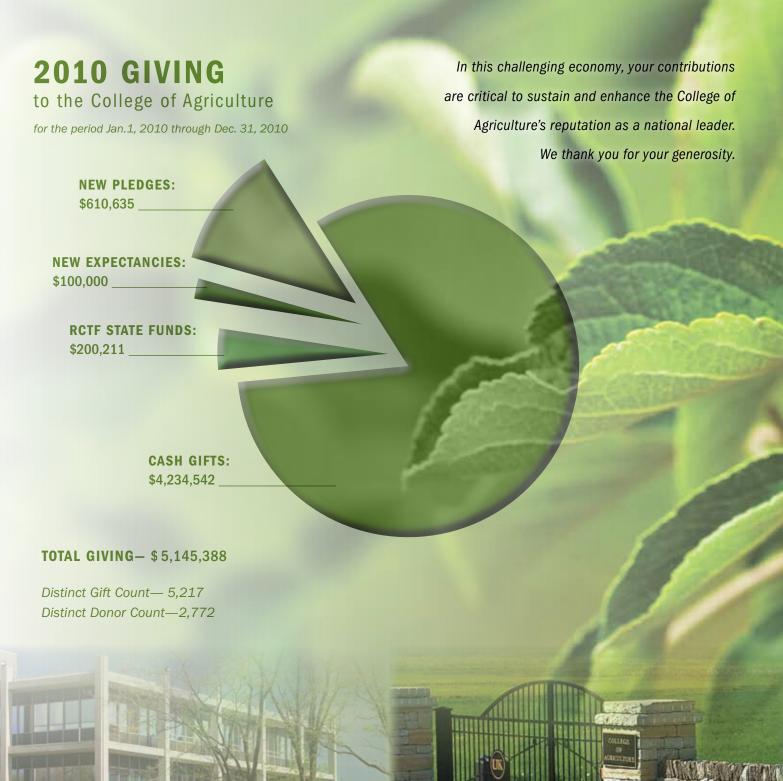
- $\blacksquare$  Undergraduate Students 2,372
- Graduate Students 398
- Undergraduate Students in Human Environmental Sciences 897
- $\blacksquare$  BS Degrees Awarded 484
- Faculty Recognized as "Great Teachers" 28
- Female Students 60%
- Graduating Seniors who say that the College met their expectations 88%
- Dollars of undergraduate scholarships awarded \$565,000
- Number of undergraduate students receiving a College of Agriculture scholarship 461

#### SELECTED UNDERGRADUATE ENROLLMENTS:

- 381 Dietetics or Human Nutrition
- 272 Community Communications and Leadership Development/Agricultural Education
- 251 Animal and Food Sciences
- 244 Agricultural Economics
- 208 Merchandising, Apparel, and Textiles
- 168 Equine Science
- 138 Agricultural Biotechnology









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#### NOTHING SMALL ABOUT THE LITTLE CENTER

hen a new research farm was needed to replace one being repurposed by the University of Kentucky, C. Oran Little led the charge to make it happen. Little was dean of the College of Agriculture from 1988 through 2000, and UK purchased the farm in Woodford County in 1991. To honor his efforts, the University has renamed it the C. Oran Little Research Center.

"Dean Little was not only an outstanding leader for the College of Agriculture, he was also a nationally recognized animal scientist," said Scott Smith, dean of the College. "This makes it particularly appropriate that this great research facility be named in his honor."

The center is a vital part of the College's research, teaching, and extension missions. Little knew this threepronged effort by the College was important to Kentucky's students and farmers and that this farm would be critical in continuing the College's essential work.

"The farm was purchased specifically for the relocation of field and laboratory facilities of the College to serve the long-term research and education needs for a sustainable animal industry in Kentucky," Little said.

Undergraduate and graduate students rely on teaching, internships, employment, and research projects at the farm to gain hands-on experience that is integral to agricultural

The center plays a pivotal role in the College's research efforts. It is home to hundreds of research activities relating to beef, sheep, swine, equine, environmental stewardship, and more.

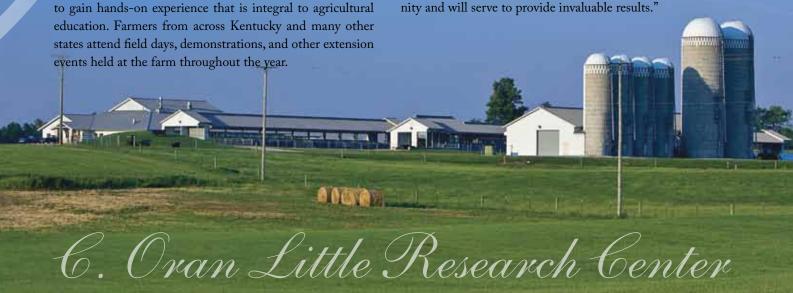
Projects include, but are not limited to, the development of an electronic ear tag health monitoring system for cattle, understanding and moderating the influence of fescue

endophytes on beef cattle, improving feed digestibility in swine, developing a low economic input sheep production system, developing diagnostic tests and vaccines for equine influenza, demonstrating the viability of on-farm dead animal composting, and multiple crop production trials.

The center is also home to a U.S. Department of Agriculture-Animal Research Service, Forage-Animal Production-Research Unit. Its researchers and College faculty partner on research such as tall fescue toxicants, which lead to a better understanding of their impact on cattle and horses and to improved management opportunities for farmers.

As the C. Oran Little Research Center moves into the next decade, researchers and educators will continue to conduct valuable studies, provide students with quality, hands-on instruction and provide a place for farmers to gather valuable knowledge.

"The center is designed to facilitate aggressive initiatives focused on developing and applying new technologies to protect sensitive environmental issues while better using resources and increasing profitability of production," Little said. "I am convinced that the center presents this opportu-



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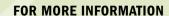
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