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Hi. I am Tiphani Pinheiro, and I am a senior majoring in food science and technology at UT’s College of Agricultural Sciences and Natural Resources. I have loved my four years at this college—it has meant everything to me. When I graduate in May, I will join ConAgra doing quality assurance. I would not have made that contact if it were not for the CASNR career fair. CASNR has been my family and my backbone while at UT. People are helpful, learning is hands-on and my advisers have been amazing. The college has taught me everything I know about food science and safety, and it has prepared me well for my career and for the realistic expectations that my job will bring.

My name is Sam Wicker. I’m a fourth-year vet student at the College of Veterinary Medicine and also a CASNR grad. The vet school and my animal science undergraduate experiences have been great opportunities for me to grow and explore the world around me. I especially enjoy the human-animal bond in agriculture, and really want to help farmers maximize both animal comfort and production efficiency. My dream is to help small farmers in developing nations become more profitable and efficient, and in turn, develop their communities for the better. I want to change the world—one small farmer at a time. Thanks to the knowledge and hands-on training I received from the Institute of Agriculture, I am better prepared to do it!
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On the Cover

A barge carries Tennessee-grown crops down the Mississippi River. PHOTO BY BRIAN MCCORD

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36
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I’m proud to join with Commissioner Johnson, the Tennessee Department of Agriculture and Tennessee-based publisher Journal Communications Inc. in bringing you the 2013 edition of Tennessee Ag Insider.

I’m excited about the many good things happening in our agricultural and forest industries and the progress and innovation taking place on our farms, in our forests and in rural communities across the state.

Tennessee Ag Insider is our way of sharing with you the diverse and rich story of agriculture and forestry and the impact these sectors have on our economy, landscape and quality of life.

We are working with key industry leaders to develop a strategy for helping Tennessee to become a leader in the Southeast in the growth and development of agriculture and forestry. This process is an important part of my priorities on job creation, education and workforce development and conservative fiscal leadership.

Now, I invite you to be a part of the process through these stories.

Sincerely,

Bill Haslam
Governor
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Last year, we gave you a glimpse into Tennessee agriculture and forestry by sharing personal stories of success and innovation on the farm in small businesses and rural communities across the state.

This year, we give you a closer look at some of the major trends and issues shaping the future of Tennessee agriculture and forestry – from the growth and development of our poultry industry and the rise of local farmers markets to protecting our forests and moving Tennessee commodities around the globe.

No matter the story, it ultimately comes down to people – people who farm the land, manage the forests and lead our communities and businesses. And, in Tennessee we have among the best people, resources and institutions that help make Tennessee agriculture and forestry what it is today and can become tomorrow.

I couldn’t be more proud to join with our partners at Journal Communications Inc. in sharing with you the stories of the people, who make our food and fiber system work.

Sincerely,

Julius Johnson
Commissioner
Tennessee Department of Agriculture
Tennessee Agriculture

An overview of the state’s diverse ag industry

FOR TENNESSEANS, agriculture goes far beyond crops and commodities. From new farm technology to the importance of transportation, agriculture is big business in the Volunteer State.

With more than 10.5 million acres of farmland and 77,300 farms, it’s easy to see how the state’s farmers raise diverse crops and livestock, including their top commodities of cattle and calves, soybeans, broilers, corn and cotton. Specialty crops like fresh tomatoes and snap beans, as well as forestry, are also big contributors to the state’s economy. In 2011 alone, the value of cash receipts for tomatoes and snap beans combined was $46,685,000.

Forestry has a large impact in Tennessee. In fact, the state’s primary forest industries (which convert logs to products such as lumber or paper) employ more than 41,700 workers and its secondary industries (which further process or add value to hardwood lumber) employ more than 60,000 workers.

Although a wide variety of wood products are produced in Tennessee – from pulp to paper to pencils – the production of lumber products from hardwood sawlogs is the dominant major component with an annual production of 600 million board feet.

The state’s Division of Forestry grows millions of hardwood and pine seedlings for timber production, wildlife habitat and erosion control, all while developing genetically superior stock that is able to increase yields by up to 30 percent.

And Tennessee’s bounty stands up well to the rest of the country. The state ranks second in the nation for meat goat numbers, fourth in tobacco production and sixth in equine.

As for international recognition, Tennessee’s agricultural exports rack up big numbers for the state’s economy. Soybeans and products were the top agricultural export with a value of $290 million in 2010, with cotton and linters following with a value of $174.6 million.

It doesn’t stop there. With agricultural education, extension, agritourism efforts and more, Tennessee’s agriculture industry continues to expand. We invite you to learn more within these pages.
Tennessee’s Top Five Agricultural Commodities

**CATTLE**
$586 million
The cattle industry represents 16.7 percent of all farm cash receipts. The top beef cattle counties are Greene, Lincoln, Giles, Bedford and Lawrence.

**SOYBEANS**
$461 million
More than 1.29 million acres of soybeans were harvested in 2011. Obion is the top soybean county, followed by Dyer, Gibson, Lauderdale and Weakley.

**BROILERS**
$461 million
Tennessee growers produced more than 989 million pounds of poultry products in 2011. The broiler industry also represented $65.3 million in exports in 2010.

**CORN**
$456 million
The value of corn increased by more than $187 million from 2010 to 2011, moving it from the 6th ranking to the 4th spot. The top corn counties are Obion, Gibson and Weakley.

**COTTON**
$401 million
Cotton acreage and yields increased significantly from 2010 to 2011. The top cotton-producing counties are Haywood, Crockett, Gibson, Tipton and Fayette.

---

Farmland accounts for over 41 percent of the total land area in Tennessee, and the average farm size is 140 acres.

Tennessee ranks 8th nationally for the number of farms, with 77,300 across the state.

14 million ACRES IN TENNESSEE ARE FORESTED.
Can you talk a little bit about your family and business background and what influenced you to get into public service?

My father started our family’s business with one service station in Gate City, Va., in 1958. I grew up on course to be a history teacher and was considering the ministry. After I graduated from Emory University in Atlanta, I went to work for Pilot. I eventually became president of the company in 1995.

If there was one person who most encouraged me to get into public service it was current U.S. Senator Bob Corker. I had been at Pilot for about 20 years when some people encouraged me to run for mayor of Knoxville. Bob told me I could make 10 times as much difference for my community being mayor as what I was currently doing.

After I was elected to a second term as mayor of Knoxville, I began to think about running for governor. One of the things you have to consider in making that kind of decision is the impact on your family. I will always be grateful for the support they have given me, especially Crissy, who spent two years traveling the state with me as I campaigned for governor. It is an honor and a privilege to serve the state in this way, and I love the job.

What is your philosophy of the role of government, and how have your business and personal experiences influenced that philosophy?

In state government, it is our job to provide services that people can’t get on their own, and to do so in the most efficient and effective way with a focus on our customers, Tennessee’s taxpayers. One of the first things we did in office was to conduct a top-to-bottom review of every state department to focus their attention and resources on carrying out their core missions.

I don’t believe government creates jobs. I believe that we have to foster an environment that encourages investment. Jobs are created when people are willing to risk capital, and we want Tennessee to be as low of a risk as possible. We’ve worked to eliminate burdensome regulations, and our departments are working to serve businesses better. We’ve also focused on providing predictability to businesses by reforming our tort laws,
and this year we’re proposing to update our worker’s compensation laws to create a fairer system for both employees and employers. Having management experience – both in the private and public sectors – makes a big difference.

**What’s your perspective on agriculture and its importance to the state’s economy and quality of life?**

Tennessee agriculture is very diverse, which is a strength and helps stabilize our agricultural economy. It’s a $3.5 billion industry at the farm gate, and $71 billion in total economic impact when you add in all the services that go into delivering a product to the consumer. Tennessee is a state of mostly small family-owned farms. I like to think of them as independently owned and operated small businesses. This makes us one of the top states as far as the number of farms.

We’re blessed with abundant natural resources including productive soils, water and a moderate climate, which makes it an ideal location for everything from livestock and row crops to fruits and vegetables and agritourism. Half of our state is forested with mostly privately owned timberland, and we’re one of the top hardwood lumber producing states in the nation.

Agriculture and forestry also contribute to our quality of life – the beauty of our landscape, tourism and recreation – as well as a source of quality, locally grown and processed products.

**You have made job creation and education a priority. How do Tennessee’s rural communities fit into these priorities?**

About 90 percent of Tennessee farm families have some form of off-farm income. One spouse or another make take a job in order to have access to retirement or health benefits, or simply to make ends meet. Jobs are important for keeping families on the farm and land in production. So, jobs are just as important to our rural communities as they are to our urban and suburban areas.

Rural citizens are just as concerned about a quality education for their children as their urban counterparts, so all of the things we are doing – focusing on job creation, raising the standard of education, keeping the tax burden low, etc. – are important for improving the lives of all our citizens.

**What can state government do to ensure the growth and viability of our rural areas?**

The Department of Agriculture has placed a priority on rural economic development with the creation of the Ag and Forestry Economic Development Task Force. The task force was created to help improve information sharing within the department and among other partner agencies like ECD, Labor and Tourist Development. I believe we can attract new investments and support expansion in our agricultural and forestry sectors. This not only provides jobs in rural areas where high paying jobs are scarce, but it often provides a market for our farm and forest products. The poultry industry is a great example where we have had significant growth and investment in world class processing and breeding facilities that provide high-tech jobs and also support more opportunities for farmers. We want to do more to cultivate this type of investment.

