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Tennessee Ag Insider, A Guide the the State's Farms, Food, and Forestry, 2017 Edition

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Growing Into the Future

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We are, too—before it ever gets to the grocery store or a chef’s kitchen. While you’re enjoying a fresh, healthy meal like this one, our experts are out in the fields, in classrooms, and in cities across the state making sure your food is safe, affordable, and nutritious. From farm and field to favorite restaurant or family kitchen, UTIA is providing Real. Life. Solutions. every step of the way.

AG.TENNESSEE.EDU
16 A Varied Tennessee

The future is bright for the state’s farms, which are finding huge success by offering a variety of ag products – from fun festivals and tours of estates to local wines, organic meats and much more.

20 DOWN ON THE FARM

A new community supported agriculture trend is drawing consumers directly to local farms, helping bring people and farmers closer than ever before.

24 GROWING INTO THE FUTURE

West Tennessee’s large-scale farms are thriving thanks to agricultural innovation and crop diversification.
I WILL PREVENT WEEDS FROM SPREADING FIELD-TO-FIELD

They're out there, ready to invade. Seeds stuck to tractors and combines. I will take action and prevent them from spreading. I will do whatever it takes to stop the invasion. Now is the time to take action against herbicide-resistant weeds. Visit www.takeactiononweeds.com/request to get your free Take Action Kit and learn how you can prevent herbicide-resistant weeds from spreading.
## CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section Title</th>
<th>Article Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>SAVING THE SOIL</td>
<td>Tennessee’s farmers care for the landscape with no-till farming</td>
</tr>
<tr>
<td>32</td>
<td>VETERAN STRONG</td>
<td>Homegrown by Heroes helps farmer veterans connect with consumers</td>
</tr>
<tr>
<td>36</td>
<td>COW CARE</td>
<td>Tennessee dairy industry embraces technology, focuses on animals</td>
</tr>
<tr>
<td>40</td>
<td>‘A’ IS FOR AGRICULTURE</td>
<td>Tennessee farmers are teaching firsthand how food is produced</td>
</tr>
<tr>
<td>44</td>
<td>TAMING THE FLAMES</td>
<td>Firewise helps Tennesseans protect themselves and their homes from wildfires</td>
</tr>
<tr>
<td>46</td>
<td>BEYOND THE BARN</td>
<td>Tennessee 4-H youth build life skills through livestock competitions</td>
</tr>
<tr>
<td>50</td>
<td>GIVING STARTUPS A BOOST</td>
<td>AgLaunch’s new Accelerator program supports agricultural startups</td>
</tr>
<tr>
<td>52</td>
<td>STEWARDS OF THE LAND</td>
<td>Protecting soil, water for the next generation</td>
</tr>
<tr>
<td>56</td>
<td>MORE THAN MIDWAYS</td>
<td>Tennessee county fairs keep the primary focus on agriculture</td>
</tr>
<tr>
<td>60</td>
<td>HIGH COTTON</td>
<td>Jackson cotton gin produces high-quality products for export</td>
</tr>
<tr>
<td>64</td>
<td>TO-MAY-TO, TO-MAH-TO</td>
<td>Grainger County is known for its tasty tomatoes</td>
</tr>
<tr>
<td>70</td>
<td>FOREST GUMPTION</td>
<td>Property owners engage profit and protection to benefit forests</td>
</tr>
<tr>
<td>76</td>
<td>FRUITS OF THEIR LABOR</td>
<td>Tennessee’s wine, grape industries have a bright future</td>
</tr>
</tbody>
</table>

### TENNESSEE AG INSIDER

A guide to the state’s farms, food and forestry

**On the Cover**
Third-generation farmer Arnold Stanfield, here with his grandsons, farms corn, cotton and soybeans in McNairy County. Photo by Jeffrey S. Otto
RENEW YOUR FAITH IN cotton

The possibilities for cotton are limitless. Cotton prices have risen and fallen many times, but the demand for this renewable, sustainable resource always returns with new possibilities and advances in coming from research and promotion. The Cotton Research and Promotion Program is dedicated to finding innovative ways to ensure cotton continues to reach new markets for generations to come.

Learn more at renew.cottonboard.org.

Paid for by America’s cotton producers and importers.
There is no denying that we are fortunate to live in Tennessee. Look out almost any window or travel down almost any road and you are bound to see farmland, forests and waterways that set our state apart. This latest edition of the Tennessee Ag Insider magazine is taking the best of our state and putting it right into your hands.

Managing our land and water is a challenge every single day. Too much rain or too little rain can wreak havoc on crops and make it tough to feed livestock. The effects of drought were particularly evident in 2016, when extremely dry conditions led to a devastating wildfire season. The Tennessee Department of Agriculture worked around the clock for months to fight those fires and protect property and lives. Tennessee’s farmers and foresters do not shy away from those challenges to maintain the health and production of the resources in their care.

As you read these stories, you will get a better understanding of agriculture’s impact on and importance to our economy. When small communities prosper, our entire state benefits. Entrepreneurs and innovative thinkers are bringing their ideas to life in rural Tennessee. From wood to wines, community supported agriculture to agritourism, the products and ventures featured in this magazine are connecting consumers to their rural roots like never before.

Agriculture will always be a cherished and vital aspect of Tennessee’s identity. It’s on our state seal. It was the theme of our Christmas decorations at the Tennessee Residence this past year. Taking good care of our natural resources ensures the best use of our land and water today and for future generations of Tennesseans. The Tennessee Ag Insider highlights those stewardship achievements and the effort that goes into keeping our state beautiful, productive and beneficial for all who call this state home.

Thank you for your support of agriculture and forestry in Tennessee.
Welcome to Your Future

Undergraduate Degree Concentrations

- Agribusiness
- Agricultural and Extension Education
- Animal Science/Pre-Veterinary Medicine
- Biotechnology
- Food Technology
- Plant and Soil Science

PSM in Applied GIS
Ph.D. with Biotechnology Concentration

Graduate Degree Concentrations

- Agribusiness Management and Analysis
- Agricultural and Extension Education
- Animal Science
- Food Marketing and Supply Chain Management
- Plant and Soil Science

TENNESSEE STATE UNIVERSITY

www.tnstate.edu/agriculture
There is nothing quite so rewarding as watching something grow. Farmers and foresters see the faith and hope of renewal each time they plant a seed or seedling, or witness the birth of the next generation of livestock. Well-managed water and soil are critical to meeting the requirements of a growing population. Perhaps better than anyone, our farmers and foresters understand the importance of maintaining our lands and resources. We want to highlight their personal and voluntary leadership and investment. The Tennessee Department of Agriculture is proud to recognize that commitment to stewardship in this edition of the Tennessee Ag Insider magazine.

Agriculture is always changing to adapt to the needs of our world. Science and sweat often combine to make history. You will read about how farmers and researchers worked together to pioneer a method to save soil. Cover crops and cross-fencing led to improved maintenance of land and water, while precision agriculture and seed technology continue to increase yields and decrease impact on the environment. Tennessee is at the forefront of ag innovation, with agri-tech ideas that are coming straight from our farms.

Our forests remain one of our state’s best assets, and conservation plays a significant role. Wildfires scorched more than 74,000 acres in Tennessee in 2016. Forest management is key to helping our woodlands recover and regenerate. As many citizens focus on the health of the forests in their care, communities are taking responsibility too. Programs like Firewise are helping homeowners understand the risks and safeguard their neighborhoods.

Of course, family is at the heart of every farming and forestry operation. The families you will meet in this issue are diversifying with new crops, practices and experiences for visitors. As our society moves further away from our rural roots, many farmers are taking on a new role to share their love of the land. Education and opportunities offer the non-farming public a chance to understand where our food comes from.

We know our story, and it is one we are proud of. Thank you for allowing us to share that story with you.

Jai Templeton
Commissioner of Agriculture
Tennessee Department of Agriculture
A Tennessee farmer’s job is more than meets the eye

Day in and day out, Tennessee farmers go to work, growing an abundance of crops for food, producing fibers for clothes, allowing consumers to put fuel in their cars, and actively caring for the environment. It doesn’t matter if it’s raining or snowing, if it’s Christmas or they’re celebrating a birthday, or even if it’s 3 o’clock in the morning. Farmers go to work 365 days a year so that they can continue to feed the world. That is what it means to be a farmer.

Throughout this magazine, you’ll find examples of different types of farmers, all of whom are equally hardworking and important to Tennessee’s agricultural industry.

Of the 67,300 farms in the state, Tennessee has every size and shape, from traditional family farms to teaching farms to small farms specializing in one product, helping to make the industry successful and unique. Those operations spread across 10.9 million acres, or 40 percent of the state, averaging about 160 acres in size.

Some of Tennessee’s top commodities include soybeans, cattle and calves, goats, hay, broiler chickens, corn, cotton, tobacco, fresh-market tomatoes, and more. In fact, Tennessee is among the top four states in the nation for fresh tomato production, along with California, Florida and Ohio. Read more on page 64 about Tennessee tomatoes and Grainger County, where farmers produce some of the most flavorful tomatoes in the state.

But a farmer’s job is more than just growing crops or raising livestock. Farmers have an obligation and the desire to educate the next generation to keep the industry strong. They are always learning, keeping up with the latest technologies and making sure their agricultural practices are protecting the land while producing the most efficient yields.

They’re diversifying their operations, adding agritourism activities to teach consumers more about agriculture while supplementing their income. And they’re looking toward the future, always conscious of new innovations and techniques that will keep them profitable and growing strong.

– Rachel Bertone
Daniel Allen and his wife, Stephanie, grow a variety of crops for their CSA program at Allenbrooke Farms in Spring Hill.
PREPARING THE FUTURE

The youth hold the key to Tennessee’s agricultural future, and that’s why programs such as FFA, 4-H and Ag in the Classroom are making sure they’re prepared.

4-H invites youth from elementary school through high school to learn talents and skills in everything from nutrition, health, photography, beekeeping and food science to leadership, gardening, electricity and more. FFA targets high schoolers and college students, giving them the skills they need for more specific agricultural areas, ultimately preparing them for a career in the industry. Ag in the Classroom helps incorporate agriculture into daily school lessons for kids in grades K-12.

Learn more about Tennessee’s youth agriculture education programs by visiting 4h.tennessee.edu, tnffa.org and tnfarmbureau.org/tn-ag-in-the-classroom.

