

WINTER 2015

THE **m**agazine

UNIVERSITY OF KENTUCKY

COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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Our Future, Charted

The year 2015 was a time to recognize the past and chart a new future for the College of Agriculture, Food and Environment. As UK celebrated 150 years, our college's role in the original "A&M" college was lauded. Today, CAFE integrates teaching, research, and extension to serve the commonwealth's existing and future leaders, the broad agriculture and forestry economy, and all Kentuckians' quality of life.

Thus it is fitting, during 2015, that the college community developed a strategic plan, Building Our Future on the Land-Grant Legacy, designed to reflect the past but chart a future course. A group of 34 dedicated leaders representing faculty, staff, and undergraduate and graduate students worked countless hours to harness the future potential of this college. In the process, through listening sessions and individual interviews, they engaged with more than 1,800 citizens who are stakeholders of our college. We wanted our broad constituency to have ownership of this plan.

The plan has six goals, of equal priority.

1. Prepare highly motivated and culturally adaptive graduates who are competitive in a global economy and support societal values.
2. Build and nurture relationships with the people of the commonwealth and the world.
3. Recruit, develop, and retain exceptional faculty and staff who are leaders in expanding knowledge needed to improve the quality of life and sustainability of the human and physical environment.
4. Show the college's commitment to diversity and inclusion by attracting and retaining students, staff, and faculty and by providing a culturally aware environment for successful engagement in a global society.
5. Produce innovative solutions through multidisciplinary collaborations.
6. Build state-of-the-art facilities equipped with cutting-edge technology.

These goals are exciting, because they don't represent a revolution but a continuation and affirmation of the constant progress the college has made for more than 150 years. These goals also speak strongly to excellence and teamwork in all programs, to taking care of our college community, and to supporting our Kentucky constituency with the best programs possible. One of the most important goals supports diversity and inclusion; our community has spoken emphatically on this objective, and it cuts across all college activities.



The goal for better facilities will mark a priority of my deanship going forward. We must transform the built environment for our college. In this magazine, our plans for the Cooper House represent long-needed attention for a cornerstone of our campus, and our students are leading the effort. Also, we have designed the much-needed Grain Center of Excellence to enhance our ability to serve the agricultural economy. The new center will be located at our Western Kentucky Research and Education Center at Princeton. In planning this facility, we have worked closely with grain crop and livestock producers to provide state-of-the-art technologies for improving returns to the regional economy.

To sum up what the strategic planning process means, our college and stakeholder communities have renewed a commitment to excellence in our mission areas and have shown confidence in the future of the College of Agriculture, Food and Environment. We are most grateful to this large land-grant family!

—Nancy Cox
Dean, College of Agriculture, Food and Environment

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Precision dairy technology maximizes production, detects disease, and minimizes over-medication. It's bling with a lot of bang for the buck.

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Nancy M. Cox, Dean
Rick Bennett, Associate Dean for Research
Director, Kentucky Agricultural Experiment Station
Jimmy C. Henning, Associate Dean for Extension
Director, Kentucky Cooperative Extension Service
Larry Grabau, Associate Dean for Instruction
Steve Workman, Associate Dean for Administration

Agricultural Communications Services
Director: Laura Skillman
Editor: Carol Lea Spence
Designer: Becky Simmermacher
Writers: Jeff Franklin, Aimee Nielson, Katie Pratt, Carol Lea Spence
Photographers: Matt Barton, Stephen Patton
Additional Photo Credit: Thinkstock.com

Send comments and letters to:
The Ag Magazine Editor
Agricultural Communications Services
131 Scovell Hall, University of Kentucky
Lexington, Kentucky 40546-0064
E-mail: magazine@uky.edu

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.....short rows

When Did You Wear That Last?

Can't remember the last time you wore that shirt? Keeping track of your most-used items will help keep your closets organized. Turn the hangers in your closet backward. After wearing something, replace the item in your closet with the hanger facing forward. By the end of the season, it will be easy to see which items haven't been worn and can be sold or donated.

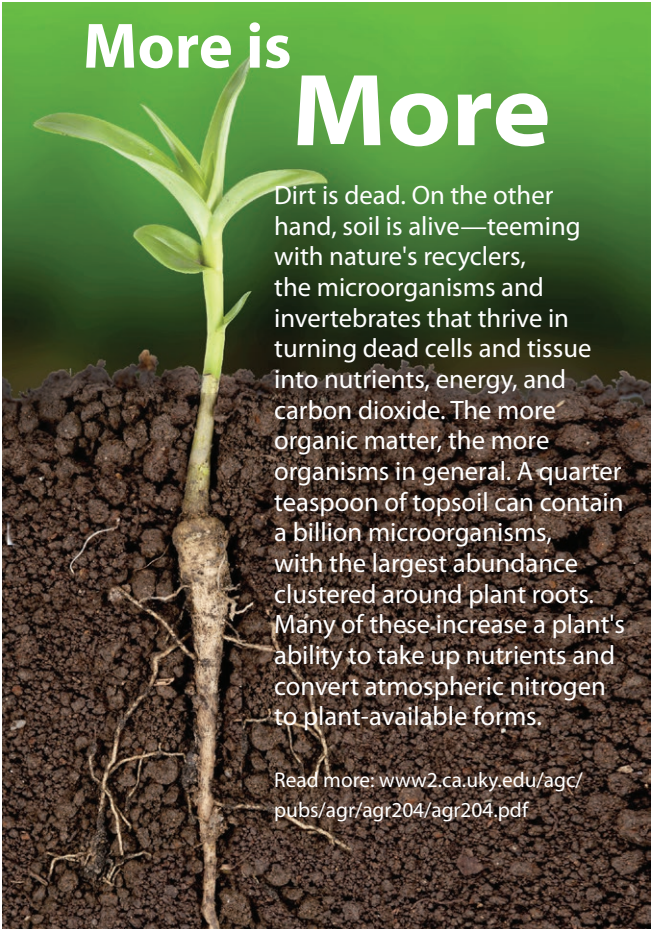
Read more: www2.ca.uky.edu/agc/pubs/fcs2/fcs2843/fcs2843.pdf



The Sunshine Vitamin

Vitamin D, the sunshine vitamin, can be hard to come by in the winter. Low-angled winter sunlight can't provide the ultraviolet B rays our bodies need to make enough of this vital vitamin that helps maintain strong bones, teeth, and immune systems. Adding fish to your diet a couple of times a week can help. Salmon, sardines, and tuna are all good sources. And if you can muster up the nerve, one tablespoon of cod liver oil provides 340 percent of the recommended daily allowance.