To take this a step further, I recently asked the Farm Bureau, Department of Agriculture and UT Institute of Agriculture to lead in the development of a strategic plan for growing our ag and forest industries. I think it’s important that we get input and buy-in from industry, and for us all to work together on some common goals. I’ve asked for some practical, affordable and actionable ideas on what we can do to ensure that Tennessee ag and forest industries are productive and competitive in the future, and I look forward to seeing what we can develop.

**Our state is a major producer of beef cattle, cotton, tobacco, horses and hardwood lumber. What do you think the future holds for Tennessee agriculture and our ability to compete for world markets?**

I think the future for Tennessee agriculture and forestry is very bright with our abundant natural resources and a moderate climate – access to river, rail and highway transportation. We’re centrally located to the nation’s major population centers, and we have among the best and brightest farmers and agricultural institutions.

I believe that Tennessee can and will play an important role in meeting changing consumer demands for locally grown and processed products as well as helping to feed an increasingly hungry, populated world. My goal is to help position Tennessee so that our agriculture and forestry industries can be productive, sustainable and take full advantage of these opportunities.

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**About Gov. Haslam**

Born and raised in Knoxville, Bill Haslam was an executive for the family’s travel center business, now known as Pilot Flying J. He was elected Knoxville’s mayor in 2003 and re-elected four years later with 87 percent of the vote. In 2010, Haslam was elected governor of Tennessee with the largest margin of victory by a non-incumbent gubernatorial candidate in the state’s history.

Haslam and his wife, Crissy, have three children, a daughter-in-law, a son-in-law and a grandson. Haslam is an elder for the Cedar Springs Presbyterian Church in Knoxville.
The Boost THEY NEED

Irrigation practices increase yields, reliability for row-crop farmers

John Lindamood grows corn, cotton and soybeans in Lake County, Tenn. Of his 5,000 acres of row crops, he irrigates about 2,000, which results in dramatic yield increases. PHOTOGRAPHY BY JEFFREY S. OTTO
Like most Tennessee farmers, John Lindamood knows he can’t control everything about his row-crop operation. There are insects, for one, and disease for another. There are fluctuating commodity prices, and, of course, there’s the weather. But Lindamood has joined a growing number of farmers in the state who are investing in irrigation to remove one of those unknowns from the equation.

“Anything we can do to stabilize our operation helps us do a much better job of maximizing yields and making the most efficient use of our crop protection materials, all of which helps us to do a better job of budgeting and planning for capital investment down the road,” Lindamood says. “Irrigation is something we can do to create more reliability in the yields and the overall operation. And the success of the farming operation has ripple effects across the economies of individual communities across the state, from seed suppliers to bankers to insurance agents to restaurants.”

Pivot irrigation is a system of metal frames on rolling wheels with a center pivot. Electric motors move the frames in a circle, spraying water over the field.

In 2007, about 25 pivot systems were installed across the state. That number has increased every year, and in 2012, 270 systems were installed.

“My father had four of these types of irrigation rigs in place in the 1970s,” Lindamood says. “They lasted 30 years before we had to dismantle and replace them. We added additional rigs, as well. In fact, in the last four years, we’ve added another five rigs for a total of 12.”
Irrigation not only helps boost crop yields substantially, especially in drought years, but it also helps more efficiently utilize herbicides and fertilizers.
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INCREASE IN IRRIGATION

Irrigation is becoming more commonplace in Tennessee, says Brian Leib, an associate professor of biosystems engineering and soil science at the University of Tennessee. “In 2007, there were about 25 pivot systems installed across the state,” he says. “That number has increased every year since, and in 2012, there were 270 systems installed, which represents about 40,000 acres going into irrigation each year. That’s over a tenfold increase from 2007. At the same time, we’ve gone from one irrigation equipment dealer in the state to three.”

Why? Because it makes economic sense, Leib says. First, it helps ensure a good harvest. “The yield bumps can be substantial,” he explains. “In West Tennessee, for instance, it can be 50 extra bushels an acre of corn, 18 to 20 more bushels of beans per acre, and up to 300 pounds more cotton per acre.” And in a year of drought, like 2012, those numbers can be even higher.

In addition to the yield increases, Lindamood explains that irrigation helps farmers better utilize crop protection materials, like herbicides and fertilizers. “If we put out nitrogen and potash in the soil, and we don’t have the water that the nutrients need, we have leftover fertilizer in the soil,” he says. “If we can control the amount of water through irrigation, we can achieve uptake of the nutrients and use them more efficiently. The same is true with herbicides, which depend on rainfall for activation. So not only does irrigation help us from a production standpoint, it also provides important environmental benefits.”

Lindamood also explains that advancements in irrigation equipment and farmers’ diligent attention to water usage are part of the agriculture industry’s commitment to conserving this important natural resource. “Sprinkler packages are much more precise and tailored today, and we have better tools to manage our water usage,” he says. “We do not carelessly use this important natural resource. We target our use, and we constantly monitor it in an effort to measure the benefits and allocate the water where it will do the most good.”

– Cathy Lockman

Weathering the Year

2012 proved difficult for Tennessee corn farmers

Yet another motivator for many Tennessee farmers to install irrigation systems was the 2012 drought, which will have lasting effects on the state’s corn industry. The extremely dry, hot weather in early summer 2012 created unfavorable conditions during a vital period of growth for corn, resulting in an average yield of 85 bushels per acre, down 46 bushels from 2011, and the lowest yielding crop in almost 20 years.

Other crops fared better in 2012. Soybean production was estimated at 46.7 bushels, a 16-percent increase from 2011, due to late summer and fall rain. The average cotton yield came close to the record high set in 2006.

A trailer is filled with corn from the 2012 harvest on John Lindamood’s farm.

Lindamood, like many Tennessee farmers, stores some of his harvest in bins.
Luke Stratton thinks about tomatoes year round. And he’s growing them for almost that long.

Like many farms in Grainger County in East Tennessee, the Stratton Tomato Farm grows the crop in both fields and greenhouses.

The dual method helps ensure that tomatoes are available from spring well into fall. Stratton generally starts his greenhouse tomatoes around Dec. 10, and then plants them about two months later. Typically, they are ready to harvest by late April to early May.

“We do a lot of greenhouse tomatoes here,” says Stratton, a fourth-generation farmer who runs the operation with his father, Lillard Stratton. “We’re close to 50,000 plants under plastic.

“We try to plant so we run straight in and never run out,” he adds. “When the greenhouse tomatoes start going away, the fields pick up the slack. We usually run into November with tomatoes.”
Grainger County may be the unofficial tomato capital of Tennessee, but it’s only part of the story in explaining how important the crop is to the state. Other top-producing tomato counties include Washington, Unicoi and Lauderdale. There are some 1,500 farms and about 35,000 acres devoted to vegetables in the Volunteer State, and the state’s vegetable industry is worth nearly $75 million.

“Fresh market tomato production is about half of that value,” says Annette Wzelaki, vegetable specialist for the University of Tennessee’s Institute of Agriculture, “so tomatoes are extremely valuable to the state.”

Snap beans have historically ranked highest for production acreage of vegetable crops in Tennessee, and pumpkins and yellow squash usually are in the top 10 for U.S. production of vegetables by state. But tomatoes consistently lead vegetable crops in Tennessee for value of production, with the state ranking fourth in the

Of the
1,500
vegetable farms
in Tennessee,
2/3
are less than
five acres.

TENNESSEE’S
VEGETABLE INDUSTRY
IS WORTH NEARLY
$75
million.

Tennessee ranks fourth in the nation for fresh market tomato production. The state also ranks high in snap beans, pumpkins and yellow squash.
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country for fresh market tomatoes in 2011, according to U.S. Department of Agriculture statistics.

Stratton, who envisions his teenage sons, or perhaps his younger daughters, taking the farm to a fifth generation in a few years, grows 28 acres of vegetables that also include green beans, squash, cucumbers, zucchini and bell peppers. But about one-third of the acreage is tomatoes, featuring varieties such as yellow, Pink Ladies, stripes, grape and others. He sells mostly to grocery stores in East Tennessee, as well as into Indiana and north Georgia.

“A lot of the farmers in Grainger County still have wholesale arrangements (for marketing their crops) because of the sheer volume they’re dealing with,” Wszelaki says, “and many don’t have the time to go around to farmers markets and things like that.”

However, more farms are using the fresh-to-consumer approach to selling their tomatoes and other crops, according to Wszelaki.

“I think we are seeing more of a trend in marketing directly to the consumer,” she says. “Of the 1,500 vegetable farms in Tennessee, two-thirds of those are less than five acres. The small farms generally do sell directly to consumers through farmers markets, roadside stands and CSAs (community-supported agriculture).”

As for growing trends, Wszelaki says we are seeing more of an interest in hydroponics, “but most of the production in Tennessee is still in the ground.”

Farms large and small face the same challenges, and lately the biggest one has had to do with Mother Nature.

“Weather is a huge challenge,” Wszelaki says. “The last few years, we’ve had drought conditions, and for a vegetable crop, having water when the crop needs it is so critical.”

Most of the large tomato farms are irrigated, so the key challenges for that crop may be insects and diseases.

“It’s getting to be a big problem,” Stratton says. “We’ve got insects that, say, five to 10 years ago, you’d never heard of, never saw it before. Then all of a sudden, they’re finding their way to East Tennessee.”