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92.8% PERCENTAGE OF TENNESSEE FARMS OWNED BY FAMILIES

140K TENNESSEE HARVESTED 140,000 ACRES OF COTTON WITH A PRODUCTION VALUE OF $87.5 MILLION IN 2015.

There are 11 colleges in Tennessee offering ag degrees including the University of Tennessee, Tennessee Technological University and Middle Tennessee State University.

THE AVERAGE SIZE OF A TENNESSEE FARM IS 160 ACRES.

Sources: USDA National Agricultural Statistics Service, USDA Census of Agriculture, Agriculture-schools.com/tennessee
MACHINERY ON SHOW

Memphis’ annual Mid-South Farm and Gin Show lets farmers and producers get up-close and personal with some of the industry’s latest equipment, offering ideas to improve their operations. Held at the Memphis Cook Convention Center, guests have the opportunity to browse three floors showcasing new equipment, and talk with industry and company representatives. There are more than 400 exhibitors present. The show has been held in Memphis for more than 60 years and attracts close to 20,000 domestic and international producers growing cotton, soybeans, wheat, rice and more. Many of the show’s attendees leave inspired and make a purchase within six months of attending. The 2018 show will be March 2-3. Learn more at farmandginshow.com.

A NEW BEGINNING

Many of today’s young farmers have the guidance and expertise from older farming generations within their families. But for those who don’t have a mentor to help them get started in agriculture, the University of Tennessee Institute of Agriculture is here to help.

The Beginning Farmer workshop is a full day of education for anyone interested in starting a farming enterprise with no prior experience. Workshop topics include agricultural language, basic crop and livestock needs, equipment and tools, potential risks, and more. The workshop is held on several dates and different locations throughout the year. Learn more at ag.tennessee.edu.

TENNESSEE HAS MORE THAN 1,600 CENTURY FARMS. OF THOSE FARMS, 10 HAVE AFRICAN-AMERICAN FOUNDERS AND FOUR HAVE FEMALE FOUNDERS.

Source: Tennessee Century Farms

SOY WHAT?

Soybeans are a leading crop in Tennessee, valued at more than $735 million in 2015. Farmers harvested more than 1.7 million acres, with a yield of 46 bushels per acre that same year.

Soybeans have a role in many different aspects of agriculture. Animal agriculture is the industry’s No. 1 customer, and soybean meal is used to feed chickens, turkeys, hogs, cattle, farm-raised fish and more. Soybean oil is used to make biodiesel. Soybeans are high in protein, healthy fats, fiber, and other vitamins and minerals, which are obtained through soy foods such as soymilk.

Learn more about Tennessee’s industry at tnsoybeans.org.
Who’s Your FARMER?

The most important people in your life are the ones you know by name. You meet them face to face, and you depend on them to be good at what they do. Who’s more important than the one who grows the foods you eat? With the Pick TN mobile app, it’s easy to meet the farmers near you at farmers markets, with CSAs and “pick-your-own” farms.

Find your farmer with the “Pick TN” mobile app and www.PickTnProducts.org
TENNESSEE’S PRINCIPAL AGRICULTURAL COMMODITIES

A glimpse at the state’s leading ag products

CATTLE AND CALVES
The cattle and calves industry is Tennessee’s largest ag sector. Overall, the state has more than 1.7 million cattle and calves, which earned $783.4 million in production value in 2015. Tennessee ranks 12th nationally in beef cow inventory.

HAY
In 2015, Tennessee farmers produced 1.7 million acres of hay, not including alfalfa. That resulted in 3.9 million tons of other hay harvested, with a production value of more than $431.2 million. For alfalfa, 51,000 tons grew on 15,000 acres, resulting in $11.5 million in value.

MILK
Tennessee’s 45,000 dairy cows produced 742 million pounds of milk in 2015. That’s roughly 16,500 pounds from each cow every year. Milk earned more than $139.4 million in production value.

SOYBEANS
Soybeans are used to feed livestock, for human consumption, to make biofuels and more. In 2015, Tennessee farmers earned a production value of more than $735.8 million from 79.1 million bushels.

TOBACCO
Tennessee is third in the nation for tobacco value and fourth for pounds of tobacco produced. Local farmers yielded 48.5 million pounds for a production value of $114.8 million in 2015.

WHEAT
Tennessee fields yielded more than 26.8 million bushels of winter wheat in 2015. Winter wheat is used primarily for all-purpose, pastry and cake flours. The crop earned a $142.3 million production value.

BROILERS
The U.S. has the largest broiler chicken industry in the world. In 2015, Tennessee farmers raised 185.2 million broilers, or chickens for meat, earning a production value of $528.1 million.

FRESH-MARKET VEGETABLES
Tennessee’s fresh-market vegetable crop earned a production value of more than $76.5 million in 2015. In fact, the state has the fourth highest fresh-market tomato crop in the U.S.

CORN
In 2015, Tennessee’s farms yielded 160 million bushels of corn, which is used to feed livestock, make biofuels and more. The state’s crop earned more than $449.6 million in production value.

COTTON
Tennessee was eighth in the nation for most harvested acres of cotton in 2015. Local farmers yielded 302,000 bales, earning a production value of more than $87.5 million.

The state is No. 13 in the U.S. for number of horses, ponies and mules.

Tennessee has
67,300 FARMS,
making it No. 11 in the nation for number of farms.


$4.7M
Tennessee’s certified organic farms sold $4.7 million of organically produced commodities in 2015.

1 – Greene 2 – Lincoln 3 – Giles 4 – Bedford 5 – Maury

$4.7M
Tennessee’s certified organic farms sold $4.7 million of organically produced commodities in 2015.
FARM DIVERSIFICATION

A VARIED
TENNESSEE

State’s farms benefit from growing, offering diverse products
REDUCE THE WEED SEEDS IN MY SOIL

I will know my weeds. I will target their strengths. I will exploit their weaknesses. Preventing weed seed production is essential to weed management. Because fewer seeds today mean fewer weeds tomorrow, visit www.takeactiononweeds.com/request to get your free Take Action kit and learn how you can prevent herbicide-resistant weeds from spreading.
Tennessee farmers are looking toward the future for long-term success. That includes expanding their farms by adding new crops and activities. Diversified ag products include agritourism, aquaculture, fruits and vegetables, honeybees, horticulture, organics, and value-added goods.

Farmers like Jamie Weaver from Estill Springs are thinking ahead.

“We’ve always been diversifying,” says Weaver, who owns and operates Weaver Farms with his dad, Ray, and with support from his mom, Elaine, and wife, Ashley. “In my lifetime, everybody has become more specialized. We like the different challenges that come with farming. You don’t get stuck doing the same thing.”

Diversifying a farm helps farms by lessening the risk of relying too much on any one crop or animal.

“One day you’re working with cows, next day you’re row cropping, and the next you’re in the vineyards,” Weaver says. “But the big benefit is that you can spread the risk by being diversified.”

Broadening an operation is nothing new for the state’s farmers, as many have found different ways to make or supplement income. The Tennessee Department of Agriculture has helped thousands of farmers through its Tennessee Agricultural Enhancement Program, established in 2005.

**SOMETHING NEW**

For Weaver Farms, the first step was growing grapes, with the family planting its vineyards in 2008. The farm has been operating for seven generations. A former dairy operation, it has raised row crops, hogs and beef cattle.

Most of the grapes grown at Weaver Farms are sold to nearby Beans Creek Winery in Manchester, and others are processed into grape jellies sold on the farm or at farmers markets. The operation also sells its own beef and pork.

Next on the list is the installation of high tunnels.

“We’re trying to get some produce in nonpeak times,” Weaver says. “We’re going to farmers markets anyway with our meat; so why not have some produce, especially during nonpeak times? We’re always looking for something new.”

Brant Crowder, farm manager of Old McDonald’s Farm in Sale Creek, has a similar outlook. In the past, he recognized the importance of diversification when weather conditions posed a challenge. The choice came after a severe drought in 2008.

“That led us to looking at other things,” he says. “We realized the only way we were going to make ends meet was to do something other than just row crops and cattle.”

A venture into agritourism seemed to make the most sense for Old McDonald’s Farm. When the extremely dry weather began to affect production, the farm opened its doors to visitors, eventually launching fall festivals and other events. In addition, the farm allows barn sales so vendors can sell antiques, arts and crafts, and various foods.

“We just finished our sixth year [in 2016] in agritourism,” Crowder says. “It’s been fairly successful. Even with the hot and dry weather this year, we still had about 20,000 visitors.”

Old McDonald’s Farm plans to also feature school field trips in the spring and add a Christmas festival.

To find the farms near you with pick-your-own crops, agritourism activities, retail meats, CSAs or other farm-direct consumer opportunities, use the free Pick TN mobile app or visit [picktnproducts.org](http://picktnproducts.org).

– John McBryde

Farm families such as the Weavers in Estill Springs are thriving thanks to expanding their operations. The Weavers grow wine grapes, raise cows and more.
DOWN ON THE FARM
More Tennesseans are getting a taste of fresh, locally grown food from beyond the grocery store. Often, consumers get this food through a local farm’s community supported agriculture program, or CSA. Members sign up to receive a share of the farm’s in-season produce or meats each week. Traditionally, items are delivered or picked up by the member at a drop site. However, more and more farms are moving toward a market-style model, giving their members a chance to pick up shares right on the farm – and a chance to make even more of a connection with the farming community.

PART OF THE ‘FARMILY’

At Allenbrooke Farms in Spring Hill, every CSA share that is sold is picked up at the property.

“We’re only 3 miles out of town, but it still saves a lot of time and cost for delivery,” says Daniel Allen, who farms 12 certified organic acres with his wife, Stephanie.
Allenbrooke Farms’ CSA grew from 99 members in 2012 to 375 members in 2016.

“We both quit our jobs in 2011 and sold our car to buy seeds,” Stephanie says. “We call it our CSA ‘Farmily.’ Many of our Farmily members from the first year are still with us, and we’ve seen their families grow as they’ve seen our farm and family grow.”

**STRENGTHENING BUSINESS**

After Byron Hill’s early retirement from the hospitality industry, he and his wife, Lynn, started Hill Family Farm in White House in 2014. The couple’s son, Chris, also works at the farm. The farm has a CSA program. According to Byron, on-farm pickups help build the local CSA community.

“When you bring people out to the farm, they become a part of it,” Byron says. “They see what we’re doing and how we raise our animals. We get to spend a little time with them, and their kids get to see the farm.”