Read more: www2.ca.uky.edu/agc/pubs/FCS3/FCS3570/FCS3570.pdf



Dirt is dead. On the other hand, soil is alive—teeming with nature's recyclers, the microorganisms and invertebrates that thrive in turning dead cells and tissue into nutrients, energy, and carbon dioxide. The more organic matter, the more organisms in general. A quarter teaspoon of topsoil can contain a billion microorganisms, with the largest abundance clustered around plant roots. Many of these increase a plant's ability to take up nutrients and convert atmospheric nitrogen to plant-available forms.

Read more: www2.ca.uky.edu/agc/pubs/agr/agr204/agr204.pdf



BLISTER BEETLES

Crush the aptly named blister beetle between your fingers and risk a painful blister caused by the toxin cantharidin. In sufficient numbers, blister beetle bodies can be toxic when horses consume them. It doesn't matter if the beetle is alive or has six legs in the air; a dead beetle is still a toxic beetle. Horses that eat crushed beetles in alfalfa hay can experience anything from irritation of the digestive and urinary tracts to death, depending on the amount ingested. Blister beetles are not active when the first cutting is taken in Kentucky, so buy first cutting hay, preferably from local producers whose practices you know.

Read more: kentuckypestnews.wordpress.com/2015/07/07/what-alfalfa-hay-producers-and-buyers-should-know-about-blister-beetles/



As temperatures drop, livestock can suffer. Turn up the wind, and you have a potentially dangerous situation. Livestock producers can help their animals by providing adequate shelter, water, dry bedding, and extra feed. Since animals have a higher energy requirement during the winter, high-quality forages and grains should be available to them.

Read more: news.ca.uky.edu/article/arctic-cold-poses-risk-livestock

.....spotlight

Youling Xiong

Youling Xiong has been a research coordinator and professor in the Department of Animal and Food Sciences since 1990. He recently received the Bertebos Prize of the Royal Swedish Academy of Agriculture and Forestry, often described as the Nobel Prize of agriculture. It is one of the many awards he has received. Xiong is the scientific editor of the Journal of Food Science and the associate editor of Food Bioscience.

Q: What was it like growing up in China?
A: I had a happy childhood despite poverty; I never knew what wealth meant. At 16, I graduated from high school and went to the farm to grow rice and plow the muddy soil. There, I began to understand life's hardships. In 1977, following a 10-year closure, Chinese colleges reopened, and I was one of the fortunate 2.5 percent of students who scored high enough on the national entrance exam to go. I studied 24/7 for four years and gained a true appreciation and love for science.

Q: How did you decide on food chemistry?
A: I've always had a chemistry mindset. My undergraduate major was chemical engineering, but I became fascinated with food chemistry in graduate school at Oregon State University, and I've never looked back.

Q: What excites you about your field?
A: I enjoy food. What else is more exciting than applying science to creating delicious and nutritious food? When my work benefits others, I feel accomplished and that my life is meaningful.
Q: You've received many awards. You must be proud of that.
A: Honestly, my true passion is research and mentoring students. Winning an award has never been my goal. Along the way, my colleagues and mentors have nominated me for big awards, and I am immensely grateful and humbled. I believe each award recognizes our college and my students who collaborate on our discoveries.

Q: What do you hope your students learn from you?
A: I always tell my students if they do what they really enjoy, they will put in 100 percent effort and be successful. This is essentially what I have been through. They need to make sure they are passionate about it or find something else to do. Every new discovery my students make in the laboratory always stimulates my mind and drives me to think deeper and broader. We often learn new things together when we sit down to revise a manuscript or write a grant proposal, with coffee on the table of course.



MATT BARTON

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Careers.
 ca.uky.edu

There's a new degree option for students interested in the technology field. The Technical Systems Management program, offered by Biosystems and Agricultural Engineering, started in fall 2014. The addition of the program was driven by employers wanting students who understand technical systems and the businesses behind them. With knowledge like that, they could conceivably manage a grain elevator, an equipment repair shop, or a related business.

"We saw such a demand, and we knew there were students interested," said Sue Nokes, BAE department chair. "The TSM students will understand technical systems, and they will also know how to look at the books and manage the business side." Internships help students prepare for the job market through work-based learning. Keeneland, Big Ass Solutions, and ADM are just some of the employers where students have interned. Nokes said she is glad to have the program in the department, and so far, it is going very well. "I have been pleasantly surprised how enthusiastic the students and the employers are with the program," she said. "I think we'll be very successful placing the students in good jobs."

— Jeff Franklin

CAFEcorner

Along Shallow Streams

The Department of Landscape Architecture's Chris Sass is immersed in water—studying streams and the effects of erosion on their channels. His current project at UK's Maine Chance and Coldstream farms in northern Fayette County focuses on Cane Run Creek, where it flows under Interstates 64 and 75, and a Cane Run tributary that runs beneath Newtown Pike. Last summer, he expanded the work to include streams in urban parks located within Fayette County.

"We are looking at how the slope of the stream changes over time, at how the cross-sectional area changes over time, and at bank erosion," Sass said. "Most banks in the surrounding Lexington area are pretty raw, pretty nasty, and they don't have any vegetation holding them. A lot of soil ends up downstream somewhere and deposits in places where we don't want it. We are going to try to keep it where it is supposed to be."

Sass started the project about six months after coming to Kentucky from Kansas State University. The past two summers, students Nathan Wright, '15, Brandon Coggeshall, '15, Morgan Dunay, and Michelle Hunerkoch worked on the project with him. The students have even had the chance to present their research at national conferences—a unique opportunity for undergrads.

"What we want to see in the end is what you might call an erosion curve, so we can predict how much bank erosion we might see over a year's time for certain types of banks and scenarios," Sass said. "If the bank is protected by vegetation, it may erode a little bit versus a bare bank that might erode three feet in a year."

Sass and the students use a laser level to place pins in the banks and then take survey shots to see how much the pins are exposed over time. At Coldstream Farm, the bank slumped over one of the pins, burying it under about three feet of soil, which was a significant change.

Sass isn't sure how long the project will last, but the overall goal of predicting how much erosion occurs over time will be information that will help in restoration and planning efforts.