– John McBryde

**Some 1,500 Farms and About 35,000 Acres Are Devoted to Growing Vegetables in Tennessee.**
PROTECTING Tennessee Trees

State’s foresters wage war on invasive pests

Forests are complex ecosystems. And threats from invasive pests, drought and disease are to be expected, though not accepted without a fight.

The Tennessee Department of Agriculture Division of Forestry is at the forefront of the effort to protect the health of the state’s rural and urban forests.

Its well-known services include fighting wildfires and protecting water quality on logging jobs, but the division also provides another primary service, the Forest Health Program.

“We’re focused on preventative, proactive ways to protect our forests,” says Heather Slayton, forest health program specialist.

One key way to be proactive in protecting the state’s forests is early detection. To that end, Tennessee has an extensive monitoring system statewide aimed at identifying the presence and movement of invasive pests, such as the emerald ash borer, hemlock woolly adelgid and others.

“Our area foresters, who provide landowner assistance, know their regions very well,” Slayton says. “Not much gets by them, and they are our first line of attack.”
TENNESSEE FORESTRY ASSOCIATION

TFA is proud that our Forest Industry and Landowners contribute to a total industrial output in Tennessee of $21 Billion representing 101,891 jobs. Our members grow twice as many trees as are harvested, as well as provide clean water, habitat for abundant wildlife and breathtaking scenic vistas across our state.

TENNESSEE PAPER COUNCIL

Tennessee’s paper industry contributes over $5 Billion annually to Tennessee’s economy, employing thousands of Tennesseans directly, and tens of thousands more indirectly in East, Middle and West Tennessee. Our paper industry provides a market for wood grown by Tennessee’s farmers and forest landowners and makes paper products for consumers throughout the United States and the world. Tennessee's paper industry is also the largest consumer of recycled material in the state.

Tennessee Forestry Association
www.tnforestry.com • info@tnforestry.com • 615-883-3832
The monitoring system will get a boost in 2013 from a mobile app for early pest reporting available to citizens. TDF foresters respond to landowners’ reports to conduct inspections, set traps and look for triggers that indicate forest health is at risk. That information is reported, tracked and analyzed by Slayton and her department and then distributed to other landowners, communities and regions that may be impacted.

“An informed and educated public is extremely important,” Slayton says. “Maintaining healthy, sustainable forests is something we can all be a part of, and it starts with being informed.”

An example of the role the public can play in protecting forest health is the campaign to prevent the movement of firewood. Emerald ash borers, walnut twig beetles (which spread a fungus creating thousand cankers disease) and other potentially dangerous critters typically reside under the bark of a tree. When the tree dies, is chopped into firewood and then transported – sometimes hundreds of miles – it moves those pests to new locations where the adults emerge from the bark and infest a new crop of trees. The TDF campaign focuses on educating the public to stop the spread of this disease.

The Forest Health Program also identifies and recommends treatments for tree pests, provides treatments where applicable and evaluates exotic and/or invasive pest threats. Slayton points to success with the state’s hemlock trees, which are under siege by the hemlock woolly adelgid.

“We have an excellent partnership in place with all the main players, including the Tennessee Wildlife Resources Agency, the Tennessee Department of Environment and Conservation, the National Park Service, The Nature Conservancy and the US Forest Service,” Slayton says. “We’ve been able to pinpoint areas across the state where we have concentrated treatment, and that’s resulted in saving a few trees in some areas and up to 600 acres elsewhere. This is a proactive effort and we’re proud of what we’ve accomplished working together.”

TDF shares that success and the methods used to identify trees and acreage for treatment with municipalities around the state to further protect the hemlock tree population.

Meanwhile, TDF has partnered with the University of Tennessee, the USDA Animal Plant Health Inspection Service and the Nature Conservancy looking for new and effective ways to combat these pests.

There is reason to be hopeful.

“Our forests are resilient,” says state forester and assistant commissioner Jere Jeter. “Change in the environment is inevitable. Two-hundred years ago, the Appalachians were filled with American chestnuts, which lost their dominance. Oaks and hickories took their place. Ash and walnut might drop out the same way, but something else will take their place. Meanwhile, TDF will continue to conserve, protect and enhance the forest resources of Tennessee with the help of its partners and residents.”

For more information on forest health issues in Tennessee, visit www.protecttnforests.org.

– Kim Madlom

Darren Bailey checks a tree that’s been infected by a forest pest. He and other Tennessee foresters respond to landowners’ requests to conduct inspections, set traps and look for triggers that indicate the trees are at risk.

**Firewood Tips**

A crackling fire is a wonderful way to stay warm and cozy in the winter, and paying attention to the source of the wood is a great way to help protect Tennessee’s forests. Many pests that destroy Tennessee trees reside under the bark of a tree. When the tree is chopped into firewood and then transported – sometimes hundreds of miles – the pests move to new locations and attack healthy trees.

The Tennessee Division of Forestry urges residents not to transport firewood, even within the state. Don’t bring firewood along for camping trips. Get the wood you need from a local source. Don’t take wood home with you. When purchasing firewood, make sure it came from a local source.
Better BROILERS
State poultry industry relies on leaders in genetics, breeding
Nearly every package of chicken sold in grocery stores across the country has a lineage that leads back to a competitively developed breeding line from one of four primary breeder companies – all with a Tennessee presence.

“Tennessee is the only state that has all four primary breeders,” says Mark Harmon, director of production for Hubbard LLC, one of three major international primary breeders with facilities in the state. The others are Aviagen, a global market leader in poultry genetics, and Cobb-Vantress, the world’s leading supplier of broiler breeding stock and technical expertise for the broiler meat industry. Heritage Breeders, a subsidiary of Perdue, is also a substantial primary breeder in Tennessee, supplying most of the genetics for Perdue, the third-largest broiler company in the United States. These four broiler primary breeders supply the breeder stock for 98 percent of the chicken grown nationally and 80 percent of the chicken grown globally.

Primary breeders are half of the poultry industry, with integrators – the companies that grow, process and market the birds for consumption – being the other half. Integrators in Tennessee include industry giants Tyson Foods, Pilgrim’s Pride, Koch Foods and Equity Group.

Whether the chicken or the egg comes first, it all starts with some serious science.

“The chicken sold in grocery stores and restaurants comes from a proven genetic line,” Harmon says. “Our goal is to produce a genetically superior bird that will grow quickly, be healthy and produce a great product. People wonder how we grow birds in seven weeks. It’s because of superior genetics, housing, management and nutrition. These birds perform to expectations with genetics being the foundation; no hormones or other growth promotants are used.”
“Hands-on” Learning Is Our Highest Priority

- Over half our classes involve the horse science or farm laboratories.
- 750 acres are farmed by our students.
- Students are directly involved with managing the horse barn, the beef and swine units, the dairy/dairy calf barn, the milk processing plant, the garden/nursery/greenhouse areas, the farmer’s market, the apiary, and row crops.

What Our Students Say

- 94% rate MTSU Agribusiness and Agriscience as excellent.
- 97% say that MTSU Ag faculty are “friendly, open, and supportive.”

What Our Students Do

- They are involved in organizations: Agricultural Business Society, Alpha Gamma Rho, Block and Bridle, Dairy Science Club, Horseman’s Club, Plant and Soil Science Club, Pre-Vet Club, Sigma Alpha, Student Ag Government Association.
- They compete for individual and team honors on the Equitation Team, the Horse Judging Team, the Livestock Judging Team, and the Dairy Products Judging Team.
- They do research. Graduate students in the Horse Science program and many undergraduates are involved in research and present papers at university, regional, and national levels.

Programs of Study

Agribusiness
Plant and Soil Science
Animal Science
Animal Science (Horse Science Concentration)
Animal Science (Pre-Vet)
Agricultural Education Certification
The U.S. Poultry and Egg Association determined the overall economic impact of the Tennessee poultry industry to be over $4.8 billion, accounting for more than 27,000 direct and indirect jobs.

There are approximately 1,000 poultry farms in Tennessee.

**Step One: Breeding Stock**

The chicken is the first agricultural animal to have its genome sequenced, placing poultry well ahead of other agricultural industries in terms of the genetics research and development. These primary breeder companies maintain flocks that consist of pedigree or pure-line birds, great-grandparent, grandparent and parent birds. Eggs from the parent birds are hatched to become the broilers grown for consumption.

“Different commercial processors are looking for different birds,” Harmon says. “The Tyson Foods complex in Shelbyville sells to the retail market for example, while the plant in Obion County supplies to the fast food market. Each one requires a different size broiler to meet the demand. The primary breeders have geneticists on staff, and the birds are selectively bred to meet specific needs.”

Cobb-Vantress invested $22 million in its Dry Creek research complex built in Deer Lodge. The facility opened in 2012 and is expected to create 115 new jobs in its first year of operation. The complex features 34 poultry houses and a hatchery. It is the second major investment made by the company in the state. Cobb opened a $14 million parent stock hatchery in Lafayette in 2010, providing new opportunities for 21 contract farmers supplying hatching eggs from their breeder flocks and creating approximately 60 new jobs.


“Through the application and integration of novel techniques and new technologies, continuous progress in breeder and broiler chicken performance is delivered simultaneously in commercial traits such as broiler live weight and egg production, as well as welfare-related traits such as robustness, cardiovascular fitness and skeletal strength,” says Ben Thompson, Aviagen president. “The focus for Aviagen is on maintaining balanced progress in each product line.”