The farm’s CSA grew from 14 members in its first year to 85 in 2016, with a goal to grow to 125 members in 2017, with on-farm pickups only.
Hill Family Farm sells produce, pork, chicken and eggs.

“Our produce CSA members are likely to buy some eggs or they might buy some chicken or pork when they’re here to pick up their shares,” Byron says. “That has helped grow our farm sales.”

PICKING AND CHOOSING

Farms offering on-farm CSA pickups are also giving members more choices of what to take home. Allenbrooke Farms provides its members total choice from the food it grows.

“They grab an empty basket, and as they go through the line, they get to fill it up with whatever they want. It’s a buffet,” Stephanie says.

Byron says having the ability to pick what items they want is becoming more important to consumers in a CSA program.

“We are moving toward only limiting choice when it comes to a few products we have less of, like strawberries,” says Byron, who grows 3 to 4 acres of both fruits and vegetables.

Some CSA members still enjoy the challenge of a CSA share that encourages seasonal eating, Byron adds. “Even while providing choice, we’re sure to talk up some of the crops they may be less familiar with and offer recipes and cooking tips, encouraging them to try different produce,” he says.

Allenbrooke Farms encourages its members to take on new food adventures. Stephanie offered cooking and other demonstrations on the farm, but she had to move them to a larger location to accommodate more people because of increased interest.

One of the biggest benefits of on-farm pickups is that it frees farmers to do what they do best: grow food.

You can find a CSA near you at picktnproducts.org and on the Pick TN Products mobile app.

— Matt Ernst
Agriculture has been the livelihood of farm families in Tennessee for generations. Out of the state’s nearly 70,000 farms, about 90 percent are family-owned. Approximately 5 percent of those are large-scale farms, which play a critical role in the sustainability of the industry and are significant contributors to the local economy. Large-scale farms are 2,000 acres or more in size and use various industrial methods to maximize production.

This is especially true for West Tennessee farms, where warmer temperatures, fertile soil and flat topography contribute to the success of profitable row crops.

**GENERATIONS OF GROWTH**

Owned by fourth-generation farmer Eric Maupin, Dyer County’s Maupin Farms has operated on the same land for the last 80 years. Maupin farms 3,000 acres of wheat, corn and soybeans, along with a beef cattle operation.

“My great-grandfather started our farm in 1937. Thank the Lord, it’s gotten larger over the years. Every generation’s been able to add to it,” Maupin says. “I’m very proud that since my great-grandfather went from sharecropping to owning his own land, our family has been employing people.

“We have been a small business in our community for decades, and that’s something that we’re real proud of,” he says. “At the end of the day, our gross sales turn over in the local economy two and a half times. When agriculture’s doing well, especially in our rural communities, the entire community thrives.”

Maupin, who left a career in West Tennessee’s family farms add to the economy through innovation, diversification.
agriculture marketing to farm full time after his father retired, says the family farm has to grow in order to remain viable.

“In 1937, farmers could pretty much make a living off of 100 acres, but as the economy has changed, the profit margin per acre has gotten smaller, so we’re having to farm more and more acres to be able to make a living,” he says.

Arnold Stanfield, a third-generation farmer in McNairy County, agrees adding that equipment and production costs have also made profitability more difficult for smaller farms.

“You can afford your equipment a whole lot better with a large-scale farm. As a small farm, you can’t afford to buy a good piece of equipment. You just can’t do it,” says Stanfield, who, along with his two sons, farms corn, cotton and soybeans on 3,300 acres.

Maupin agrees. “When my dad started farming, you could buy a brand new combine for $5,000, and now a new combine will cost you $300,000. To be able to justify that, you need to farm more acres,” he says. “That also helps us spread our risk a little bit as we farm larger and larger. We’re spread out more, so something that happens in one particular area – say, we don’t get enough rainfall – hopefully it averages out if you’re covering a large enough land mass.”

**USING TECHNOLOGY WISELY**

Stanfield, who harvested his 40th crop in 2016, says technology and innovations in cultivation practices have helped his family sustain their farm.

“We’ve gone from driving a tractor to the tractor driving itself. Precision farming has really changed,” he says. “We also work with the University of Tennessee-Martin Extension and put a lot of faith in them. We do some test plots ourselves on the farm.”

Maupin says he believes technological advances have had a great impact, allowing farms of all sizes to operate efficiently.

“With technology, we’re able to map our fields,” Maupin says. “Everything from calculating fertility to distribution of our seed is done by the grid. We’re trying to get the maximum yield that the farm can produce at the lowest cost. We’re doing a better job of studying our micronutrients within our farms; we’re doing a better job of keeping our fertility at the right level. We leave a smaller environmental imprint when we do that,” Maupin says.

“We’re doing everything more efficiently so that hopefully generations from now my family will still be farming that same ground that my great-grandfather bought, and that ground will actually be more productive and have better soil,” he says.

– Teree Caruthers
Tennessee farmers have been transforming the landscape for decades with no-till farming methods, helping to restore the state’s soils. In fact, the University of Tennessee’s Research and Education Center at Milan has been a leader in this effort since 1981. The research conducted by UT AgResearch at Milan is known worldwide.

While no-till farming is the norm in Tennessee today, it hasn’t always been the case. “About four decades ago, West Tennessee was ranked as one of the top areas in the U.S. for the highest soil erosion rate,” says Don Tyler, retired professor for the University of Tennessee Institute of Agriculture. The average soil erosion rate for Tennessee at that time was 40 tons of soil per acre per year.

Unlike tillage, commonly known as plowing, no-till methods leave soils undisturbed, allowing crop residue to remain on the surface, protecting the topsoil from runoff. Seeds are planted in rows in the soil. In contrast, tillage leaves soil “bare” and highly susceptible to erosion.

Some soils across Tennessee are considered fragile, Tyler says, but West Tennessee’s are especially susceptible.

“The soils in West Tennessee are especially erodible because they are very silty soils,” Tyler says. “They are almost like talcum powder – very silty and easily moved by water if they’re exposed and tilled.”

As an example of how easily soil can erode with tilling versus no-till, Tyler says, “We have data that shows in till systems, one storm can result in the loss of more than 10 tons of soil per acre, whereas...
I WILL SCOUT MY FIELDS
I WILL WALK MY ROWS. I WILL STAND MY GROUND. I WILL TRACK DOWN ESCAPEES AND LATE EMERGERS.
I WILL STOP WEEDS WHERE THEY START BEFORE THEY BEGIN TO TAKE OVER. NOW IS THE TIME TO TAKE ACTION AGAINST HERBICIDE-RESISTANT WEEDS. VISIT WWW.TAKEACTIONONWEEDS.COM/REQUEST TO GET YOUR FREE TAKE ACTION KIT AND LEARN HOW YOU CAN PREVENT HERBICIDE-RESISTANT WEEDS FROM SPREADING.
a no-till system right beside it with the same measurements may result in 1/10 of a ton loss. It’s a huge difference.”

Today, Tennessee is a shining example of the no-till success, with up to 90 percent of the state’s farms using no-till practices, according to the USDA National Agricultural Statistics Service. This change was possible thanks to the assistance and innovation of the University of Tennessee Extension and UT AgResearch, within the University of Tennessee Institute of Agriculture, and Tennessee’s row crop farmers who saw the benefits and invested in the technology to make no-till a reality.

Tyler was one of the many team members enlisted to research and help Tennessee adapt its tilling ways that were having a negative impact on the land.

“With no-till, we’ve dramatically reduced the manmade accelerated soil erosion,” Tyler says. “A lot of the soil that we have now in the state would not be here if we did not go no-till. The soil was eroding at such a high rate, and there would be fields today that would have been abandoned if we did not make the change. We have many farmers now who have been completely no-till for 30 years,” he adds.

**HUGE BENEFITS**

Farming in Dyer and Lauderdale counties, along the Mississippi River, Jimmy Moody experienced firsthand the positive changes that no-till methods brought to his West Tennessee farm.

Moody, who is in his mid-60s, farms on his own family operation and at Cold Creek Farms with a business partner, growing soybeans and cotton. Back when he used to till all of his land, he would need to burn crop residue, till soil and plow weeds. But since he took up no-till, he directly plants crops and controls weeds with advanced herbicides that were unavailable several decades back.

“When I was young, using no-till was unheard of,” Moody says. “No-till is good for the soil, reducing soil erosion and increasing organic matter in the surface soil. Plus, it encourages flourishing earthworm populations – which are a great indicator of soil health and create channels to flow water into soil and reduce runoff. No-till farming has economic benefits, too. “Farmers using no-till are minimizing their labor needs, the time it takes to actually farm, reducing fuel costs dramatically, and a lot of them can farm on a much larger scale than they would be able to otherwise, which has almost become necessary to survive,” Tyler says.

Moody agrees. “There’s no way that I could be farming on the scale that I am today without no-till farming,” he says.

— Brittany Stovall
Farmer veteran Charley Jordan, an active duty soldier of nearly 30 years, is a “Homegrown Hero.” He owns and operates Circle J Ranch in Woodlawn.
Veteran STRONG

Homegrown by Heroes helps farmer veterans connect with consumers
With a 28-year career in the Army and many combat tours under his belt, Charley Jordan finds peace when he comes home to his cows.

The global war on terror delayed the military man’s farming dreams until 2009, when he finally bought a small herd of cattle and started Circle J Ranch in Woodlawn.

“When I first started out, I didn’t realize what farming was doing for me,” says Jordan, an Army aviator who plans to retire soon. “Every time I came home from being overseas or somewhere else, I would see my cows and farm. All of a sudden I got this calm feeling. It is very therapeutic.”

Every veteran has a story to tell, and Jordan says Homegrown by Heroes helps tell it.

The Homegrown by Heroes program is America’s official branding effort of the Farmer Veteran Coalition. In 2016, the Tennessee Department of Agriculture’s Pick Tennessee Products marketing program partnered with the brand to bring its marketing potential and logo use to the state.

Military veterans and active-duty members who farm may apply to Homegrown by Heroes and use its accompanying patriotic logo that tells consumers that a veteran farmer grew or made that local product. The program also facilitates educational agriculture programs and fosters networking with other veteran farmers.

“Homegrown by Heroes is just a wonderful program that really gets out the word and the story of veterans who have decided to make agriculture their life and their love,” Jordan says.