— Jeff Franklin



Chris Sass measures erosion by planting pins along the banks of Cane Run Creek in northern Fayette County.

PHOTOS PROVIDED BY CHRIS SASS

Soggy Bottom Water Testers

Ginny Harper loves to see the excitement on 4-H'ers' faces as they tromp through creeks.

Harper, the Calloway County 4-H youth development agent, has partnered with the Four Rivers Watershed Watch and the Calloway County Conservation District since 2011 to teach young people and adult volunteers how to monitor the quality of local waterways.

"We want kids to get outside, be knowledgeable about the environment, and be ready to care for it," she said.

2015 was the second time Harper and her community partners hosted an overnight camp at Murray State University's Hancock Biological Station on Kentucky Lake. Campers not only got to wade through the water, but also learned about stream health, chemistry, and aquatic wildlife—knowledge that is essential to proper water quality monitoring.

"Kentucky has an incredible amount of stream miles but is very limited in the number of state staff who can monitor them," said Maggie Morgan, watershed coordinator for the Jackson Purchase Foundation, which is in charge of the Four Rivers Watershed Watch. "Getting kids and their parents involved in this project is a great way to increase the number of streams that get monitored."

The first camp in 2013 spawned the 4-H Soggy Bottom Water Testers, named because testing water usually results in getting wet. That first year they adopted four creeks. As a result of this year's camp, 10 more families have joined the group and adopted three new creeks to monitor.

4-H'ers and volunteers monitor the waterways at least three times a year. Water samples are sent to either Hancock Biological Station or the Kentucky Geological Survey lab in Lexington for analysis. Results are shared with the Kentucky Division of Water, which will conduct additional monitoring if problem areas exist in any of the streams.

—Katie Pratt



Calloway County 4-H'ers take to the water, adopting creeks and monitoring water quality as the Soggy Bottom Water Testers.

PHOTO PROVIDED BY GINNY HARPER

Thriving on Our Grassroots

402,486 volunteers!

That's the number of community folks who help University of Kentucky Cooperative Extension with planning, implementation, and evaluation of its programs—programs that affect so many people across the commonwealth. That means **nine out of every 100 Kentuckians** contribute to Cooperative Extension at the grassroots level.

Blue on Blue

“Multitasking at home is a necessity, while here it is avoided. Everything stops so you can focus your energy on the conversation.”

“Here” is Ikaria, a rocky, mountainous island in the Aegean Sea surrounded by a crystalline sea and sky where the people are purported to live exceptionally long lives. The observation came from a student in Lifestyle as a Tourism Attraction, a CAFE course that provided students with the opportunity to see for themselves what kind of lifestyle would earn the island a Blue Zone designation. In other words, Ikarians and UK Human and Environmental Sciences students experienced a bit of Blue on Blue.

The Blue Zone designation came from a 2004 National Geographic project to identify places across the globe where people live not only longer but better. In the five zones the longevity experts identified, people live to 100 years old at a rate 10 times that of the United States.

This, of course, intrigues folks, so Blue Zones often find themselves entertaining a great influx of outsiders. This sparked Hospitality and Tourism Management assistant professor Jason Swanson's interest. Amy Hosier, associate extension professor in Family Sciences, focuses on working with older adults and improving their quality of life, so the Blue Zone designation was of interest to her, as well. Ikaria, named after the mythological figure who flew too close to the sun, seemed like a perfect setting to study a different, perhaps healthier lifestyle, the hospitality field, and how the influx of outsiders might affect a culture.

From Athens, the two professors and 21 students hopped on a 45-minute flight to Ikaria, landing in a world with a different beat. The few paved roads on the island are narrow, winding, and hilly.

Some roads are dirt. Not all residents have vehicles, so to get somewhere requires walking, sometimes up rugged, steep terrain. Ikarians are used to taking care of themselves. There are a few grocery stores on the island, but for the most part the residents grow much of their own food. Swanson said family is important, as is the sense of community.

“It's very relaxed, very laid back,” he said. “The diet may also add to their longevity; it is the typical Mediterranean diet. There is also some element of physical activity as well, because the people walk a lot. And they have a very different relationship with time and money; that's immediately clear.”

Swanson attributes that “different relationship” with the fact that they have a limited amount of supplies, so they have to be creative. “The materialistic aspect is very different,” he said.

Despite all that, the growing influx of tourists had already resulted in a few changes to the culture.

“There are now more prepackaged types of food in the convenience stores—things that tourists might like,” Swanson said. “They never had potato chips before. They didn't need packaged snacks. They were eating whatever they grew or whatever fish they caught. They didn't want it. They didn't need it. But now it's there, so that's changing things.”

Only 20 students flew home at the end of the week. Rachel Ditto, '15, stayed behind to fulfill an internship requirement for her degree in hospitality management.

It was an adjustment for the young American, who was used to running on a tight schedule. Ikarians could easily spend three hours over a meal. At their panegyris, or festivals, people would begin celebrating at 8 in the evening and dance all night until 9 or 10 the next morning.



Students in Lifestyle as a Tourism Attraction dance with Ikarians in an all-night festival called a panegyris.

“I heard about that before I went. I thought, that can't be true. Maybe the young people do that. No, everyone did it,” Ditto said, and months after her trip she still sounded a little amazed.

But Ditto, who graduated in December and aspires to own a bed-and-breakfast, learned some special lessons from the innkeeper she worked for during her Aegean summer.

“I learned about dealing with people and how everyone who came in felt at home and comfortable and wanted to be around her and talk to her. I learned the importance of talking to people and making their experience a positive one and making people feel comfortable.”

And maybe, just maybe, she learned to slow down and occasionally dance until dawn.

—Carol Lea Spence



Instead of stomping grapes during their visit to an Ikarian vineyard, the students use the empty vat for a group photo—at least we hope it was empty.



Walking through the rocky, hilly terrain on Ikaria may be one of the reasons why locals live longer. CAFE students certainly got their exercise during their visit.

PHOTOS PROVIDED BY JASON SWANSON

BOVINE BLING

DAIRY SCIENCE GOES HIGH-TECH

By Aimee Nielson
Photography by Matt Barton

For nearly six decades, David Corbin has been taking care of Holsteins at the family farm in Campbellsville, where he currently milks about 300 cows. It's a challenging, often unforgiving life that requires him to get up hours before the rest of the world. Over the years, Corbin has spent countless hours milking and watching cows to monitor their health and determine when to breed them.