Hubbard’s Pikeville complex includes a grandparent level hatchery with the capacity to turn out 12 million breeders a year. Hubbard holds better than 50 percent of the total market sales for all males. Cobb-Vantress is widely recognized for having the superior females. A common cross in production by Tennessee’s growers is Hubbard’s male line M99 crossed with the Cobb 500 female to produce birds with enhanced feed conversion, daily weight gains and livability.
## Poultry Breeding Companies in Tennessee

**Cobb-Vantress Inc.** – A global poultry research and development company engaged in the production, improvement and sale of broiler breeding stock, Cobb-Vantress is a global leader in poultry genetics. In 2011, Cobb built a $14 million dollar hatchery and quality assurance facility in Lafayette, Tenn., that is supported by family farmers in Macon, Clay and Sumner counties, along with three neighboring counties in Kentucky. Cobb-Vantress has also invested $22 million in its Dry Creek research complex in Morgan County, Tenn., that opened in March 2012.

**Aviagen Inc.** – Aviagen Inc. is a global market leader in poultry genetics and develops pedigree lines for the production of commercial broilers under the Arbor Acres, Ross and Indian River names, delivering day-old grandparent and parent stock chicks worldwide. The company has a pedigree division in Crossville, Tenn. that opened in 1991, and additionally has several family farmers in Giles, Wayne and Lawrence counties in contract with Aviagen for their Elkmont, Ala., facility.

**Heritage Breeders LLC** – Located in Morrison, Tenn., Heritage Breeders LLC is a subsidiary of Perdue Farms Inc. and is a primary breeder (grandparent) operation. Their complex raises day old pullets to 22 weeks of age and then moves them to their own breeder houses for producing hatching eggs that are shipped to their hatchery in Trion, Georgia.

**Hubbard LLC** – Started in 1921, Hubbard LLC is one of the major international broiler breeding companies in the world, specializing in state-of-the-art selection programs to improve the performance of their pure lines. The company's hatchery in Pikeville, Tenn., built in 1996, is the largest primary breeder hatchery in the world, placing more than 49 million eggs annually. Family farmers in Bledsoe, Cumberland, Rhea, Hamilton and Sequatchie counties raise pullets and manage layers for the hatchery.

## Growing and Processing Companies

**Tyson Foods Inc.** – Tyson, the No. 1 broiler company in the United States and No. 2 worldwide, has two processing plants in Tenn., one in Shelbyville and another in Union City. The hatchery supplying broiler chicks for the Shelbyville complex is located in Decherd, and the feed mill is in Estill Springs, both in Franklin Co. The Union City complex is supported by its hatchery located next to the processing plant in Obion County and the feed mill in South Fulton.

**Pilgrim’s Pride** – This company has a processing plant in Chattanooga and contract growers throughout the surrounding counties and neighboring states. Their feed mill is outside Chattanooga, and the broiler chicks come from the company’s hatchery in northern Georgia. Pilgrim’s is the second-largest broiler company in the United States and additionally has operations in Mexico and Puerto Rico.

**Koch Foods** – Koch Foods has two complexes with processing plants in Tennessee, one in Chattanooga and one in Morristown. The feed mill for both complexes is near Chattanooga, and the broiler chicks are hatched in Henagar, Ala. The company services many of the nation’s leading national restaurant chains and is a major exporter, with its export office based out of the Chattanooga facility.

**The Equity Group** – Based in Albany, Ky., The Equity Group is a division of Keystone Foods and has contract growers in Clay, Macon, Montgomery, Overton, Pickett and Sumner counties. Keystone Foods has more than 50 operational facilities in North America, Europe, Asia, Australia and Latin America, and it became part of the Marfrig Group, Brazil, in 2010.
In 2011, Tennessee produced

190,300,000

broilers, with a value of production
equaling $461,154,000.

All four primary poultry breeding companies have a presence in Tennessee. These primary breeders supply 98 percent of the chicken grown in the United States and 80 percent of the chicken grown in the world.

STEP TWO: INTEGRATORS

A typical broiler production complex operated by Tyson Foods, Koch Foods, Pilgrim’s Pride or the Equity Group will maintain its own parent birds – laying hens from the lines developed by the primary breeders. Those hens produce the eggs that hatch and are delivered to the individual farms to be grown out and then processed for consumption. Family farmers in 60 Tennessee counties grow and sell broilers commercially.

“For a farmer to build three or four houses with a company like us, that’s going to be an investment on their part, but creates an income that is extremely steady,” says Dan Nuckolls of Koch Foods, who is also president of the Tennessee Poultry Association.

Farmers often spend several hundred thousand dollars per poultry house. The money pays for climate control, ventilation, feed automation and all of the high-tech infrastructure that ensures a quality product.

The future looks bright. In 2012 the U.S. Poultry & Egg Association determined the overall economic impact of the poultry industry in Tennessee to be worth more than $4.8 billion, accounting for over 27,000 direct and indirect jobs.

“The growth has been pretty intense these past few years,” Nuckolls says. “Tyson has a plant out in West Tennessee. The Shelbyville Tyson plant has expanded. Koch Foods has expanded in Morristown, and the Chattanooga capacity has gone from processing 400,000 to 1.9 million birds a week.”

The demand for poultry worldwide is at an all-time high, and continues to increase.

“The U.S. poultry industry produces a low-cost protein and the world needs that,” Nuckolls says. “We produce and can ship cheaper than most countries can produce at home. We’re one of two or three major players in the export market, along with Brazil and France.”

– Kim Madlom

Top: Jalynn Evans helps her grandfather Clay Myers collect eggs. Myers Farm raises layer hens for Hubbard.
Meat the Revolution

Tennessee farmers find new markets for farm-fresh meats
Batey Farms
Since 1807
Locally-Produced
Premium Pork Products
John L. Batey, right, and his son-in-law, Brandon Whitt, operate Batey Farms, a hog, row crop and hay farm in Murfreesboro, Tenn.

What’s Online
To find Tennessee-raised meat products in your area, visit PickTNProducts.org
Read the descriptions of chef’s creations on menus in popular Tennessee restaurants and in addition to learning what’s in the dish, you are likely to learn the name of the farm that provided those ingredients.

Locally sourced food is a growing movement and one that increasingly includes meat as well as produce. Tennessee farmers are meeting consumers’ preference to purchase beef, pork, lamb, goat and poultry raised on local and regional farms.

“More and more consumers want to know where their products are coming from,” says Brandon Whitt of Batey Farms of Murfreesboro. Batey Farms is an eighth-generation, family-owned hog, row crop and hay farm. Whitt works with his father-in-law, John Batey, on the farm.

“We sold sausage off the farm for 25 years by word of mouth around the community,” Whitt says. “With the increased interest in local products we saw an opportunity to build up the retail market and also educate consumers about our products and the connection between the farm and the table.”

Whitt says consumers play an important role in creating new opportunities for farmers.

“We as producers have the opportunity to give the public what they are asking for with a private company such as ours,” he says. “We see our role as providing quality products and also teaching consumers that they can trust the products they are buying in the grocery store. We want to bridge the gap between farmers and the consumers.”

Batey Farms is a farrow-to-finish operation that generally keeps about 65 sows that are bred and between 450 and 550 hogs on the farm in production. Batey products are sold direct to consumers through some local markets and restaurants as well as from the farm.

Consumer education is important, Whitt says, noting that while Batey Farms once sold its hogs to a major
Tony Slaughter raises lamb for several grocery stores on his Kingsport, Tenn., farm. PHOTO BY BRIAN MCCORD

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Your local John Deere leaders – TriGreen Equipment and Tennessee Tractor – are proud to offer total equipment solutions for a wide variety of agricultural customers. We know you work the land for a living, so we work hard to serve you.

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- Goodlettsville, TN: 1800 S. HWY 46
- Hendersonville, TN: 1222 LASALLE LN
- Jackson, TN: 3227 HWY 45N
- Kingsport, TN: 1322 W. KING ST
- Lexington, TN: 1056 HIGHWAY 111
- Longview, TX: 2213 HWY 190
- Murfreesboro, TN: 1670 MAJOR ST
- Nashville, TN: 4200 BRAMBLETON AVE
- Oak Ridge, TN: 2000 W. HWY 100
- Salisbury, NC: 7800 N. C. 24
- Springfield, TX: 2203 HWY 290
- Signal Mountain, TN: 777 HIGHWAY 27 N
- Tullahoma, TN: 1222 S. MAIN ST

**Tennessee Tractor**

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- Brownsville, TN: 1500 HICKORY ST
- Columbia, TN: 4300 HWY 244
- Crossville, TN: 1020 HWY 27 S
- Decatur, AL: 422 S. LANE
- Dyersburg, TN: 1945 HWY 30
- Ethridge, TN: 107 S. HWY 411
- Fortson, GA: 1000 HWY 80
- Lawrenceburg, TN: 1000 S. MAIN ST
- LaFollette, TN: 1300 HWY 70
- Lexington, TN: 1200 HIGHWAY 91
- Maryville, TN: 4020 HWY 70
- Maryville, TN: 3500 S. HWY 244
- Morristown, TN: 1000 S. HWY 91
- Muscle Shoals, AL: 1000 HWY 431
- Nolensville, TN: 1000 HWY 100
- Oneida, TN: 1000 HWY 30
- Oak Ridge, TN: 2000 W. HWY 100
- Perryville, TN: 1000 HWY 124
- Portland, OR: 1000 HWY 30
- Pulaski, TN: 1000 HWY 30
- Smithville, TN: 1000 HWY 25
- Tullahoma, TN: 1200 S. MAIN ST
- Tullahoma, TN: 1200 N. MAIN ST
- Union City, TN: 1000 HWY 70
- UNIVILLE, IA: 1000 HWY 244
- Waynesboro, GA: 1000 HWY 23

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label, the farm now sells entirely through its own retail outlets. He sees growth opportunities in the direct-to-consumer market.