**MAKING A CONNECTION**

Fellow Tennessean and veteran Roger Nell grew up in a city, but he bought a Montgomery County farm when he came home from his deployment to Iraq. He served 26 years between active and reserve time in the Army before his retirement in 2013.

An attorney by day, Nell works with neighbor Tom Biggar to buy calves and raise them to sell as freezer beef under the label B&N Custom Beef. Nell recently joined Homegrown by Heroes to further brand his beef.

“From the producer standpoint, it’s always good to be able to tap into a market. There are a lot of people out there who are looking to support veterans,” Nell says. “From the consumer standpoint, I would like to think that if consumers knew nothing else about people with a military background, that they know they are going to get what they are expecting. They can trust the product.”

Nearby, about 20 miles from Fort Campbell, Jordan also

**“Homegrown by Heroes is just a wonderful program that really gets out the word and story of veterans who have decided to make agriculture their life and their love.”**

**CHARLEY JORDAN**
Army veteran and owner of Circle J Ranch

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**NUMBER OF HOMEGROWN BY HEROES MEMBERS IN 48 STATES AND PUERTO RICO**

550

40%

40 percent of those who serve in the military come from America’s rural communities.

**IN 2016, TENNESSEE OFFICIALLY PARTNERED WITH HOMEGROWN BY HEROES TO PROMOTE THE PROGRAM’S LABEL ON FARMER VETERAN PRODUCTS.**

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Source: Farmer Veteran Coalition
LEARN MORE
Farmer veterans interested in Homegrown by Heroes should contact the Farmer Veteran Coalition directly at support@farmvetco.org. They can also contact Greer Gill with the Tennessee Department of Agriculture at greer.gill@tn.gov or (615) 837-5163.

Fitting the Farmer Mold
A born-and-raised Florida beach kid, Jordan learned to love agriculture when his military family transferred to South Dakota. Through the Army, Jordan gained the skills to face farming’s challenges.

“The military puts in us ‘not to quit.’ We have a lot of perseverance and traits that apply great to agriculture,” Jordan says. “I’ve experienced losing a cow and dealing with nasty floods and re-fencing the pasture. Instead of quitting, I persevered.”

Nell says the military teaches skills of organization, planning and problem solving, which apply to many situations in life, farming included. He also finds farm life healing, as Jordan explains.

“Farming is really something that brings me back to reality and calms my mind,” Jordan says. “This is what I want to do – have a peaceful existence on this planet. And I see how farming affects other veterans, too.”

— Joanie Stiers

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Tennessee dairy industry embraces technology, focuses on animals

Tennessee’s dairy industry is milking success. With 288 dairy farms, the industry ranks No. 7 in Tennessee’s list of top agricultural commodities. In 2016, Tennessee’s dairy cows produced a total of 742 million pounds of milk, which is the equivalent of 86 million gallons. In fact, each dairy cow provides an average of 6.3 gallons of milk per day.

GILMAC DAIRY

Hardworking dairy farmers are behind the state’s success, including Jason Gillespie, owner of Gilmac Dairy in Chapel Hill. Jason farms with his brother, Jonas, milking about 100 registered Jersey cows. The family farm has been passed down through the generations, starting with his grandfather in 1952.

“We have an annual production of 1.6 million pounds per year,” Jason Gillespie says. “We just sell milk.”

He says that as a farmer, animal care is one of the most important aspects of success.

“If we don’t take care of our animals, we won’t be profitable,” Gillespie adds. “The animals are taking care of you, so if you don’t take care of them, financially, you won’t survive very long.”

He adds that if a cow seems sick, Gilmac Dairy does its best to diagnose the problem, call a veterinarian, and do the most
humane thing possible for that animal.

“If you abuse your animals, you’re just abusing yourself,” Gillespie says.

DAVIS BROTHERS DAIRY

Samantha Craun works with her family at Davis Brothers Dairy in Philadelphia, Tennessee, including her mother, sister, brother-in-law and husband. Her late father, Randy Davis, who passed away in 2016, and his brother started the farm in 1984. They milk an average of 800 dairy cows per day.

“My role is taking care of the cows,” Craun says. “Sick cows, breeding, overseeing anything with the cows and parlors is all part of my job.”

Craun graduated with a degree in dairy science from Virginia Tech University, but she says the plan wasn’t always to come back to the family farm.

“I really fell in love with the industry at college and figured out I wanted to dairy farm as my career,” she says.

Over the past few years, Craun says Tennessee’s dairy industry in general has changed and evolved, with new technologies helping to improve both farm efficiency as well as animal care.

Recently, Davis Brothers Dairy installed a digital monitoring system that tracks each cow’s activity, letting Craun and her family know whether a cow is in heat or needs to be bred, and tracks rumination, or eating patterns.

“Dad called it a Fitbit for cows,” Craun says. “With that system, we’ve learned to catch sick cows a lot sooner than we normally would. We know exactly when she stops eating or doesn’t move as much and can tell that she’s off.”

Craun says the farm also has an automatic feeding system for calves, so you don’t have to have someone manually filling up bottles.

Though the technology makes life a little easier for the family, Craun emphasizes that animal care is the top priority, and that’s what almost all of the advancements focus on.

“We’ve always said that we take better care of our animals than we do ourselves. There are all kinds of preventative things we can do to keep cows happy and healthy,” she says. “The industry has come a long way with these technologies, and we can prevent a lot of diseases just by keeping better track of the cows.”

As for the future, Craun says Davis Brothers Dairy is always striving to be better at everything they do and becoming more efficient. She hopes to continue her father’s legacy of promoting Tennessee’s dairy industry and consumer education for years to come.

– Rachel Bertone

“Learn more about how Tennessee’s dairies care for their animals at TNagriculture.com.”
‘A’ is for Agriculture

Falcon Ridge Farm in Toone is a perfect setting for weddings, retreats, birthday parties, or a day away from the hustle and bustle of the city.

Staff Photos by Michael D. Tedesco
When asked about their work, most farmers will tell you there’s never a dull moment. After all, they wear many hats – producer, planner, laborer, caretaker and even teacher. The farmer’s role as educator has become increasingly important in recent years, as consumers are returning to farmlands asking where, and how, their food is produced.

One way farmers are educating the public is by opening their doors to visitors. For Tennessee operators looking for examples, look to the models set by Falcon Ridge Farm and Apple Valley Orchard. Both are successfully addressing consumer concerns and teaching the next generation what it’s like to be a modern-day farmer.

FALCON RIDGE FARM

The Gilmers of Falcon Ridge Farm in Toone have always been blessed with fresh fruits and vegetables. The fourth-generation farm family wants to share this luxury with others, so they held their first fall festival complete with corn maze and pumpkin patch in 2009.

“We have been adding a new event or attraction to the farm each year since,” owner Ray Gilmer says. “We really enjoy sharing our farm
with the public. It is such a joy to see children learning about life on a farm. We hope to inspire a new generation to carry on the tradition.”

To accomplish this goal, Falcon Ridge offers an Easter festival with egg hunts and the Easter Bunny; a strawberry festival featuring strawberry picking and a strawberry-eating contest; and cut Christmas trees where families take a wagon ride out to the fields. Not to mention pick-your-own blueberries and blackberries.

The farm also has animal and crop interaction with all of its events. For example, school groups attend “Mr. Ray’s Horse Lesson” and learn about equine history, anatomy, diet and proper care. Gilmer also shares his experience with training breeds like the Tennessee Walking Horse.

Falcon Ridge Farm also runs a community supported agriculture program, or CSA, offering consumers fresh fruits and vegetables along with knowledge about how that food is grown. The farm teaches how to properly clean, store and prepare produce.

APPLE VALLEY ORCHARD

Starting with just two apple trees in the 1960s, Apple Valley Orchard now boasts approximately 15,000 trees off the back roads of Cleveland. About 98 percent of the orchard’s produce is sold at a store located right on the farm – making visitor interaction and education essential.

“We love talking to customers on the retail floor and helping them make decisions on apples,” owner Chuck McSpadden says.

“We also get a lot of elementary school field trips. In September and October, Monday through Friday, we are booked every day with 100 to 150 kids. We do a trailer ride through the orchard and talk about insects, how we control them and why we have to protect our apples,” he adds.

In addition, the orchard offers public tours during weekends in September and October, educating consumers about growing apples.

“I get a lot of questions about spraying on our farm; we are very open about what we spray and how we spray,” McSpadden says. He always tells the curious minds, “I’m vigilant and careful about what we spray, because I probably eat more apples than anybody!”

There are a lot of misconceptions, McSpadden says. Such candid talks with consumers help dispel myths, and may encourage them to opt for more farm-fresh foods in the future.

You can find learning opportunities on farms across Tennessee. Access the Pick TN Products mobile app or visit picktnproducts.org to find farms that offer educational tours, farm crop festivals, seasonal products and activities for all ages.

– Keri Ann Beazell
Tennessee’s eradication of an invasive cotton pest is an unmistakable success.

The boll weevil, which feeds on the fruit – or boll – of cotton plants, first entered the United States in 1892 near Brownsville, Texas. Within 30 years, it spread across the South and devastated the Cotton Belt.

“Earning the title of America’s Most Destructive Agricultural Pest in many circles, the boll weevil is without dispute one of the worst pests the U.S. has ever had to deal with,” says Boyd Barker, Boll Weevil Eradication Program administrator at the Tennessee Department of Agriculture.

“Due to the historical importance of cotton to the economy of the South, you can see why many experts contend that the boll weevil was second only to the Civil War as an agent of change in the region,” Barker adds.

For decades, growers attempted to control the boll weevil with every method imaginable. However, it wasn’t until a nationwide Boll Weevil Eradication Program was put into place that the South began to see a real change.

“The results of the Boll Weevil Eradication Program have been nothing short of phenomenal,” Barker says.

The program was first piloted in the late 1970s and later launched in Tennessee in 1994. It relies on a synthetic hormone attractant, a trap and insecticide.

The eradication’s active phase in Tennessee completed in 2008. The program has increased cotton yields and reduced insecticide usage, representing substantial economic and environmental gains.

“With such a win-win scenario, it is no wonder the program has been characterized as one of the most successful private/public partnerships in American history,” Barker says.

– Brittany Stovall
Marilyn and Gary Stephens were in Florida when they got the call: their Tennessee property was under threat of wildfire.