"I have been around dairy cattle since I was five," he said. "Mom and Dad started milking cows

before I was born. My mom still comes to the barn every day to help take care of the babies."

He's never shied away from cooperating with Animal and Food Sciences faculty and taking part in technology research. As a result, in recent years, Corbin has been able to spend a little less time watching the cows thanks to several new technologies. He's always learning about something new from UK dairy specialist Jeffrey Bewley, though Bewley will say he's always learning something from Corbin.

"We like to call him Professor Corbin," Bewley said. "He may not have a PhD, but he knows the dairy cattle business inside out. We try to take our dairy students down to his farm at least once a year, because he has so much experience and knowledge to share."



David Corbin (top) is able to track the health of his dairy herd with RFID trackers on the cow's legs.

Bling Research

At UK, Bewley is spearheading many research projects involving precision dairy technology that measures physiological, behavioral, and production indicators to maximize production, detect disease early, and minimize medication use. Most UK dairy cows sport several pieces of bovine "bling" in their ears, on their legs, around their necks, and even on their rumps. Around the clock, each piece is collecting data that translates into information farmers can use to make important production decisions.

"All of these items are helping us monitor something about the cow that can help us learn how to better manage her," Bewley said. "A lot of our technology comes as an offshoot of other industries."

Inside a mobile phone or tablet is something called an accelerometer. It is what makes the screen change orientation from vertical to horizontal depending on how the user holds the device. Bewley is using technologies with accelerometers to determine if the cow is standing or lying.

"The main application of this to the dairy industry is heat detection, and it's taking off with real dairy farmers," Bewley said. "They are using it to detect estrus, when a cow is in heat, so they can breed her at the right time. Farmers are busier now than ever, and they don't have a lot of time to play the sit, watch, and wait game."

The devices that use accelerometers give a farmer an overall picture of the cow's activity. If there's a deviation from her normal activity, if she's more active, it may tell the farmer she's in heat. But that's not the only message it sends.

"Sometimes a decrease or increase in lying, feeding, or rumination time tells us the cow is sick or uncomfortable," he said. "Maybe she has an illness that we need to address."

Bewley is also experimenting with ear tags that monitor temperature and neck and ear tags that measure when a cow is eating or chewing her cud and how long she spends chewing. These tools can tell a farmer a lot about the digestive health of their animals.

Each cow has her own baseline. If she's not chewing her cud, she may be experiencing some stomach discomfort. The device can send the



Baby calves at the Corbin Dairy are kept together in a barn instead of individual huts.

farmer an alert to check the cow and determine why she's deviating from her baseline.

Corbin said the practical applications of the technology have really changed the way he operates his dairy.

"When you are trying to get a cow bred, you don't have a wide window," he said. "If you miss that part of the cycle, you have to wait 21 days before you can try again. The good thing about this technology is that I never wonder what's going on with my cows, even if I'm gone for a day. I can check the computer reports in the morning and the evening and see what happened while I was gone and then make breeding and health decisions based on what I find there."

With Daniel Lau, professor in the UK College of Engineering, Bewley is exploring the use of image analysis to evaluate cow body condition and locomotion. Bewley is also collaborating with another engineering professor, Kevin Donohue, and Bruce



David Corbin of the Corbin Dairy showed an automated feeder that ensures calves receive the correct amount of milk.

O'Hara, professor in the UK Department of Biology, to develop a device to monitor sleep in cows.

"Both of these tools could provide us new, invaluable insight into animal well-being and health status," Bewley said.

Baby Bling

Corbin has greatly benefited from using precision dairy technology to detect heat, but the thing that has helped him the most is the automatic calf feeding technology. Feeding about 350 calves is very time consuming. That was before. Now each calf has an ear tag with a unique sensor. Each time the calf steps up to the feeding area, the computer recognizes that specific calf and makes a milk ration based on its individual requirements.

"They learn really fast where to get fed," Corbin said. "They go to the machine like it's their mother.

The computer keeps a record of how much they eat and how long it takes them. You can catch problems really fast. The machine watches closer than you can. That's the neat thing about technology; it gives you freedom to go and do some other things."

The feeder automatically begins to wean the calf off milk as it begins to eat more sweet feed and over time actually weans the calf. That results in an easier weaning process with less bawling and stress.

Corbin will be the first, though, to admit technology can't do it all.

"You still need to know what's going on with your cows," he said. "It doesn't completely take away the human element. You still have to be tied in and understand what's going on at your farm. It's only a tool to help us make better decisions."

Bling on a Budget

Surprisingly, most of the technology that the UK cows are testing won't break the bank. Heat detection technology is more affordable than ever. Health detection technology is not as far along, and so there are more questions about its economic feasibility.

"Affordability is really important to us in research," Bewley said. "If the technology isn't economically viable, it won't be very useful to farmers. Most of the devices do show a payback in just a few years. Health detection may offer a larger benefit down the road. It could help keep cows from getting culled prematurely."

Karmella Dolecheck, one of Bewley's graduate students, has developed an online calculator for farmers to figure the costs of using technology.

"We just finished a study comparing a lot of different technologies from several companies," Bewley said. "They all worked pretty well. The bottom line message here is there are a lot of options out there for farmers, and they can use them successfully and economically."

Dolecheck's online calculator is available at <http://afsdairy.ca.uky.edu/HeatDetectionTechnologies>.❖

They Deserve the Best

UK dairy cows will soon have more luxurious accommodations. A new facility is under construction at the Coldstream Dairy Research Farm, and it keeps their well-being in mind.

It's the only facility of its kind at a research institution in the United States. The herd is currently housed in a freestall barn built in the 1960s. Although that type of facility is the predominant housing system for dairy cows, UKAg officials wanted to try something new.

Bewley described the new barn. "The tall, open design will maximize natural ventilation, with fans and sprinklers for cooling. It's designed to maximize cow comfort."

A concrete center lane will allow access for feed delivery. The cows will be able to walk down an adjacent alley to access food and water.

The new facility does not have stalls. Instead, open bedding areas will allow cows to lie down in any position they want. That simple change could improve feet and leg health.

The bedding will consist of about 12 inches of sawdust, to which cows will add manure and urine. Twice a day, while the animals are in the milking parlor, the bedding will be mechanically stirred to form a surprisingly dry material with minimal odor.