“As people become more comfortable with local products, private labels and products like ours are going to be even more in demand as we move into the future,” Whitt says. “We don’t think this is a fad, we think it’s a trend that is going to become more popular. In the next five to 10 years there is going to be a greater demand for more regionally produced meat that’s not been shipped all over the country. We’re on the right path.”

Tony Slaughter has been farming since 1980, primarily in tobacco until 2006, but also in row crops, cattle, sheep and hogs. He currently has about 350 ewes and has marketed lamb to Food City, Fresh Market, Earthshare and other grocery stores. He’s working toward developing a direct-to-consumer lamb market.

“The problem is that I’m a farmer, not a marketer,” Slaughter says, but notes the growing demand for local meat could benefit his efforts. The Tennessee Department of Agriculture is helping with the marketing aspect for Slaughter and other farmers. The state’s Pick Tennessee Products program promotes farm products, and the department is working with farmers to open new markets for their products.

Slaughter, who has been selling sausage directly to consumers since he first started farming, says the increased customer interest in understanding what goes into products is good for farmers. And, he says, once consumers taste a farm product they are often hooked.

“Folks who are concerned about additives don’t have to be worried about that with our meat,” he says. “We have whole-hog sausage, and that is seldom done in the products in the grocery store. It’s the same as getting a tomato out of your garden in the middle of summer compared to buying a tomato the second week of January. There’s just no comparison.”

– Kim Madlom
Harold Williams started his sausage company with the simple belief that country flavor would sell sausage.

Over the years, Williams has grown by expanding its distribution and adding new products such as link sausage, sausage patties and microwaveable breakfast sandwiches. Our food-service and retail items are sold in more than 40 states and Mexico.

Our premium sausage is made from fresh pork with no artificial fillers using our best cuts, including the hams and tenderloins, and seasoned with a country flavor formula developed by Harold more than 50 years ago. Williams has been chosen by the finest restaurants and food-service distributors as the trusted brand for delivering premium sausage products.

We still believe country flavor sells sausage. Try Williams Country Sausage and discover what country flavor’s all about.

www.williams-sausage.com
Meat Terms, Explained

Many terms are often connected with meat products. Here’s a handy guide to help you decipher all the different terminology.

FREE RANGE OR FREE ROAMING
Poultry has been allowed access to the outdoors. This term does not apply to other animals raised for meat.

CAGE FREE
Laying hens live uncaged with unlimited access to food and water during the egg-production cycle, and they are able to roam within an enclosed area, though not outdoors. Typically, poultry raised for meat are not caged.

GRAIN FED
A grain-fed diet for livestock includes a number of grains, such as corn, soybeans, oats, sunflower seed and many more. Livestock that are pasture fed in warmer months and grain fed in colder months (when forage is not generally available) are classified as grain fed.

GRASS FED
Grass or forage are the only food source for ruminant animals (such as cattle, sheep, bison and llamas) for their entire life after weaning. Their diet does not include any grain or grain byproducts.

NATURAL
Products labeled as “natural” contain no artificial ingredient or added color and are only minimally processed, which means the processing does not fundamentally alter the product.

NO ADDED HORMONES
This term only applies to beef, as hormones are never allowed in raising hogs, poultry, veal or exotic animals not subject to USDA inspection, such as bison. (The claim can only be used on the labels of pork or poultry when followed by a statement that says, “Federal regulations prohibit the use of hormones.”) For beef, the producer must provide sufficient documentation to the USDA showing that no hormones have been used in raising the animals.

Sources: U.S. Department of Agriculture and Mayo Clinic
Look behind the scenes of Tennessee’s farmers markets

Visit any of Tennessee’s 120 farmers markets across the state, and not only are you sure to get fresh, delicious, local food, but also a rewarding experience.

“Farmers markets are not just a place to buy food – they’re also a destination,” says Pamela Bartholomew, agritourism marketing specialist at the Tennessee Department of Agriculture (TDA). “Most markets have music, theme days and events to get consumers involved.”

That consumer involvement has resulted in significant growth in the amount of Tennessee farmers markets in recent years. “People want to know where their food comes from,” says Bartholomew. “And a farmers market is the best source to find that. I get calls weekly from communities wanting to know how to start a market.”

Farmers markets give consumers the chance to meet local farmers and see the direct source of their food, along with offering a neighborly gathering and adding value to economic growth. Bartholomew says that at some markets, it’s clear that the market is the highlight of the town’s week.
As society changes and technology continues to grow, the state’s markets have started to adapt. Many of the larger markets now have capabilities to take multiple food payments including food stamps and vouchers, allowing everyone to have access to fresh, local food. Farmers are also brushing up on technology, accepting payment from credit and debit cards with iPads.

“This has such a great impact, since it allows more people to get fresh food,” says Bartholomew. “And we all know no one carries cash anymore.”

The Rutherford County farmers market in Middle Tennessee is conducting a study on the impact of the voucher and credit card systems at farmers markets. “This will provide good data and be tremendously helpful to future markets,” Bartholomew says.

One of the state’s most successful markets is the Franklin Farmers Market in historic downtown Franklin. According to Bartholomew, the space has grown tremendously and is great at keeping consumers and vendors happy. The weekly market is open year-round on Saturdays, and open two days in the summer.

An especially unique aspect of the Franklin market is their partnership with local Italian restaurant, Amerigo’s. They provide them with food from the market and in return, the restaurant features a farmers market five-course meal in the summertime made with local ingredients. They also feature a farm-fresh menu that contains dishes using only farmers market ingredients.

The growth of Tennessee’s farmers markets isn’t slowing down any time soon, and with the accumulation of more vendors, TDA is making a concerted effort to work with markets to make food safe for consumers. TDA Food and Dairy Administrator Bill Walls explains that farmers market regulations depend on the vendors’ products.

“We categorize the products into two categories: potentially hazardous products and non-potentially hazardous products,” Walls says.

A potentially hazardous product is any food that includes ingredients capable of supporting rapid growth of microbial toxins when stored at unsafe temperatures or improperly processed. This includes things like meat products, seafood and home-canned foods. For vendors to be able to sell these products at a farmers market, the products must be manufactured in a licensed, inspected facility. Non-potentially hazardous products are just the opposite. They can be produced in a home kitchen and include items such as jams, jellies and baked goods. However, vendors of these products must display a sign at their
booth, letting consumers know it was made in an at-home kitchen that was not inspected. They must also meet certain labeling requirements. Ready-to-eat food such as kettle corn or doughnuts that are made on-site are regulated by the county health department.

Walls says that in addition to TDA regulations, farmers markets may have their own specific regulations that they require.

To help vendors meet safety regulations, the TDA established the domestic and commercial kitchen programs for producers. The domestic kitchen program was started in March 2011, and allows vendors to make non-potentially hazardous food items in a home kitchen that is licensed and inspected by TDA. These products can be sold at most venues including farmers markets. Vendors are, however, required to obtain a Domestic Kitchen License and complete a food safety course acceptable to TDA. The University of Tennessee offers an online course on domestic kitchens for those wanting to become licensed and learn more.

“This program is a great way for companies to get started and test the waters before making a major financial investment,” says Walls.

Commercial kitchens are used for potentially hazardous products like salsa, canned foods and cream-filled pastries. A commercial kitchen must have an on-site manager and certified equipment that is used to safely produce the product. Based on the risk of the product, the TDA inspects the actual process of making the food one to two times per year. Ingredients are also checked for an approved source, packaging is approved, labeling is checked, and lot and batch numbers are recorded in case of a recall.

Walls says that in 2013, the TDA is working to make changes to keep food safe for consumers.

“We are starting a farmers market focus group. The group will include processors, vendors and growers that will meet routinely to discuss safety rules, proposed rules and other issues,” he says. “By spring, vendors will be able to view food regulations online, categorized by product, and UT will be offering an online better processing certification course.”

Consumers wanting to learn more about Tennessee’s farmers markets and find a market close to them can visit www.PickTNProducts.org.

– Rachel Bertone
FROM THE PLANT

TO YOUR PICKUP

As an American-made fuel, biodiesel is the only proven high-performing diesel fuel that can also help us declare our freedom from foreign oil. And now that there are more distributors than ever before, there's never been a better time to ask for it and use it.

AVAILABLE WHERE FARMERS GROW
With bright bouquets of fresh flowers, homemade baked goods, artisan jams, honey and more, today's farmers markets offer much more than fruits and vegetables.

In Tennessee, the growth and improvement of farmers markets over the past decade has been significant, thanks in part to national and state programs.

“The current U.S. Department of Agriculture administration has been very focused on ‘know your farmer, know your food,’ ” says Bobby Goode, state executive director for the USDA Rural Development program. “The old saying was that it was best if you had a neighbor with a garden. Now, it’s better to have a community with a farmers market.”

The program, an umbrella agency under the USDA, provides loans and grants to rural communities across the state through programs that focus on rural houses and businesses, utilities and economic development. In the past three years, the program has helped fund 13 farmers markets, giving $500,000 in grants.