The call came in April 2016, some 10 years after the couple had built their getaway home in the English Mountain community of Sevier County. A suspected act of arson had ignited a fast-spreading wildland fire, threatening the Stephens home as well as many others in the community.

“I panicked,” Marilyn says. The couple swiftly left for Tennessee. “When we finally got there, I don’t think I was ever so thankful to see a home still standing. The fire burned all the way around, but none of the homes were damaged.”

The fire burned about 300 acres and forced at least 30 homes to be evacuated. Marilyn and her neighbors quickly credited the response and diligence of firefighters who “were incredible,” she says. “They stayed at least a couple of nights to help keep the fire from damaging any homes.”

But Marilyn and her neighbors were prepared as well, taking proactive steps and responsibility to help protect themselves and their homes from wildland fires. The English Mountain residents participated and became certified in the national Firewise Communities program.

**SPREADING THE WORD**

The Firewise program is a national multi-agency effort designed to reach beyond the fire service. It involves homeowners, community leaders, planners, developers and others in the effort to protect people, property and natural resources from the risk of wildland fire before one ignites. Communities actively work to reduce wildfire risks.

Preparation includes making action plans, taking free education courses and making a home “Firewise” by taking steps like removing leaves or brush from property.

If not for Firewise and the extra steps taken by residents to protect their community, some of the English Mountain homes would have burned, according to fire officials.

The program is being promoted across the state in communities similar to English Mountain and in cities, counties, and local fire
departments. The Tennessee Fire Chiefs Association named Bolivar Fire Chief Lynn Price as Fire Chief of the Year after he made the city the first one in Tennessee to become Firewise certified.

To get the word out in English Mountain, Leon Konz, of the Tennessee Department of Agriculture Division of Forestry and Firewise coordinator for East Tennessee, met with residents to present information about the Firewise program, visiting individual homes to point out actions homeowners could take to better prepare for fires.

“Just getting rid of a few leaves and pine needles off the roofs, out of gutters and around the house can go a long way toward protecting your home from wildfire,” he says. “And it’s all free. The Division of Forestry does not charge to come out and inspect a home or talk to a community.”

‘WE’RE BELIEVERS’

Cindy and Ron Mitchell weren’t familiar with Firewise when they moved to their English Mountain home in 2011, but they learned about the program just a few months later when they nearly lost their home from a fire that had started in a neighboring condominium.

There was no damage, but the incident prompted Konz to visit the community at that time to spread the good word on Firewise. Just as the Stephenses did, the Mitchells heeded his advice.

“We formed a Firewise committee,” says Cindy, now chair of the committee. “Leon was great in helping us with the process. We had a Firewise day in June 2015, and later that year we were recognized as a Firewise Community.”

In becoming certified, a Firewise Community can become eligible to receive federal grants toward continuing to protect a neighborhood and individual homes from potential fires.

“I guarantee we’re going to continue with all the Firewise steps because they saved us, our neighbors and other participants,” Marilyn says. “We’re believers.”

– John McBryde

Learn more about Firewise at burnsafetn.org/firewise.html and firewise.org.

Cindy and Ron Mitchell, along with their neighbors in the English Mountain community in Sevier County, help protect their homes through the Firewise program.
Tennessee 4-H youth have much to gain from livestock competitions, such as a sense of responsibility, initiative and other skills that will last a lifetime.

For example, Brian and Samantha Easterly McLerran in Clay County can already see how 4-H livestock competitions are helping their children. Ella, 13, and Brie, 11, have completed swine, sheep and beef cattle projects. Members of the Clay County 4-H Club, the McLerran family has been extremely active in hog, sheep, goat and beef projects for decades. The girls’ younger brother, Cord, will soon participate in 4-H animal projects too. He may get his start with pigs, which is a common beginning project for many 4-Hers.

“We love seeing the older kids helping the younger kids with their hogs,” says Brian, a sixth-generation farmer.

Samantha, a physician, says Brie and Ella are already learning important life lessons. “We turn them loose with a living animal. It’s their responsibility to care for that animal,” she says. “It helps them learn to set and achieve goals. And, as a mom, I also like them learning that you are going to fail sometimes but you come back knowing what you can do better and try again a little harder.”

Adult 4-H leaders are a big part of that process, keeping a healthy focus on character development.

“We realize that we’re raising kids and training kids. It’s not all about who takes home the awards,” Brian says.

That adult influence lasts after 4-H – something Brian knows personally. He praises recently retired Clay County University of Tennessee Extension Director Randall Kimes.

“Mr. Kimes was the reason I stayed in college,” Brian says. “After my first semester I was pretty
disheartened with my grades. Mr. Kimes found out about my grades and looked me up over the holidays. He gave me the encouragement and the advice to make it in college.”

COMPETING BEYOND THE SHOW RING

Skillathons test the 4-Hers in everything from identifying equipment to questions about proper nutrition and reading medication labels, notes John Goddard, Loudon County UT Extension agent. There are beef, sheep and swine skillathons. The top two 4-Hers from each contest form a six-person state team. Tennessee won the 2015 National 4-H Livestock Skillathon Contest.

Livestock judging contests give youth 20 minutes to evaluate a class of four animals: two classes each of beef cattle, goats, sheep and swine. Each contestant then gives a two-minute talk called oral reasons explaining his or her ranking of the animals.

“Evaluating the animal becomes a tool to get the youth speaking, learning how to make decisions and how to think quickly on your feet,” Goddard says. “We teach them that when you’re making major decisions in life, you’re probably going to need to know how to communicate – whether it’s in a job interview, a two-minute elevator speech for business, explaining something in a courtroom, even explaining to a girl’s father why you’re the guy to marry her,” he says.

EQUINE CONTESTS

Equine contests also develop life skills in a large number of Tennessee 4-Hers. More than 500 youth annually exhibit horses in regional and state horse shows and equestrian competitions.

Caring for and training a horse is a year-round commitment and develops the same life skills learned in beef, sheep, swine and goat projects. That’s something Kasey Hines, 16, of Franklin County, knows first-hand. She has competed in approximately 50 events during her eight years in 4-H and was chosen as the 2016 University of Tennessee homecoming rider.

“The weeks spent preparing for competitions have not only taught me about responsibility but also time management and big-picture thinking,” Hines says. “Every aspect of the 4-H program has instilled me with values and skills that can be utilized through my life.”

“These kids learn to understand responsibility,” says Claudia Baney, 4-H animal science specialist at UT. “They’re not sleeping late during the summer; they’re up every day caring for their livestock.”

Baney sees a clear change in youth who have participated in the 4-H animal programs.

“They have a strong work ethic, know to take the initiative and understand responsibility. That carries through wherever they go after 4-H,” she says.

“We realize that we’re raising kids and training kids. It’s not all about who takes home the awards.”

BRIAN MCLERRAN
Owner of Diamond M Farms

Learn more about how Tennessee 4-H helps youth build life skills at TNAgriculture.com
Cabinets, barrel staves, flooring, cross ties, pallets and more – Tennessee’s hardwood products industry is diverse.

Tennessee forestry products add $19.6 billion to the state’s economy, with wood manufacturing adding more than $2.5 billion. Plus, wood and paper company payrolls reach almost $2 billion. The state is one of the largest producers of hardwood lumber, and local companies manufacture their wood products using the hardwoods.

One company new to Tennessee, Ignite Forest Products, found the state to be a perfect fit for its wholesale, heat-treated firewood business.

Founder Derek Heiar expanded the company, opening a 22,000-square-foot plant in Waverly in July 2016. The company ships tractor trailer loads of heat-treated, packaged firewood to markets across the entire nation. “Tennessee is centrally located, a great hub to get just about anywhere, and the hardwoods we use are abundant here,” Heiar says.

Heiar got his start in forest products as a high schooler in Iowa, selling loads of firewood in the community where he grew up. The company, which also markets under its original Iowa Firewood Products brand, really took off when he started heat-treating and packaging firewood in 2010.

Heiar, who looked at other states before expanding, says his company fits well into the local Tennessee wood products business. The state offers the high quality and quantity of wood he was seeking.

“We work with four or five loggers who harvest all our logs locally. The logs go through a firewood processor, which cuts the wood to length and reduces it in size by splitting it,” he says.

There’s also a market here for the company’s waste products. “There are mills here that can take our wood chips and debris,” Heiar adds.

Firewood is heat-treated to eliminate any chance of carrying invasive pests. “I got started doing heat treating before the emerald ash borer came to Iowa, and that’s really how the company grew so fast,” Heiar says. “It all goes through a kiln, a heat-treating process. All our buyers, stores, campgrounds, restaurants using wood-fired stoves, they all wanted heat-treated firewood.”

The company has about 10 full-time employees and supports other jobs locally. “We buy from local forestry equipment suppliers, for the equipment we use in our own log yard,” Heiar says. “We’re using local banks and other services. We’re bringing in business from truckers who deliver our firewood from here to all over the U.S.”

Heiar is pleased with how his company has been received here. He plans to shift most of his business to the Ignite name soon. “This area needed a consumer like me, and Tennessee fit perfectly into my business because of logistics,” he says. “It’s also great to be in a place without the risk of northern winter weather, which can halt production.”

– Matt Ernst
Giving Startups A BOOST

AgLaunch’s new Accelerator program supports agricultural startups

R

eady, set, accelerate! Led by Memphis Bioworks Foundation’s Ag Innovation Development Group, and supported by the expertise of Start Co. and EPIcenter, the 15-week AgLaunch Accelerator program launched in August 2016 to further attract, train, and support agri-tech and food startups.

The four companies selected to participate – Cowlar, Secure Food Solutions, Skycision and YieldStart – demonstrated that they were on the cutting edge and ready for takeoff, if only provided the key resources needed to succeed.

The Accelerator teams were provided $50,000 seed capital. Not only that, they were given world-class instruction on business model development, customer discovery, prototyping and preparation for investment. The businesses also gained one-on-one time with farmers to test their innovations and access to a national mentor list of experts.

In just 90 days, the Accelerator program successfully proved that “we could attract quality startups from around the world, provide quality assistance that has helped each company grow tremendously, and that the agriculture and investment community is willing to support the effort with time, access to resources, and funding,” says Pete Nelson, director for AgLaunch Initiative, president of Ag Innovation Development Group LLC and vice president of Ag Innovation, Memphis Bioworks Foundation.