The barn will have automated curtains to protect the animals from the weather. The facility will allow use of multiple precision dairy technologies, including heat detection, health monitors, GPS trackers, and nutrition monitors.

"This housing system has worked very well for Kentucky farmers, and we've established ourselves as a research leader in this area," said Richard Coffey, UK Animal and Food Sciences department chair.

The facilities will also give undergraduate students hands-on experience in a functional dairy operation as part of their courses and will be a place for the college to host educational events for dairy farmers.





New Life For An Old House

“To me, Cooper House is a symbol of the past and the future. We hope to be able to restore it, so once again, it can be the centerpiece of the College of Agriculture, Food and Environment, a home for our campus community, and a place to welcome alumni and friends.”

—Dean Nancy Cox

MATT BARTON

A Long and Winding Road

Preserving a Rich Culture

By Katie Pratt
Photography by Matt Barton

Dressed in 19th century clothes and sitting at a spinning wheel, Christina Lauterwasser is living out her dream of working at the Mountain HomePlace in Johnson County.

It's a goal Lauterwasser, from the community of River, has had since she first toured the 1850s working farm when she was 5 years old. She is just one person who has benefited from behind-the-scenes work done by many to promote county tourism and community development.

Johnson County is like many areas of Eastern Kentucky in that nearly every aspect of life is shaped by its mountainous geography. Residents, struggling with the loss of coal jobs and looking for innovative ways to improve the economy, realized in the early 1990s that their county's history and culture were worth preserving. They turned to Brenda Cockerham, the county's family and consumer sciences extension agent, to lead the charge. She has spent much of her 30-year extension career helping locals see the potential of the county and in themselves.

Square One

In 1992, Cockerham invited Lori Garkovich, Tom Ilvento, and Ron Hustedde from the Department of Community and Leadership Development to guide county residents in the process of community planning and visioning. The UK experts trained about 30 people to lead listening sessions and to capture data from session participants. In all, between 700 and 800 county residents participated in the process.

"The way we do the process, it gives everyone a chance to participate in the future of their county," Garkovich said. "For many of them, it was the first time anyone had asked them for their opinions and thoughts on their community's future."

The UK team analyzed the collected data and presented Johnson Countians with a report that helped them prioritize their local assets. Cockerham and Johnson County Extension led additional forums in 1998. More than 500 residents participated in those forums, where tourism and historic and cultural preservation were identified as initiatives they could use to improve the community and enhance the economy.

Building on what's already there

The following year, Cockerham attended a conference on community and economic development and learned about the concept of asset mapping. She liked what she heard.

"Asset mapping was appealing to me, because it is the art of looking at what you have instead of what you do not have," she said.

Cockerham presented the concept to her Extension Homemakers. They identified places throughout the county that were of historical or cultural significance and at least somewhat available to the public. They researched each site and then approached site leaders to offer Cooperative Extension's help in reaching their potential.

Today, these assets are bearing fruit that benefit the whole county by showcasing the places and people and their talents that make Johnson County unique.

Some of the identified assets, like the Butcher Hollow home of country music singers Loretta Lynn and Crystal Gayle in the southeastern section of the county, were already established tourism destinations.

In fact, singers and songwriters from the area have had an innate ability to climb to the top of the country charts and continue to do so. This led to U.S. 23, the region's main north-south highway, being designated as a National Scenic Byway and named the Country Music Highway. Because Johnson County and its county seat, Paintsville, were uniquely positioned at the heart of this highway, extension personnel worked with leaders and community partners to develop what became the Country Music Highway Museum. The museum showcases the region's top performing artists who, in addition to Loretta Lynn and Crystal Gayle, include Dwight Yoakam, Patty Loveless, Ricky Skaggs, Tom T. Hall, and The Judds.



Cockerham further set out to enhance the museum's offerings by creating the Kentucky Heritage Collection product line. With permission from the country musicians, local painters were commissioned to create souvenir merchandise like coffee mugs featuring portraits of the singers. She partnered with local artists and country musicians again to paint and construct quilt block murals patterned after quilts actually owned by the singers. These were placed at significant country music destinations in the county.

Breathing new life into the old

But not all were so easy or cut and dry. Some assets, like the Oil Springs Cultural Arts and Recreation Center, or OSCAR, required significant tender loving care. Once a school, the building had sustained significant water damage and was in desperate need of repair.

Despite the damage, Cockerham saw the building's potential as a new business incubator and approached the owner who was at a loss as to what to do with the large, deteriorating structure. She also asked community members if they knew any budding entrepreneurs who might be interested in locating in the facility, if it were usable. She received an overwhelming response from area artists.

With the help of volunteers, backing from the local Cooperative Extension council, and years of work, Cockerham was able to make the OSCAR Center into an artistic show place.

Debra Burchett is one of the artists Cockerham encouraged and recruited to help paint murals at the OSCAR. Although Burchett had never painted a mural before, Cockerham was impressed by her work on another community art project and knew Burchett had the potential. Since that first mural, Burchett has painted others at the center, in neighboring Magoffin County, and at the U.S. 23 Country Music Highway Museum.

“Without this, I wouldn't be painting at all,” she said. Now after 15 years, the center is restored and generating income. In addition to holding at least one weekly art class, local artists, a local ministry and a Christian academy rent space at the facility. The renters and classes bring in around \$30,000 annually. Most of the generated income goes toward the center's electric bill and helps make the center self-sustaining.



The Francis M. Stafford House

The Francis M. Stafford House required a similar preservation effort. With the first parts of the structure constructed in the 1820s, the house is the oldest home within the Paintsville city limits. However, it had not been occupied since the 1970s and was facing demolition three years ago. Cockerham and the Johnson County Family and Consumer Sciences Extension council convinced the owners of its historical significance and began looking at ways to promote its preservation.

“We needed to not just restore it, but to demonstrate how it could be easily managed and pay for its own expenses, if we were to convince the city or tourism to take it over,” Cockerham said.

To do that, she turned to the Johnson Central High School culinary arts program. By preparing and serving meals at events in the building, they were able to show local leaders that the building could be used in creative ways to generate income to become self-sustaining. This, paired with careful budgeting, convinced the Paintsville Main Street program to take over the project in the summer of 2015.

To further help manage these and other historical sites, Cockerham, through a partnership with the Kentucky Arts Council, developed a nonprofit organization called the Route 23 Cultural Heritage Network in 2001. The organization is charged with continued preservation efforts and fiscal management of area assets in the network. The Stafford House and OSCAR Center are just two of the sites under the umbrella.