“We think it’s important to fund rural farmers markets because the dollars stay in the local community,” Goode says. “Anything that helps producers stay local will help local residents as well.”

The Tennessee Department of Agriculture also provides marketing assistance, training and funding for farmers markets to complement the work being done by USDA Rural Development and the Main Street Program.

In some cases, TDA has partnered with USDA Rural Development to help leverage federal and state funding for capital investments in farmers markets. The USDA Rural Development program works closely with the Tennessee Main Street program, which strives to improve the business climate in historic downtowns.

A division of the National Main Street Center, the Tennessee Main Street Program acts as a liaison between the national program and organized local programs. Currently, 24 communities are involved in the program and are completely self-sufficient as far as raising funds, setting goals and appointing board members.

Tennessee Main Street Program Manager Kimberly Nyberg says the program helps communities revitalize their core downtown areas by focusing on design, promotion, economic restructuring and organization.

Regarding farmers markets, Nyberg says the Main Street program acts as a catalyst to bring attention to the downtown markets.

“The programs are organized on the local level and they understand local history,” Nyberg says. “This mix of understanding the history of the farmer and also the business opportunities that farmers markets can bring is crucial.”

Nyberg says some farmers markets are beginning to turn more into “local markets” by adding things like live music, educational classes, events and even night hours. In Tennessee, some of the most successful downtown farmers markets are located in Dyersburg, Dandridge and Murfreesboro.

Both Goode and Nyberg agree that farmers markets are a great thing for Tennessee’s agriculture industry and economy.

“It really brings the whole concept of farm-to-table to life,” Nyberg says. “And economically, farmers have another venue to sell products.” — Rachel Bertone
Snack Cake Success
For nearly 80 years, McKee Foods Corporation, the parent company of the Little Debbie® brand, has been manufacturing sweet treats. Founded in Chattanooga by O.D. and Ruth McKee, the bakery has grown from five employees and a few thousand dollars in yearly sales in 1934 to more than 6,000 employees across the country and $1 billion in sales today.

That’s a lot of Oatmeal Creme Pies, Swiss Cake Rolls, and Nutty Bars®. In fact, if you lined up all 157 billion of the 75 varieties of Little Debbie® snacks that have been sold since the brand was established in 1960, you’d have enough treats to stretch to the moon and back more than 41 times.

That sweet success is Tennessee grown. Now headquartered in Collegedale, the company is led by the third generation of the McKee family. They continue a long-time commitment to doing business in Tennessee, to creating good jobs for Tennesseans and to using Tennessee products.

That commitment began early on.

“The company was originally located in Chattanooga, but the operations were later moved to Collegedale in order to create jobs for the students in that rural area,” says Mike Gloekler, corporate communications and
DOING WHAT’S RIGHT, EVERY DAY

No one cares more than pork producers about...

- The environment
- Animal health and safety
- Employees and neighbors
- Food safety
- A vibrant industry for future generations
- Advancing the industry through continuous improvement

- Upholding the highest ethical principles
- Implementing production-oriented best practices
- Honoring our commitment to our customers and our communities

Browse recipes that feature ingredients produced by Tennessee farmers.
public relations manager for Mc Kee Foods. “We have three-quarters of a century of employing Tennesseans. We know their work ethic, and by extension we know that the agricultural products available from Tennesseans in agriculture will be produced with that same ethic and great attention to detail.”

It’s a partnership that works for Mc Kee Foods and for Tennessee. The company uses Tennessee-grown wheat and corn in their products.

According to Ed Harlan, assistant commissioner for Market Development, “Mc Kee Foods is a great role model for commitment to the state of Tennessee.”

He cites the company’s long-time participation in the Pick Tennessee Products program as well as their dedication to being on the cutting edge of food safety operations and their commitment to supporting the rural economy through job creation.

“The Mc Kees are true ambassadors for the Pick Tennessee Products program. The company is really 80 years ahead of the curve in terms of vision and commitment,” he says. “You sense an exceptionally strong work ethic across the company, which leads to their success. They’re serious about the job they do, about the products they make, and about being a strong community partner.”

That commitment extends beyond the bakery floor and the corporate boardroom into classrooms and organizations across Tennessee.

“Ruth Mc Kee had a heart for teaching, but she gave up that career to run the business with her family,” says Gloekler. “So any opportunity she had to support the teaching of young people and other educational endeavors, she jumped on it. There has always been a partnership in this company with educational efforts.”

It’s a partnership that includes assistance to employees through tuition reimbursement, to young people in 4H, Junior Achievement, and Adopt-a-School programs, and to the whole state through financial contributions for a Mission Control classroom at the Challenger Center in Chattanooga as well as to fund research in dyslexia and business ethics.

“The Mc Kees have shown incredible vision in not only keeping their company on the edge of innovation, but also in making things better for the people who live in the state,” says Harlan.

“Cathy Lockman

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Pick Tennessee Products

From agritourism activities to farmers markets to Christmas tree farms, Tennesseans can visit PickTNProducts.org to find farm fresh, pick-your-own and local food and products that are produced in the state. The website directory aims to maximize economic opportunities for Tennessee farmers and increase farm income while introducing fresh fruits, vegetables, meats and more to the public. The website also features recipes, products to buy online and local food news.

www.PickTnProducts.org
Wine industry attracts tourists, supports farmers

In a state known for its world-famous whiskey, the post-Prohibition resurgence of winemaking is still relatively new, but it’s the fastest-growing Tennessee agricultural segment.

Fifty wineries have opened in every corner of Tennessee, up from 30 just a decade ago.

“I think we’ll see that number double in the next decade,” says Jonathan Ball, vice president of operations of Rocky Top Wineries, the largest cooperative of wineries in the state. “We have a lot of room to grow this business in Tennessee.”

State wineries crushed more than 1.5 million pounds of grapes in 2011, and Rocky Top Wineries crushed 850,000 pounds of that total.

Ball notes that Rocky Top Wineries doesn’t grow a single grape, but rather buys from local farmers.

“We bought fruit from 38 different growers, which is what we typically do annually,” he explains. “We buy from local farmers, and that’s good for Tennessee agriculture.”

The average size of a Tennessee vineyard ranges from 10 acres to 15 acres, though larger vineyards exist, such as the 120-acre Reedy Creek in Bristol. Ninety-five percent of the

Left: Tasting rooms help make Tennessee wineries the top agritourism industry in the state. Right: Award-winning wines, like these from Arrington Vineyards in Williamson County, have contributed to the success.
Grapes are Tennessee’s third-largest fruit crop.

95% OF THE GRAPES GROWN IN TENNESSEE ARE MADE INTO WINE.

Grapes grown in Tennessee are made into wine.
“It’s a product that supports local farmers,” Ball says.

GRAPE EXPECTATIONS
More than 30 varieties of grapes are grown in Tennessee, including well-known wine grapes, such as Chardonnay, Pinot Noir, Cabernet Sauvignon and Merlot, plus the state’s most popular grapes – Concord and Muscadine.
“We’re a Southern state, so we’re known for our sweet wines, which is not surprising since we have sweet tea with our lunch,” Ball says. “But we are starting to develop some excellent dry ones.”

In fact, Tennessee vintners have produced some award-winning wines in recent years. Beachaven Vineyards and Winery in Clarksville took top honors for its Syrah at the 2011 Wines of the South competition hosted by the University of Tennessee. Other Tennessee winners in the field of wineries from 14 states included Sugarland, Stonehaus, Arrington, Old Millington, Mountain Valley, Reedy Creek, Century, Grinder’s, Beans Creek, Keg Springs, Amber Falls, Mountainview, Blue Slip, Hillside and Apple Barn.

“Tennessee wines are wonderful,” says Tammy Algood, viticulture specialist for the Tennessee Department of Agriculture (TDA), which works to promote the state’s wine industry. “The quality of Tennessee wines can be seen in the numerous awards they win in regional, national and international competitions. There is a Tennessee wine for any type of wine lover, from dry to sweet to sparkling.”

One Tennessee wine has achieved statewide and multistate distribution. Stonehaus wines can be found at the winery and in liquor stores in Memphis, Nashville, Chattanooga, Knoxville, Tri-Cities and all points.
in between. The wines are distributed to liquor stores across the country, as far north as Michigan and as far south as Alabama.

**WINE WINS IN AGRITOURISM**

Stonehaus is among the wineries to create a wine-tasting experience to go along with the sale of the product. Offering tastings and tours, gifts and scenic settings, Tennessee wineries are the most successful agritourism industry in the state, according to a 2010 study compiled by TDA. Grapes are the state’s third largest fruit crop.

"Agritourism is a major factor in the growth we’ve seen so far and in the future of the state’s wine industry," Ball says. "When you look at Sevier County with 10 million people coming through annually, it’s clear we need to attract more of those to our wineries and wine trails. We’re partnering with the agriculture department in promoting agritourism to help make that happen."

— Kim Madlom

Bob Ramsey, owner and president of Stonehaus Winery in Crossville, Tenn., sells his award-winning wines all across the state.

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**What’s Online**

Find a map of all 50 Tennessee wineries at TNagriculture.com

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**The average size of a Tennessee vineyard ranges from 10 to 15 acres.**

<table>
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<tr>
<th>20 WINERIES HAVE OPENED IN TENNESSEE IN THE PAST 10 YEARS.</th>
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<td>NUMBER OF TN WINERIES IN 2003: 30</td>
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Tennessee wineries crushed more than 1.5 million pounds of grapes in 2011.
Each year, nearly 3 million visitors attend the 63 county, regional and state fairs across Tennessee. Some of the fairs have rides or parades or even talent shows, but all of them have one important thing in common. They showcase the agriculture of Tennessee.