By the end of the program, teams had already raised additional funding and deployed technology across the nation. Moving forward, AgLaunch will continue to offer multiple accelerators annually across Tennessee with additional programs such as weekend boot camps on agricultural university campuses.

When reflecting on their time in the Accelerator program, the CEOs of Cowlar and Skycision concur that by surrounding entrepreneurs with what is needed to be successful, AgLaunch has become a one-stop shop for agricultural innovation.
COWLAR – THE SMART COLLAR FOR COWS

Located in Pakistan and Memphis, Cowlar is poised to change the dairy industry with its “Fitbit” type of device for cows, designed to improve herd health and optimize operations. With AgLaunch Accelerator resources at his fingertips, Umer Adnan, CEO of Cowlar, achieved numerous milestones, including identifying new customer segments in the U.S. and emerging markets.

“AgLaunch has been great in terms of providing the perfect blend of agriculture and business/technology training. We’re also extremely lucky to have had the chance to develop some key strategic partnerships that allow us to reach customers more efficiently,” Adnan says.

Citing Tennessee as the perfect location for overseas startups, Adnan is now exploring how Cowlar can start manufacturing and assembling units in the U.S. with a base in Memphis for shipping, returns, fulfillment, and customer support for North and South American customers.

“The AgLaunch program is the perfect breeding ground for learning and growing startups in the ag-tech space. I would encourage other startups to be part of the program as they provide tremendous value as an accelerator,” he says.

SKYCISION – PRECISION AGRICULTURE SOLUTIONS

Through the analysis of drone-collected imagery, Skycision is helping farmers detect crop stress earlier than ever before. Initially focusing on vineyards, the business is now expanding its solution to specialty row crops, commodities and orchards with help from AgLaunch.

“AgLaunch has a valuable network to leverage. It was important for us to sit down and understand how our solution can translate between crop types, how we can most efficiently scale up, and where we decide to allocate our resources,” says Brendan Carroll, CEO of Skycision.

Carroll has also found that “without putting your boots on, walking in the fields, and understanding the decisions farmers have to make and the pains they face, you can’t develop a successful solution. That connection is fundamental to agri-tech innovation.” Making strong associations, finding experts in the ag-tech space and identifying investors are all essential components to Skycision’s future growth potential. Tennessee offers the whole package.

“Entrepreneurship is a roller coaster. It’s important to find allies like AgLaunch that are willing to take that ride with you,” he says.

– Keri Ann Beazell

AGLAUNCH IS A KEY IN THE GOVERNOR’S RURAL CHALLENGE 10-YEAR STRATEGIC PLAN TO BUILD VALUE AND JOBS IN RURAL TENNESSEE.

AGRICULTURE AND FORESTRY PLAY A CRITICAL ROLE IN TENNESSEE, ACCOUNTING FOR 13 PERCENT OF THE STATE’S ECONOMY.

“The AgLaunch program is the perfect breeding ground for learning and growing startups in the ag-tech space.”

UMER ADNAN
CEO of Cowlar, an AgLaunch Accelerator participant

Source: Memphis Bioworks Foundation
Tennessee farmers deeply understand the importance of conserving and caring for soil and water. After all, the land and its health are central to their livelihood.

Ricky Essary and Raymond Cooper are two of Tennessee’s many farmers using innovative farming practices to manage soil nutrients — practices that are making their farms viable for the next generation.

“We used to do a lot of tillage,” says Essary, who lives in Milledgeville. “Then we started no-till farming to keep down soil erosion.”

SPARE THE PLOW, COVER THE SOIL

No-till farming is a technique that abandons the use of a plow and other mechanical devices that turn the soil, also known as tillage farming. In contrast, no-till leaves soil undisturbed, reducing soil erosion and water loss. Farmers rely on natural processes to break down what is left in a field after a crop is harvested.

Essary farms with his son, Kevin, and son-in-law, Jason Cherry. They no-till 98 percent of their 4,000 corn and soybean acres, he says.

Essary started to improve no-till fields by seeding cover crops. His first cover crop was tillage radish. The specialty variety can quickly grow a radish root, longer than one foot, which decomposes after the first winter frost. That naturally exposes the soil, reducing compaction.

“The soil just seemed spongier when we planted, we could tell the seedbed was better,” Essary says.
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Tillage radishes are just one ingredient in the cover crop “recipes” Essary uses each year. Legumes like Austrian peas and clover form symbiotic relationships with soil bacteria. They naturally take nitrogen from the atmosphere and convert it in the soil to plant-available forms of nitrogen needed for the next year’s corn crop.

Sunflowers grow quickly after seeding; oats and ryegrass provide winter cover and soak up excessive rainfall. Forage varieties of turnips, kale and collards stay green over the winter.

“I feel like I need at least five or six different species in the cover; I like seven or eight better,” Essary says.

The vegetative cover helps keep nutrients in the soil, reducing potential water runoff from rain and snow while improving soil structure.

“We see less water runoff, more organic matter in the soil and more productivity from fields where we’ve had cover crops,” Essary says. “I see the money we spend on seeding cover crops as worth the investment. It makes the soil healthier.”

There’s a benefit to the local landscape, too.

“Our neighbors and landlords, they just love seeing these fields green, even during the winter,” Essary adds.

**GRASS FOR GENERATIONS**

At first, Cooper had no idea establishing more grassland on his 300-acre farm near Morrison would pave a path for the next generation.

“I figured if I could graze the cattle on pastures more, instead of feeding hay in the winter, I could cut my costs,” he recalls.

Cooper started dividing his pastures into smaller fields in the 1980s, adopting a system called intensive rotational grazing. He also started turning the farm’s 150 acres of cropland, mainly hay and corn, into permanent pasture. By the early 2000s, Cooper had sold all his hay equipment, and pastures supported 100 cow-calf pairs with minimal hay purchases for winter feeding.

Most fields are a cool-season mix of perennial tall fescue and clover.

“The farm is now all grass; there are over 20 fields, each 10 to 15 acres in size,” Cooper says. A heat-loving hybrid, sorghum-sudangrass, is sown annually in a few fields, for faster-growing summer forage.

Rotational grazing involves careful attention to soil and pasture health, as overgrazing is avoided.

“You get better utilization of your forage and much better utilization of the manure,” Cooper says.

Manure more evenly distributed is more likely to return nutrients to the soil, and healthy pasture growth provides a winter cover, reducing potential surface water runoff.

A pipeline delivers well water to 13 four-hole livestock waterers in the pastures. Working closely with the Natural Resources Conservation Service and the Cannon County Soil Conservation District, Cooper fenced off his farm ponds and created a permanent buffer strip along the creek that crosses the farm. The creek is a potential habitat for a threatened fish species, the Barrens topminnow.

The rotational grazing system paved the way for Cooper’s son, Andrew, to return to the farm. Andrew established a grass-based dairy herd on the farm in 2008, when his father retired from full-time farming. He milks 125 cows from March to November, matching the most productive months of the perennial pastures.

“It has worked out very well as a dairy. He’s doing better than what I did with the beef herd,” Cooper says.

The Tennessee Department of Agriculture has participated with Essary and Cooper in conservation practices through its Agricultural Resources Conservation Fund, in partnership with USDA and the soil conservation districts in Hardin and Cannon counties. As demonstrated by these farmers, the investment in conservation practices often has an impact on the state’s resources lasting for generations.

– Matt Ernst
County fairs are an important part of many Tennessee communities, often drawing thousands of residents who mark their calendars in anticipation of the events each year.

In Tennessee, fairs are a part of the state’s agricultural history. The Tennessee Department of Agriculture (TDA), formed in 1854, was the first state department of agriculture to promote country agricultural fairs. Today, approximately 3 million people visit Tennessee agricultural fairs each year. TDA proudly continues to support more than 60 fairs held throughout the state, with money offered for merit awards and premiums for livestock shows and agricultural events.

Although these fairs typically feature the usual attractions like rides, concerts and pageants, they always put one focus front and center: agriculture. In 2016, there were more than 120,000 agricultural entries in Tennessee fairs by an estimated 28,000 exhibitors. Meanwhile, that same year, Tennessee fairs paid approximately $1 million in agricultural premiums to exhibitors of livestock, crops and agricultural products.

Through livestock shows, rodeos, horticultural events and much more, Tennessee county fairs promote and celebrate one of the state’s top industries — all while providing plenty of family-friendly fun.

RURAL TENNESSEE COUNTY FAIRS

The Hardin County Fair, held at the Hardin County Fairgrounds in Savannah each September, attracts more than 21,000 annual visitors. The fair features 4-H Chick Chain events, a swine show, beef cattle show, goat show, sheep show, and a horse and mule show, as well as arena competitions in log splitting and tractor pulling. The six-day fair also includes a Thursday night rodeo, which is one of the most-attended events.

In addition, the Hardin County Fair has an exhibit building where attendees can purchase handmade items, and it hosts a beauty pageant and demolition derby. There’s a carnival with rides and games, too, plus plenty of food vendors.

According to Sheila Bomar, who handles the fair’s public relations, attendees are only required to pay one affordable rate in order to access most of the fun.

“Once people are in, all they have to pay for are food and games, and...
Juli-Cait Castellaw proudly poses with her Grand Champion Market Lamb at the Dyer County Fair in Dyersburg.
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that’s really helped our attendance grow; we have increased our attendance each year for the past four years. It’s very affordable for families of all sizes to attend.”

Also in West Tennessee, the six-day Dyer County Fair takes place in Dyersburg and opens on Labor Day. Drawing nearly 98,000 people each year, the fair’s ag-related events include daily livestock shows, a market animal sale, tractor-driving contest with an obstacle course, crop and horticulture exhibits, a soybean cook-off, and a sorghum recipe contest.

“We work very hard to make this an event for the community where they can learn about agriculture,” says Sandy Baker, the 2016 Dyer County Fair president. “Our fair revolves around agriculture because it’s the prime industry here in Dyer County.”

Additionally, attendees can enjoy family-friendly live entertainment, go-kart racing, beauty pageants, a carnival with amusement rides and much more.

NOTABLE COUNTY FAIRS

The Wilson County Fair – the most attended fair in the state – is a nine-day event held at the James E. Ward Agricultural Center in Lebanon in August. According to Randall Clemons, treasurer of the Wilson County Fair, “every livestock show that’s possible takes place,” and there are dozens of farming and horticulture exhibits for attendees to explore.