Debra Burchett added murals to her artistic portfolio by painting her first one at OSCAR. More opportunities followed for the artist.



Johnson County Extension agent, Brenda Cockerham, shown here at the Mountain HomePlace, likes using asset mapping as a tool, because it looks at "what you have instead of what you don't have."



(left) Regina Daniels, a self-taught folk artist from Paintsville, stands in front of one of her artworks on display at the Stafford House. The painting depicts all of Johnson County's assets.

Mapping the artists

Asset mapping isn't just about building preservation. Cockerham utilized asset mapping again when she hired a person to go throughout the region and identify heritage artists, or those that engaged in arts and crafts that past generations relied on for survival, such as woodworking or quilting. When the community hosted an event that had the potential to be a good avenue for a particular artist to showcase their talent, Cockerham would invite them.

As a result, she developed a mentorship program between area heritage artists and those interested in learning a particular craft. The heritage artist was paid for showcasing their work and training an apprentice at a cultural event like the county's annual Heritage Days Festival. In turn, the apprentice would donate their time back to the community once they mastered the skill.

Lauterwasser's job at The Mountain HomePlace is a direct result of the mentorship program. Several years ago, Lauterwasser was paired with Debbie Conley, a local artist who taught her the heritage skills of spinning and weaving during the Heritage Days Festival. Lauterwasser's skills and work ethic were readily recognized by The Mountain HomePlace management, who hired her in the spring of 2015 to give tours and display her heritage arts skills. “The job is a perfect match for her and her skills,” Cockerham said.

From Johnson County to Kentucky's corners

Asset identification and mapping as a part of community visioning and planning was so successful in Johnson County that UK specialists have duplicated the process in 60 other counties, modifying the process based on the county's needs and wants. “That wild and crazy idea we had that local people could lead their own community development efforts was correct, and Johnson County was the first one to prove it could be done,” Garkovich said. ❖



Farm Succession

Beating Time to the Punch

By Carol Lea Spence

In the mid-1970s, the extended Strode family, farming on Ohio River bottomland west of Owensboro, suffered a setback when the great grandfathers of the family passed away in quick succession. One man had two children; the other had one. The men assumed everything would just be split among their heirs.

In other words, they had no plan.

Assistant professor Jennifer Hunter, Department of Family Sciences, would say this is a perfect illustration of "what if."

What if the Big Certainty happens—a farmer dies. What if the spouse or a son or daughter is left to manage things? What if a farmer becomes incapacitated? Or less direly, what if a farmer wants to retire, relax, and enjoy life?

The question should really be what happens *when*, because Time ignores no one, and not planning for the future could mean there is no viable future on the family farm for the next

generation. Considering that the average age of farmers in Kentucky is 58, Time seems to be winning. For every farmer under the age of 25, there are 44 older than 70. Over the next decade half of the state's farmers will retire, and 70 percent of farms will change hands. The question for farmers to ask themselves is, do you want to have a say in how that change occurs or do you want to toss the decisions into the wind and hope they land right? Because every farm business will experience transition, with or without planning.

An opportunity

"It's not really a problem," said Steve Isaacs, professor in the Department of Agricultural Economics. "It's an opportunity."

Isaacs and Hunter offer workshops around the state, during which participants learn from the experts about what goes into a successful transition.

One of the ideas the team shares with workshop participants is that, without a plan, they're really transitioning a set of assets versus transitioning the business. And if management of the business isn't transitioned, it is probable that the business will not succeed much past the retirement or death of the elder generation.

"Transferring the human capital is harder to do than transferring the assets. That's why we call it transition planning or succession planning and not estate planning," Isaacs said. "Estate planning implies that we're just going to transfer the physical assets and the money. Succession or transition implies that we are going to try to transition the community goodwill, the leadership roles that the family has had in commodity organizations or local communities, and the relationships with vendors. Those make up the human side of the business, and those need to be transferred as well."

I'll let the kids sort it out

"Don't worry, I'll take care of you."

Isaacs said that is the worst thing a parent can say to the children.

"It sounds good, but what it really means is 'Don't ask me about this again,'" he said. "They should be saying 'Here's how we're going to take care of things.'"

In the case of the Strodes, the original assets did split among the next generation in the 1970s, but it left the family with a sizable tax bill that took 10 to 12 years to pay off.

Every farm will one day experience transition.

55% of American adults do not have a will.

Only 1/3 of soon-to-retire farmers have identified a successor.

Only 1/2 of those will survive to the 3rd generation.

Over the next decade half of the farmers will retire and will be replaced by beginning farmers. —Katchova

70% of farm ground will change hands by 2025. —Kohl

“Our business didn’t grow much in those years,” said Jason Strode, part of the third generation since his great-grandfathers passed.

Having a plan and following that plan rests on whether or not there is communication between the generations.

“It’s a hard conversation to start,” Isaacs admitted.

He throws out to workshop participants that perhaps they could follow the path his wife took with her mother.

“She just sat down and said, ‘Well, let’s start at the end. What songs do you want at your funeral?’” He laughed.

“That’s funny, but it is hard for the younger generation to start the conversation, because it makes it look like they’re greedy. So the parents and grandparents need to start the conversation. They have an obligation to do that.”

Jason Strode’s grandfather took to heart the lessons learned from his own father’s passing. He contacted an estate attorney and they, together with Strode’s father, drew up a plan to avoid exorbitant capital gains and estate taxes in the future. They set up multiple entities, corporations, LLCs, and partnerships from all the interests that they had in different properties and farms.

“My granddad did a lot of gifting at first, but then later, we got to where the third generation—my generation—decided that we wanted to farm, and we have been purchasing shares of different entities over the last 15 years,” Strode said. “Every year we look at it to make sure we’re doing the best we can to minimize future taxes and keep up with the current law.”

The hard lesson the Strode family learned motivated an ongoing conversation between the generations, but for families who have yet to go through such transitions, it can be a hard talk to have.

“I used to say these family discussions were kitchen table discussions. They’re not,” Isaacs said. “It’s very difficult separating family and business in farms. Mom’s kitchen table is not a neutral site, because everything that has happened in that family, good and bad, is sitting around that table.”

Neutrality can come in the form of a transition team made up of an attorney, an accountant, a financial planner, a farm analysis specialist, and the lender—it’s important for the family to build the team based on its vision for the future of their farm.