In fact, with more than 135,000 agriculture exhibits, the fairs bring the farm to those who know little about an agricultural operation. Visitors can shear a sheep, milk a cow and even watch baby chicks hatch, all things they may not be able to do in their own neighborhoods. But they can also learn techniques that they can employ at home, such as how to raise vegetables or honeybees, how to cure and cook a country ham, how to preserve fruits and how to make compost for the yard.
According to Lynn Tollett, a longtime county fair volunteer and former president of the Tennessee Association of Fairs, these experiences are especially important today, since so few people across the United States are actually involved in agriculture.

According to the National Institute of Food and Agriculture, agriculture directly employed approximately 3 percent of the population in 2008, a sharp decrease from a century earlier when the number was 70 percent. As the world’s population grows, the responsibility that the declining number of farmers has to produce food will continue to increase.

“The original intent of the fairs was to provide an opportunity for producers to showcase the work they did on the farm,” Tollett says. “There was pride in being able to show the community how well you had done, and it represented the climax of a season of farming. The customer base for the fairs early on was the people who lived on the farm. That’s very different today. Now, we also put a big emphasis on serving those who have a very
limited knowledge of agriculture. It’s the reason we have fairs – to maintain the strong agriculture tradition in the state and to raise awareness and understanding of agriculture for those who haven’t been exposed to it.”

Lynne Williams, fair administrator for the Tennessee Department of Agriculture, agrees. She says the fairs’ efforts to focus on agricultural topics and offer economic incentives to agriculture producers to exhibit at the fairs are important ways to educate the public about agriculture. She also points out that fairs host school field trips, with nearly 10,000 students attending the Tennessee State Fair.

“Fairs look for unique ways to explain where food comes from for those people who are removed from the farm. At the Tennessee Valley Fair, for instance, they set up a pizza garden, where everything that goes into the making of a pizza was raised. It’s a very understandable way to explain agriculture.”

Educating the public about agriculture can be delicious, too. From the food-growing competitions to cooking contests that feature Tennessee-grown products, fairs promote healthy, nutritious, local foods, which benefit the consumers who eat them, as well as the Tennessee farmers who produce them.

“Fairs have adapted to the changes in agriculture as well as the changes in the knowledge level of the public about agriculture and focus on programming for both the producers, as well as the consumers,” Tollett says. “It’s a great way for both groups to come together to learn from and understand each other.”

— Cathy Lockman
The agricultural education/FFA program combines classroom instruction with supervised agricultural experience and participation in FFA to provide an unparalleled educational opportunity for our youth in Tennessee.

Tennessee Department of Education, Career and Technical Education (CTE), data shows:

- 90% of high school students are enrolled in a CTE course or 285,143 students with 35,676 enrolled in ag education.

- Ag education students graduate at higher rate than general population of high school students (92.3% vs. 85.5%)

- TN FFA has 13,523 members, 204 active chapters in schools, 343 teachers in 94 counties and 60 active alumni affiliates.

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In Tennessee, farms aren’t just for farmers. In fact, more than 700 farms give the public an opportunity to do everything from picking fruits and vegetables to riding a horse to enjoying a corn maze. Families can also enjoy fishing, festivals, hay rides and summer camps. Adults can visit the state’s wineries, and even choose a tranquil rural farm setting for their wedding or other special event.

And while time down on the farm can be lots of fun, it can be educational, too, says Pamela Bartholomew, agritourism and farmers market marketing specialist with the Tennessee Department of Agriculture (TDA). “One of the reasons that the interest in agritourism has grown so much is because people want to learn about agriculture. They want that hands-on experience that helps them understand and remember where their food comes from and what is required to operate a farm every day.”

That interest stems from the fact that many people are three or four generations removed from the family farm, Bartholomew says. “Encouraging people to see for themselves how today’s farm operates and how that work impacts them directly is especially important to bridging that gap.”

TDA supports the efforts of agritourism destinations by offering marketing assistance and hosting workshops and conferences that bring farmers together to talk about what works well and how best to attract and keep customers.

“Marketing is a huge issue for farmers,” Bartholomew says. “They are used to growing and selling their products, not marketing the farm experience. We help them to learn how to develop a brand for their farm, how to work with the media and how to provide great customer service. They can’t just say: ‘If we build it, they will come.’ They have to be innovative and consistent if they want to get people to visit and return again.”

The Center for Profitable Agriculture, a partnership between the University of Tennessee Extension and the Tennessee Farm Bureau Federation, also reaches out to farmers who are interested in exploring agritourism as a way to add value to their operation, to improve their income, and to increase their share of the consumer’s dollar. Some of the services the center provides include: evaluating the cost of starting a new enterprise, navigating regulatory issues and identifying a potential market.

To learn more about the state’s 700 agritourism destinations, visit PickTNProducts.org and click on Farm Fun and Education.

– Cathy Lockman
No Matter the Mode

Effective transportation a key for Tennessee agriculture

The Cargill grain elevator at Hales Point in West Tennessee has undergone a $25-million modernization to triple the amount of grain it can handle. Cargill buys corn, soybeans, soft red winter wheat and milo. The expansion also allows the facility to be faster in loading barges.
Just as in education, the transportation of agricultural products can be broken down by the three Rs: rail, roads and rivers.

“Agriculture really has a great interest in all modes of transportation,” says Ed Harlan, assistant commissioner for Market Development, “because it’s critical in getting inputs and supplies in, and getting grain, wood products and a lot of other ag products back out.”

Whether by trains on the Class I and short-line railways, by trucks on state and federal highways or by barges on main or secondary rivers, the daily movement of Tennessee agriculture products comes with plenty of success, as well as challenges.

“The river system is a great concern,” says Bart Krisle, CEO of the Tennessee Farmers Cooperative in LaVergne, specifically pointing out the recent Midwest drought’s impact on the Mississippi River.

“We’re very dependent on barges coming out of the Gulf of Mexico with fertilizer, and they have to come up the Mississippi, so it’s critical to us. It’s not just the water level and the rock situation that’s a concern. The lock and dam system in this country is old and in need of not only repair, but also, in my opinion, improvements and enhancements.”

To help with the low water issue as it relates to the transport of grain, Cargill, an international producer and marketer of agricultural and other products, completed a $25 million modernization project on its Hales Point grain elevator in Halls in summer 2012. The enhancement will...
Jim Davis, manager of the Tennessee Farmers Cooperative fertilizer plant in Bells, Tenn., stands on the tracks used to deliver fertilizer to his facility. The fertilizer is brought in by rail and then trucked to farms in the area. PHOTO BY JEFFREY S. OTTO
SHAPING FUTURE LEADERS IN THE AGRICULTURE INDUSTRY

The School of Agriculture at Tennessee Tech University is the hallmark program of experiential education in agriculture. Our students have the opportunity to gain valuable hands-on experience in numerous aspects of the profession and take advantage of expertise in emerging industry trends including agritourism and pastured poultry production.

Tennessee Tech University provides excellent educational opportunities through small classroom environments, networking with industry leaders, and involvement with TTU agricultural facilities, including the Hyder-Burks Pavilion, Tech Farm, Coorts Arboretum, the Nursery Research and Service Center, and the Heritage Farm.

The university is consistently ranked among the top public universities by both U.S. News and The Princeton Review.

Tennessee Tech has been recognized by Newsweek as one of the most affordable universities in the country. U.S. News & World Report placed Tennessee Tech on its list of 10 U.S. colleges with graduates leaving with the least amount of debt.

Tennessee Tech students have the highest mid-career median salary potential of any public university graduates in the state, according to Payscale.com.

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TNTECH.EDU/AGRICULTURE
allow Cargill to increase the number of trucks that can unload each hour and load barges destined for the Gulf of Mexico faster, even when water levels are low.

The Tennessee and Cumberland rivers have not been adversely affected by drought.

**ON TRACK**

Short-line railways have become an increasingly important method of agricultural transportation over the last two decades, according to Harlan. “I’m a big advocate for rail,” he says. “I think it’s important for agriculture. It’s better for farmers and agriculture to ship by rail, especially if it’s not time sensitive.”

Harlan says the short-line system in Tennessee began about 20 years ago after the Class 1 railroads had cut back on rural routes in favor of transportation between large cities. “They didn’t have as much interest in putting together three cars here, four cars there,” Harlan says. “There was talk of abandoning these rail lines, and that’s why the short-line railroad system started.”

Tennessee has 16 short-line railroads, each delivering agricultural and other products across the state or to connections for Class 1 railways. The Nashville and Eastern, which runs from downtown Nashville to Monterey, is one example. Other towns served by short line include Columbia, Pulaski, Cookeville, Selmer, Lawrenceburg, Elizabethtown, McMinnville and Sparta.

**COUNTING ON TRUCKS**

Timing is significant for Kent Lockridge, Co-op’s director of purchasing in the animal nutrition division (feed mills), and he says he’ll typically use trucks for his transportation needs. “We have to deal with a ‘just in time’ situation quite a bit,” he says. “We have a lot of storage, but we go through a lot. At any point, we may have 24 hours or less of inventory and no more than two to three days to get it where it needs to go.”