Drawing more than 460,000 people, the Wilson County Fair also includes the Fiddlers Grove Historical Village, which Clemons says is a nod to “old-time agriculture.” The village includes more than 50 historical structures, a water-powered gristmill and a petting barn with small animals.

“Our fair is a very agricultural fair, and we have tried to keep agriculture as its base over the years,” Clemons says. “Agriculture remains the most prominent aspect of the fair, but we also have six stages of live entertainment going each night, and there’s an open arena with motocross events.”

Other notable fairs in the state include the nine-day Williamson County Fair held each August. With livestock shows, agricultural exhibits, concerts and more, the Williamson County Fair focuses on its growing population of young families and has tailored the fair to attract that demographic.

East Tennessee county fairs are considered some of the best in the state for their dedication to agriculture education, activities and entertainment value. Examples include the 10-day Tennessee Valley Fair in Knoxville that features an AgVenture Scavenger Hunt designed for children, and the Meigs County Fair, which has a popular baking contest that awards ribbons to the bakers of the tastiest cakes, cookies, pies and breads.

For more information on the state’s county fairs, visit tn.gov/agriculture/topic/ag-farms-agricultural-fairs.

Jessica Walker Boehm
The cotton industry is inextricably woven into the fabric of Tennessee’s history and future. Cotton’s economic impact is just as important today as it was the day Eli Whitney first patented the cotton gin more than 200 years ago.

“Cotton is an important crop in this state, in our country, and now across the world,” says Teddy Hazlehurst, owner of Bemis Gin and Warehouse in Jackson. “And ginning has really been the same for a long time. We’ve made improvements, but the mechanics are the same.”

By increasing horsepower and making upgrades in computers and automation to replace old manual controls on the gins, production has increased drastically,” Hazlehurst says. “It’s really incredible the changes I’ve seen in my years in this industry.”

**COTTON GINNING**

Hazlehurst has been involved in the cotton industry his entire life. His father was a buyer at Bemis Mill, which has spun and woven cotton into fabric since 1901, and his grandfather was a buyer for the historic Anderson Clayton Cotton Company. Hazlehurst bought Bemis Gin in 1987.

“I think I’ve always been about cotton,” he says. When he took over Bemis Gin, he began making upgrades to the equipment as changes in technology came about.

“When I was in college at the University of Tennessee (UT) at Martin, we studied computers, and I couldn’t imagine what use they would be,” Hazlehurst says. “But when I got here, I quickly realized how much this technology could help.”

Today, technology takes the guessing out of
processing cotton. Automation removes the moisture from the cotton, removing that burden from the operator. Improved seed technology also helps farmers increase their yields.

“Our crop is cleaner and softer on our environment than it has ever been,” says Stacey Gorman, director of communications for The Cotton Board. “The UT AgResearch & Education Center in Milan is a premier site for no-till and low-till research, and Tennessee growers can be proud of that and of the impact it has had on our industry nationwide.”

Cotton is a historic and important commodity in Tennessee, and like all areas of agriculture, some years yield higher results than others.

“It has its ups and its downs,” Hazlehurst says. “We change as the market changes. It is all dependent upon the market and competitive prices.”

In 2015, Tennessee’s 23 cotton gins processed about 565,000 bales of cotton – each weighing approximately 500 pounds. The crop generated almost $44 million in revenue. These businesses employ 650 people across the state.

Nationally, 2016 cotton production forecasts were up more than 30 percent from the previous year, according to the USDA National Agricultural Statistics Service.

A PROMISING FUTURE

While cotton competes with corn for acres and some production moves overseas, U.S. cotton production is still important to the international market. According to USDA’s Economic Research Service, the value of cotton exported from Tennessee in 2014 was $145 million, which earned the state a rank of No. 10 in U.S. cotton exports.

“Consumers still highly value U.S. cotton and spinners still prefer our cotton because it is cleaner than cotton grown in other countries,” Hazlehurst says.

Bemis Gin exports much of their cotton to Turkey, China, Indonesia, Vietnam and Mexico to be spun, but some product does stay in the U.S.

AN INTERNATIONAL PLAYER

Tennessee cotton will continue to play an important role in the domestic and international markets with the help of increasing yields and quality.

“This state is a great place to grow cotton, and we have dedicated producers who are responsible and smart – they know how to make cotton work in a tricky world market,” Gorman says. “The future of cotton here is good. Given the current and future technologies, I see an even more efficient process for producing cotton in Tennessee moving forward.”

– Blair Thomas
Cotton’s roots run deep in Tennessee. The crop has been a staple in the state since the late 1700s. About 100 years after the first gins for separating cottonseed from fiber were brought into the state, the Memphis Cotton Exchange was founded to answer a need for a trade organization that could regulate cotton marketing in the region.

Founded in 1874 and modeled after successes of the New York Cotton Exchange and the New Orleans Cotton Exchange, the Memphis exchange produced rules and regulations on cotton trading, and set standards for buying and pricing cotton in Memphis and the Midsouth.

The cotton exchange was originally housed on North Second Street but moved to a multistory building on Union Avenue in 1922. Cotton trading was done on the first floor, where only members of the exchange were allowed to trade. The floor closed in 1978 to transition to computer trading, and the Memphis Cotton Museum was established in 2006 in its place.

The museum, which has welcomed more than 100,000 visitors since its opening, serves to educate the public about the cotton industry and inform them of the agriculture behind this crop.

To many, cotton is the plant that built the Bluff City. Memphis was founded in 1812 as a shipping port for cotton, so the crop was a part of the very foundation of the city. As Memphis grew into a global hub of cotton commerce, a wide variety of workers followed. Merchants, insurers, aspiring entrepreneurs, former slaves, sharecroppers and laborers migrated to Memphis from across the South and with them came artists, musicians and storytellers who helped shape the city’s culture.

The museum’s grand space highlights original films that detail specific aspects of the cotton industry and the historic Cotton Row (referring to Front Street, which was heart of cotton trade in Memphis in the 20th century), as well as oral histories and exciting exhibits that regularly change and update. And in true Memphis fashion, the museum also features rhythm and blues. Its exhibits describe the unique genre’s evolution from African rhythms, instruments and oral traditions as well as the spirituals sung by slaves and field hands across the south.

For the kids, the Memphis Cotton Museum’s award-winning Exploration Hall education wing explores cotton production, sustainability in agriculture and how technology in the industry has changed since the 1940s all through hands-on exhibits, games and activities.

— Blair Thomas

Cotton Museum honors the crop that built Bluff City
Steve Longmire in Grainger County sells his Tennessee Homegrown Tomatoes to Wal-Mart and other retailers.
Grainger County is known for its tasty tomatoes
Grainer County, nestled in the eastern part of Tennessee, seems like another unassuming rural region with a small, but content, population of about 22,660. However, this rural county is well known throughout the produce world for one delicious, prized crop – the tomato.

“There’s no comparison to our tomatoes. They have such a good flavor,” says Steve Longmire, owner of Tennessee Homegrown Tomatoes in Rutledge, the county seat. “It’s a combination of the soil and varieties we grow. Plus, we give them a lot of TLC.”

Longmire started Tennessee Homegrown Tomatoes in 1982 on his 252-acre farm, which includes 34 greenhouses with three more planned. A longtime participant in the Pick Tennessee Products program, most of his tomatoes are marketed to Wal-Mart. Longmire delivers them to individual stores so that consumers receive the freshest tomato possible.

“We are direct to stores, not through warehouses,” he says.

He grows red, yellow, Roma and green tomatoes, all in the “fresh market” category. In fact, almost all of Grainger County’s tomatoes are fresh market, meaning they’re meant to be eaten as close to home as possible.

“There’s no one up here that will grow hundreds of acres and ship them everywhere,” Longmire says.

Anthony Carver, Grainger County Extension director, says that the region’s tomatoes are known for having a rich garden flavor, with a homegrown texture and appearance.

“We have about 70 growers and 650-plus greenhouses devoted to tomato production. We’re floating anywhere from 475 to 500 acres of fresh-market tomatoes,” he says.

Carver says that there are a couple of aspects that give Grainger County

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**TENNESSEE RANKS FOURTH IN THE NATION FOR FRESH-MARKET TOMATOES.**

- **$56M**
  - Tomatoes contribute more than $56 million to the state’s economy.

**STATE FARMERS PRODUCED MORE THAN 1 MILLION HUNDREDWEIGHT OF FRESH-MARKET TOMATOES IN 2015.**

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**TENNESSEE’S TOP TOMATO-GROWING COUNTIES**

1. Rhea
2. Grainger
3. Bledsoe
4. Lauderdale

Source: USDA National Agricultural Statistics Service

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Celebrate tasty tomatoes at the **25TH ANNUAL GRAINGER COUNTY TOMATO FESTIVAL, JULY 28-30, 2017.**

Learn more at [GraingerCountyTomatoFestival.com](http://GraingerCountyTomatoFestival.com).
Tomatoes the best possible flavor. One is the range of varieties grown by the farmers. Another is the soil that the tomatoes are grown in.

“The limestone-based soil breaks down quicker than other bedrock bases. This allows our soil to be on the acidic side, which is transferred to the tomato, giving it that great taste,” Carver says.

The last aspect is the management from the farmers. “Our farmers understand the breakdown and chemical reactions of the plant,” Carver says. “They want to know if the soil has the correct pH and how the watering system is being managed. All of that plays into the flavor of our tomatoes.”

And just as important to Grainger County farmers as producing a deliciously tasty tomato is producing a safe tomato. “Without food safety practices, we wouldn’t be selling to any chain stores. Wal-Mart is very strict on food safety and we have strict guidelines we have to go by,” Longmire says.

Those guidelines include detailed policies regarding production, packing, distribution and handling of fresh tomatoes. Attention to safe practices is focused on everything from the quality of the soil where the tomatoes are grown, to the cleanliness of the packing facility, to the delivery to the markets.

To get a taste of the famous tomatoes, visitors can attend the annual Grainger County Tomato Festival, touted as the largest free festival in the state. Held the last full weekend in July, the festival aims to promote all of Grainger County agriculture, but specifically tomatoes, with lots of vendors, entertainment and more.

Find more information at graingercountytomatofestival.com. Tomatoes are also available on-site at many farms and farmers markets, usually beginning April 1.

– Rachel Bertone
Cul2vate, a Nashville-based nonprofit organization focused on engaging poverty at the point of hunger and delivering nutritious food to the hungry, first started across the globe in Cape Town, South Africa.