When should I show them the books?

Sometimes the elder generation is unwilling to let go.

“If Dad is still signing off on the notes when he’s 85, and the son doesn’t even know what notes are out there, then that’s a problem,” Isaacs said.

They must be willing to share the books, they must be able to share expectations, and make sure everyone involved is on the same page.

“If they (the heirs) don’t have a clue what’s going on, then they will be shocked one day when something happens,” Strode said.

A gradual transition that allows someone to step into new roles over time is ideal, so when the exiting generation does choose to reduce their role on the farm, the entering generation is well prepared and the business won’t suffer.

The plans should include how the family intends to transition the management and make cropping, livestock, and personnel decisions.

This also applies to couples. When a transition plan has not been created before a spouse passes away, it can be difficult for the surviving spouse to put all the pieces in place.

Ensuring that assets are properly titled can help answer some of the “what if” questions. Unfortunately, Hunter has seen widows left struggling to pay bills while their husbands’ estates were in probate, simply because their names weren’t on the bank accounts. For that reason, many of the workshops the UKAg team offers are aimed toward women.

“We are helping them understand the process of transitioning their farm to the next stage, whether that is bringing on an on-farm heir, helping them have more of a role in the farm management, or planning to orderly dissolve the business,” Hunter said.

The lessons the Strode family learned in the 1970s paid off when the oldest generation passed away about 18 months ago.

“We had a very peaceful transition; it was about the most seamless transition you could imagine, because my grandfathers really didn’t own anything by that time, farmwise,” Strode said. “They were still realizing the income from rentals of different properties, but it flowed through, and within a month we had everything buttoned down. Nothing has changed and nothing will change. And everybody’s expectations in the family were met.”

The result: Family and business survive and thrive.

Fair doesn’t mean equal

Isaacs and Hunter try to help workshop participants think about what the implications are for the next generation. What type of plan might they want to put in place? There are strategies that the younger generation or the on-farm heir can take to be able to preserve that farm, but without knowing what Mom and Dad are planning, they’re often caught off-guard later.

If a son or a daughter stays on the farm, builds the equity, and takes the risk, Isaacs said they probably deserve more than an equal share. One of the ways to start is with something like a 2:1 or 3:1 ratio, so the child who stayed and took the risk has a bigger share.

“But that’s up to every parent,” he said. “There’s not a right or wrong answer to that.”

Can the family afford the transition?

It’s not all about death and inheritance. If the elder generation is thinking about retiring and is going to continue to need an income, the question must be asked: is there adequate income to also support a son or daughter’s family who come back to the farm?

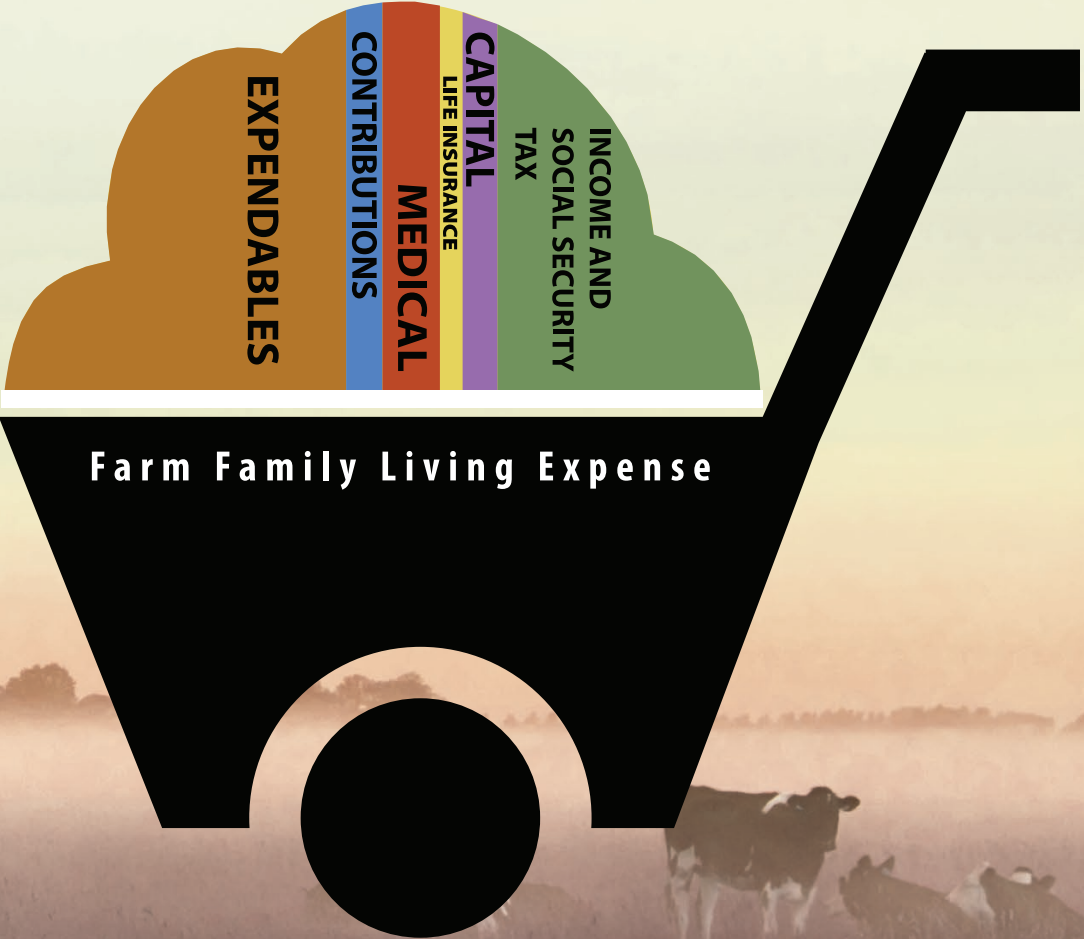
One of the biggest mistakes the specialists say the younger generation makes is thinking they need to increase the farm’s gross income by \$50,000 or \$100,000 to support a second family. In fact, it’s the net income that has to increase by at least that much. In its overview of 2014, Kentucky Farm Business Management estimated that the average farm family living expense was \$108,550, which included taxes, medical expenses, life insurance, capital, and expendables. A retired couple might not need this much, but they might need more if they plan to travel or if they run into medical issues and long term care needs.