– John McBryde

**IN 2010, BARGES MOVED 45% OF ALL U.S. GRAIN EXPORTS.**

In 2011, 80 percent of U.S. agricultural exports and 78 percent of imports were waterborne.
“As a student here at UT Martin pursuing agricultural interests, there are unlimited possibilities in what I can do. From the classroom lectures to the experiential learning opportunities, I’ve discovered how broad the field of agriculture is and learned that there is no limit to what I can do.”

—Leslie Dodd, Brazil, TN

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Leslie is currently pursuing a Bachelor of Science in Agriculture with a concentration in animal science. She is also a participant in the Agriculture, Geosciences, and Natural Resources Fellows Research Program. This departmental honors program provides her with additional preparation for pursuing a graduate education or qualifying for a professional school.

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For more information on our undergraduate and graduate programs in the College of Agriculture and Applied Sciences, please visit our website at www.utm.edu/caas.
Safety First

TDA Regulatory Services works to improve marketability of agriculture

From monitoring the threat of fire ants or wild hogs to ensuring the health of nursery stock or livestock, the Tennessee Department of Agriculture (TDA) Regulatory Services Division works diligently to safeguard the health and safety of the state’s agriculture products.

“There’s a wide range of things we do, and we utilize laboratory services to support all our programs,” says Jimmy Hopper, assistant commissioner for Regulatory Services.

Among their responsibilities are food and dairy, weights and measures, petroleum quality, feed, seed and fertilizers, grain dealers and warehouses, pesticides, and plant and animal health.

In 2012, for instance, the TDA placed restrictions on the transport of wild-appearing hogs in Tennessee. The increase in the number of wild hogs has become a significant issue, since they can cause significant damage to land.

“We put transportation restrictions on them because they’re destructive and capable of spreading diseases to our livestock as well as other wildlife,” Hopper says.

Fire ants in the southern part of the state are also closely monitored by inspectors from Regulatory Services. There is a federal quarantine on fire ants for all land basically south of Interstate 40 through Tennessee.

That means any plant or soil material produced in that section must be inspected and have proper paperwork showing it to be free of or treated for fire ants before shipping. The same is true for all other pests and diseases.

“All nurseries and greenhouses are inspected and appropriate documentation is issued before plant material is shipped to other states and countries,” Hopper says.

Livestock health is also critical to the function of Regulatory Services. Dr. Charles Hatcher, state veterinarian, is responsible for ensuring the protection of Tennessee livestock.

“We’re concerned about the spread of animal disease,” Hatcher says. “We want to keep it out of the state, and we’re responsible not to ship anything that is diseased to other states.”

In the equine industry, inspectors are especially mindful of Coggins test requirements for horses. Coggins, or equine infectious anemia, is a viral disease than can cause horses to become very lethargic. It is highly contagious and can be fatal.

The TDA also has an Agricultural Crime Unit that enforces state laws relating to the import of animals and occasionally handles livestock theft. The unit is mostly charged with investigating wildfire arson.

– John McBryde
The annual Tennessee Beekeepers Association (TBA) conference will be held at the Hyder-Burke Pavilion in Cookeville, Tenn. on September 27-28, 2013. Register early to reserve your spot for this highly motivational meeting. Multiple topics of interest to all beekeepers will be presented. For more information, contact the Regional Vice Presidents or the Executive Vice President, Debbie Clayton.

TBA is now more than 1,300 members strong and growing in Tennessee. Become a member now and enjoy the benefits. Go to the TBA website at www.tnbeekeepers.org for more information.

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Port Authority
Cates Landing gives lift to agribusiness, local economy

When it comes to transporting agricultural products, completion of the Port of Cates Landing has been highly anticipated for some time.

The spring 2013 opening of the port brings a new dimension to the area where it’s located in northwest Tennessee, especially from an agribusiness standpoint.

“We think it will be a tremendous boost in agriculture,” says Ed Harlan, assistant commissioner for Market Development. “This is great potential for (the shipment of) grain, fertilizer and possibly value-added agriculture products.”

Located on the Mississippi River near Tiptonville in Lake County, the Port of Cates Landing is close to Interstates 55, 155, 40, 24 and 69, as well as major air and rail freight centers of Memphis and the Canadian National Railway line. Its intermodal port dock will serve barge, rail and truck traffic.

The port, which has taken nearly seven years to complete, is built on the only developable site on the Mississippi River above the 100-year flood plain between Memphis and Cairo, Ill. It sits on 150 acres, with 350 adjacent acres in the Lake County Industrial Park.

Not only will the port make for easier shipping of agricultural and other goods, but it is also expected to help with a struggling economy in recent years for Lake, Dyer and Obion counties. At least one study projected the port could create as many as 5,600 new jobs in West Tennessee.

“(The addition of jobs) is a very, very important piece to the puzzle,” Harlan says. “Lake County has historically had pretty tough employment numbers.”

Marcia Mills would concur. Currently executive director of the Reelfoot Chamber of Commerce, Mills has been involved with Cates Landing since the project began.

“The port and the industry (expected to follow) will be the foundation of this area,” says Mills, who served as secretary of the Lake County industrial board during the project’s beginnings.

“We’ve waited so long for this,” she adds. “We’re almost from the brink of desperation to something wonderful, depending on what locates here. It’s already made an impact on a lot of the local businesses.”

– John McBryde

ONE STUDY HAS PROJECTED THE PORT OF CATES LANDING COULD CREATE AS MANY AS 5,600 NEW JOBS FOR WEST TENNESSEE.

– John McBryde
Agricultural laws, services help save farms and forests

In 2007, there were 79,500 farms and 11 million acres of farm and forestland in Tennessee. By 2011, those numbers had dropped by 2,200 farms to 10.8 million acres.

Those statistics translate to nearly 110 acres of land being converted from agriculture to other uses in the state every day. This downward trend is occurring at the same time the world’s population is growing, as is consumers’ reliance on the American farmer to provide food. These factors, as well as a passion for land preservation and conservation, have prompted many in the agriculture community to help landowners protect undeveloped land.

Photo by Martin B. Cherry
Agricultural laws, services help save farms and forests.
The Tennessee Farm Bureau Federation is one of the organizations working on that effort. A policy advocate for the farming community, the Farm Bureau supported the 1976 passage of the state’s Greenbelt Law, which provides for a specific formula to be used in calculating the value of farmland and, by extension, the property taxes assessed to the property. “The Greenbelt Law indirectly encourages the preservation of farmland,” says Rhedona Rose, Farm Bureau executive vice president. She explains that the formula is a way to determine a use value for the land, so that taxes reflect a realistic value based on what the farmer can earn from farming the land, rather than the value of selling it for development. “Without this law, some farmers, especially in more urban areas where land values are high, have told us that they wouldn’t be able to afford to farm the land and would have to look at selling it.”

Plus, there is a question of services returned for taxes paid, Rose says, who estimates that for every dollar in property taxes paid by farmers, they...
receive 50 cents to 65 cents of local government services. That compares with $1.25 to $1.50 of services homeowners receive for each dollar paid in property taxes.

But the Greenbelt Law isn’t just protection for farmers. It’s important to all Tennesseans, Rose says. “A strong agriculture industry provides for a strong quality of life,” she explains. “It’s important as a way to keep food prices reasonable and to ensure quality food and other products. Plus, there are benefits to everyone in terms of air quality, water quality and wildlife habitat when open space land is protected.”

**FORESTRY SERVICES FOR FARMLAND**

Brandon Bailey, a forester with the Tennessee Department of Agriculture Forestry Division, agrees. “We all live downstream from someone, and water quality is an important concern for the public and those of us in forestry. A good healthy forest is a filter that catches sediment before it enters the water supply. We work with landowners who are interested in managing their properties for sustainable forestry. We provide them with the best forestry science to help them achieve their goals for their property.”

He explains that such assistance can include an inventory of the trees that are on their land, technical advice on planting trees near water to discourage soil erosion and even recommendations on how best to improve wildlife habitat.

Jim Holden, who with his wife, Peggy, owns 75 acres in Woodbury, says services provided by the forestry division over the past six years have been a valuable partnership.

“We have a small creek on our property, and we have trees along the creek to keep the water cool. That keeps bacteria down, so that it’s a healthy habitat for the fish and wildlife. Brandon has provided me with a plan so that I know which trees along the creek are undesirable and can be cut down in stages and which new ones I should plant to hold the soil, as well as enhance the area for birds and other wildlife.”

Bailey and others from the division have also assisted Holden with a plan to encourage the return of quail to the area. They have also helped with controlled burns on six acres of his bottomland to encourage the development of healthy, warm season grasses.

“I don’t farm my land, but I want to make it a nice place to live for me and for wildlife,” Holden says. “Brandon and his team have a great deal of expertise that they are happy to share as I try to preserve my land.”

– Cathy Lockman

In 2007, Tennessee had **79,500 farms** and **11 million acres** of farm and forestland.

By 2011, those numbers had declined to **77,300 farms** and **10.8 million acres**.

**PHOTO BY JEFF ADKINS**

Beef cattle are a common sight on farms across Tennessee. Preserving this land is important to the future of the industry.
68 AUSTIN PEAY STATE UNIVERSITY – AGRICULTURE DEPARTMENT

74 CARGILL

64 CENTER FOR PROFITABLE AGRICULTURE

70 COLLEGE OF AG & HUMAN SCIENCES

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The Tennessee Farm Bureau is the collective voice of Tennessee’s farmers – and so much more. Through its affiliated service companies, Farm Bureau enhances and protects the lives of nearly one in three Tennesseans.