“We encourage parents to think about what other sources of income they have,” Isaacs said. “Maybe some retirement, maybe some investments, maybe some social security.”

If a family is considering growth to make up the difference, it should be a controlled growth, and the lender should be part of the transition team. The Strode farm currently supports two generations.

“We don’t try to add acres every year,” Strode said. “We try to add acres that make sense for us and the equipment we have. It’s all about efficiency.”

It’s all about efficiency, communication, and being prepared to beat Time to the punch. When it comes to farm succession, the best answer to the question “What happens when?” is “Now, before it’s too late.” ♦



Evermore

Raven is a bringer of light, a creator of the world. **Raven** is a messenger of the gods, a trickster, a protector, a creature of the supernatural, a symbol of good luck, a bringer of bad.

For much of human history, the raven, *corvus corax*, has held a prominent, if contradictory role in the cultures of the world. The largest member of the Corvidae family, which also includes crows and jays, ravens can be 27 inches long and weigh up to 3.5 lbs. They thrive among humans, have consummate vocal skills, and are immensely intelligent with an exceptional ability to solve problems, all of which makes them distinctive among bird species. As such, they have been worshipped, reviled, subjected to the whims of writers—yes, we're talking about you, Mr. Poe—and have often succumbed to the weapons of man.

Ravens scavenge and hunt for their food. They work in teams to bring down larger prey, as well as eating eggs and nestlings, and they depend on other predators to open large carcasses for them.

Due in great part to hunting, poisoning, loss of habitat, and the loss of large mammals on which they scavenged, the raven population dwindled in Kentucky during the 19th and early 20th centuries, retreating into the high mountains of Virginia.

"Once you lost the bear, the bison, and the elk, the ravens followed suit," said John Cox, assistant professor of wildlife and conservation biology in the Department of Forestry.

Their numbers fell to such an extent that Kentucky considers them threatened and a species of concern.

There is hope, however. Ravens seem to be on the rise.

They were found again in Kentucky in 1970 near the Virginia border. In 1999, a pair was discovered on Starfire, a surface mine in Perry County adjacent to UK's Robinson Forest. The birds were nesting in a high wall, where the mining company had blasted the side of the mountain and had not yet reclaimed it. That particular high wall was lost a few years later, but a couple of years after that, what was thought to be the same pair was discovered in the Cut in the Hill, or what some call Raven Rock.



PHOTOS PROVIDED BY JOHN COX

"We know that there are ravens still there (today)," Cox said. "We hear them, we see them. We don't know how many there are. As far as we know, that's probably the northernmost reliable place you can find them in Kentucky."

Cox and graduate student Joshua Felch set out to determine how many places ravens might be nesting in the southeastern part of the state. Because the birds are still fairly rare—the researchers knew of only two breeding pairs in the state—the first step was to determine detection probability, meaning they had to ascertain how confident they could be that ravens were at a given site after observing for a set amount of time.

"We know there is extensive, suitable breeding habitat, but raven sightings had remained relatively rare," Felch said. "It turns out ravens are pretty highly detectable, so we determined with a 95 percent confidence level that surveying a certain area, like a cliff site, twice for one hour would give you a very high confidence that either that area was occupied or it wasn't."

Kentucky wildlife officials who wish to monitor and track recolonization will be able to use the monitoring protocol that came from Cox and Felch's study.

The men found close to 15 nesting pairs—more than Cox expected to find—in a fairly broad area, from Middlesboro up to Breaks Interstate Park in Pike County.

Felch attributes the birds' return to plentiful food in Eastern Kentucky.

"We definitely have a healthy deer population, and we have a very strong population of elk now in Eastern Kentucky, so I don't think there are any limitations right now for them," he said.

Ravens' food preferences are varied and wide. They'll eat road kill, raid other birds' nests, follow hunters and other predators for carcasses, and dine on nuts, berries, and grains.

"The biggest limiting factor for them, and probably one of the biggest things that brought down their population, is human persecution," Felch said.

Ravens, however, have their place in the ecosystem. As scavengers, they are part of nature's sanitation crew. They also provide nesting platforms for other raptors, such as peregrine falcons.

"I think ravens are tough, smart birds that do well when left alone," Cox said. "Instead of 'nevermore,' it's more like 'evermore.'"

— Carol Lea Spence



Josh Felch and ravens enjoy each others' company, during a trip Felch took to Utah to study the birds. At right, a raven rests on Raven Rock in Eastern Kentucky.

.....Sum and Substance



Black Vulture Control

Last spring, one of Dave Parker's registered Hereford cows was in labor. Suddenly black vultures, large raptor birds with bare black heads and sooty plumage, swooped down to peck out the eyes and nose of the newborn calf as it appeared from the birth canal. The calf couldn't survive the attack, so the Bracken County beef producer had to kill the calf and bury it. He called the problem "detrimental to our livelihood" for Kentucky livestock producers, one they have been facing for several years now from these predacious birds.

"If it is a bull calf and a good animal, you could sell it for a herd bull," Parker said. "You could face a loss between \$5,000 and \$10,000, if these birds kill it."

Adding to the problem is the fact that black vultures are federally protected under the Migratory Bird Treaty Act of 1918, preventing farmers from killing

the birds. Wanting to create an awareness about the issue, David Appelman, Bracken County extension agent for agriculture and natural resources, says he "stepped out of his comfort area" to do something about the problem.

"It is devastating for our farmers, but through our awareness and encouragement with wildlife officials and legislators, we (Cooperative Extension agents) have gotten a program through Kentucky Farm Bureau that allows our farmers to get a permit through a very streamlined process," Appelman said.

Working with Kentucky's congressional delegation in Washington, and state and federal agencies, KFB funded a statewide bird degradation permit that allows the organization to issue sub-permits to producers, if they meet certain criteria.

"We are doing this right," said Joe Cain, KFB's state commodity coordinator. "We are not just going out and sport-killing vultures. This is a livestock protection issue, it's not about letting someone go and shoot something."

Currently, there are 700 sub-permits available to Kentucky livestock producers. The permits are good through March 2016, and will probably be renewed. Without the permit, anyone killing a black vulture could face a hefty fine and even jail time. Livestock protection sub-permits are approved on an individual basis for up to five takes of black vultures. Last year, around 175 calves and 10 cows were reported killed by the birds.

—Jeff Franklin



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On Spindletop Farm, a field takes a long winter's nap.