Dickson County native Joey Lankford, Cul2vate’s executive director, spent five years in Cape Town with his wife and their five children, helping impoverished locals grow and sell their own food while teaching them valuable skills they could implement in the workforce. When it came time to consider next steps, the Lankford family decided to return to their home state of Tennessee to continue their mission, and as a result, Cul2vate was born in 2015.

“Our main pillars are engaging food insecurity with nutritious food and creating a pipeline for those who are chronically unemployed in our social structure,” Lankford says. “Oftentimes, those are people who are in addiction recovery or coming out of a nonviolent felony incarceration – they basically have a ceiling over them socially when it comes to finding a job, and we want to help penetrate that.”

Cul2vate operates almost 2.7 acres with garden plots and greenhouses at the Ellington Agricultural Center near downtown Nashville, where Middle Tennesseans looking for full-time employment can receive six months of basic agriculture training in planting, seed propagation, harvesting, packaging and delivery, as well as training focused on life and business skills.

Workers learn to grow fruits and vegetables like squash, okra, cucumbers and tomatoes. For each item of produce sold, another is donated to acute relief organizations such as Second Harvest Food Bank, the Nashville Food Project and GraceWorks Ministries.

Ideally, after workers have completed their training and graduated from the program, they can put their new skills to work by obtaining employment with one of Cul2vate’s partner companies.

“Cul2vate is a hand-up system, not a handout,” Lankford says. “We’re trying to restore dignity by letting people take ownership of and responsibility for certain aspects of this job. Plus, farming is therapeutic.”

Cul2vate also helps residents throughout the region learn to prepare and cook their produce, hosting demonstration dinners in low-income areas.

“We try to connect the dots from the seed all the way to the end user, or the consumer, and the need that’s in the community,” Lankford says.

Lankford’s passion for ending hunger is fueled by his Christian faith, and he says he shares his beliefs with his workers to help eliminate another kind of hunger.

“Regardless of where we find ourselves on planet Earth, physical hunger is just one aspect of a hunger that we feel and generally try to deal with our entire life,” Lankford says. “The other aspect people hunger for is a sense of purpose and direction, or a sense of hope. The spiritual component of what we do at Cul2vate is just life on life – as Cul2vators, we spend our time with the people in our program, sharing our struggles, and we are transparent in showing that we’re just like them on a life journey.”

Those with a similar passion can get involved with Cul2vate by volunteering with the organization, either by helping out on the farm or assisting with social media, accounting, bookkeeping or farmer mentoring. Available volunteer opportunities are listed on the organization’s website at cul2vate.org.

“A project like this needs all the help it can get,” Lankford says.

– Jessica Walker Boehm
At the Rutherford County Adult Detention Center in Murfreesboro, inmates find a sense of peace by caring for tomatoes, cucumbers and more. Gardening is often considered a form of therapy, and at the facility, it’s proving true for the many nonviolent offenders who tend to the Garden of Hope.

Established in 2011 by the Rutherford County Sheriff’s Office, the Garden of Hope’s creation was inspired by the famous proverb: “Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime.” The garden covers just over an acre and includes a greenhouse, which was built in 2016 using donated materials. All of the operation’s water is supplied through a well.

In addition, the facility covers most of the garden’s costs by recycling aluminum cans and wooden pallets from the kitchen.

The inmates selected to work in the garden are known as trusties – in other words, they have committed low-level crimes and have nonviolent backgrounds – and currently only men are eligible to participate due to state regulations prohibiting male and female inmates from working together.

According to Deputy Jason Fuqua, who manages the Garden of Hope, many consider participating in the project a privilege.

“Even though it requires hard work, lots of inmates request to work in the garden,” he says.

The Garden of Hope includes a diverse range of fruits and vegetables, including tomatoes, bell peppers, cucumbers, okra and watermelon, and it yielded 2,900 pounds of produce last year.

However, Fuqua says the garden’s goal isn’t entirely focused on production. Instead, its main purpose is to teach the trusties lessons that will last a lifetime.

“The Garden of Hope is about letting them start with a seed, get it into the garden and follow the process from the beginning to the end,” he says. “It’s about the experience. Tending to the garden teaches the trusties responsibility, and that helps them take pride in their work.”

Nearly all of the harvested produce is served in the facility’s cafeteria, so the entire facility reaps the garden’s rewards, but spokeswoman Lisa Marchesoni says it’s the trusties putting in the work who receive the biggest benefits.

“We had one inmate who was released and was able to plant a garden for his family,” she says. “Another former inmate planted flowers for his grandmother, and he made a point of coming back to tell us how excited he was about it. The Garden of Hope has definitely been successful so far.”

– Jessica Walker Boehm
Chris and Christina Anderson of Rhea County were named the 2016 Tree Farmers of the Year.
For Chris Anderson of Rhea County, it was a pine beetle infestation. For Alex Richman of Moore County, it was an interest in carrying on her family’s legacy. Anderson and Richman are but two property owners in Tennessee who have acquired large tracts of forestland with the intention of making an income while practicing good stewardship. Both have become advocates for healthy forests, working with the Tennessee Department of Agriculture’s Division of Forestry to meet their conservation goals. It’s a livelihood born of passion. “We’re pushing hard for healthy forests and habitats, and definitely quality wood products,” Anderson says of the forest he owns with his wife, Christina, near Spring City. “Our premise isn’t just about the wood product industry. It’s more about the forests, the habitats, making sure the watershed is protected, as well as the wildlife and people in the community.”

TREE FARMERS OF THE YEAR
The Andersons came to the state from North Carolina after Chris’ parents acquired 140 acres in Rhea County in the mid-1990s. They bought it to have a place where the family could enjoy recreational hunting and family gatherings.

The pine beetle devastation of the early 2000s led Chris Anderson to seek advice from Area Forester Shannon Gann, who helped the couple establish a management plan and set forest stewardship goals. “That’s really what got me interested,” says Anderson, whose property is now known as CRC Stewardship Ridge. “That’s what led me into where we are now. I took it upon myself to clear away the property, and we did some replanting at the time. Everything now is on track.”

The couple acquired additional bordering properties as they lived and worked on what developed into a tree farm, practicing the values and standards of Tennessee’s Best Management Practices and the values of the American Tree Farm System: wood, water, recreation and wildlife. For their efforts, the Andersons were named the 2016 Tree Farmers of the Year by the Tennessee Forestry Association. “We’re doing everything we can to make this a really green spot in Tennessee,” Anderson says.

FAMILY PRIDE
Richman knew from a young age that she wanted to one day take care of the forestland property her great-grandfather had founded for the income it would provide. The land, known as Cumberland Springs Land Company between Lynchburg and Tullahoma, has been passed down through the family and is now in the hands of Richman, the relatively young chief operating officer of the company. “I grew up playing on the land, and I watched my mom manage it for the family,” says Richman, a 2005 graduate of the University of the South and now a forestry graduate student at the University of Tennessee-Knoxville.

“I went to school with the idea that keeping the forestland was a big priority for me,” she adds. Cumberland Springs Land Company, which comprises some 6,000 acres, gets most of its income from timber sales. It also leases land for wildlife hunting and more, and hopes to expand in commercial land leases.

Richman is passionate about good stewardship of forests. She serves on the Tree Farm Committee of the Tennessee Forestry Association. “My education and work experience have all been to help other forest owners and families like mine stay on the land, make an income from it, and also be good stewards of the land and the forest,” she says.

– John McBryde

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Forest health is important in this neck of the woods. The Tennessee Department of Agriculture Division of Forestry monitors forest well being and sustainability, as well as changes in forest areas, in order to protect one of the state’s leading industries and the land and environment.

The increase in agricultural productivity since the Great Depression has returned millions of acres of marginal farmland to the forests, says Kerry Livengood, Division of Forestry Unit Leader for forest and business analytical services.

“The threat of timber famine is gone now and the South has become the ‘wood basket’ of the world,” Livengood says. “Tennessee has over 300 wood-processing facilities that rely on logs coming from forestland.”

These mills, which turn Tennessee wood into furniture, barrels, flooring and more, employ more than 5,000 workers. U.S. forest product exports reached $9.7 billion in 2014. Across the state, nearly 40,000 people work in the forestry industry. So, it is more important than ever to keep track of the trees in Tennessee’s woodlands.

“Monitoring the growth and health of our forests lets the world know that the forest resource is growing and healthy and will be productive for many, many years to come,” Livengood says.

The Division of Forestry uses two programs to monitor forest health and sustainability. The first is the Forest Inventory and Analysis program, which measures all trees in small areas – known as plots – across the state. Each tree is documented according to species, height, diameter, number of merchantable logs, health and other related attributes.

This is part of a national program funded by the U.S. Forest Service, a part of the U.S. Department of Agriculture. The Tennessee Department of Agriculture has a crew of five well-trained foresters who measure 1,000 plots per year from a total of 5,000 plots scattered across the state.

Based on plot data, there are 8.2 billion trees on forestland in Tennessee.

“There are actually a lot more trees in Tennessee since that estimate ignores trees in residential areas and along streams and highways where the forestland is less than 1 acre in size and 120 feet wide,” Livengood says.

In order to monitor changes of these forested areas, the Division of Forestry also uses a computer program developed for national defense agencies and aerial imagery. The program locates areas where the forest has changed in aerial or satellite photos over a period of time.

In early days, forests were cleared for agriculture, Livengood says. Later, large forest areas were cleared to produce lumber for a growing nation.

“These forests would have normally regenerated on their own, but wildfires and grazing were often used to stop this natural process,” he adds.

While the threat of timber famine isn’t a current issue, the loss of productive forestland is still a concern due to urbanization, particularly in areas like Nashville and Franklin in Middle Tennessee, as well as in the eastern part of the state in areas surrounding the Great Smoky Mountains National Park.

“It is more important than ever to be monitoring and protecting our forests,” Livengood says.

— Blair Thomas
WOOD

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A three-person team of environmental conservationists is eliminating millions of invasive, near-microscopic bugs – one tree at a time.

The hemlock woolly adelgid (HWA) is a small, aphid-like insect that threatens the health and sustainability of eastern hemlocks and Carolina hemlocks in Tennessee and other parts of the eastern U.S.

HWA is an invasive pest that comes from Asia and has spread across Tennessee by movement of firewood, nursery stock, birds, mammals, wind and rain. It inserts a needlelike feeding tube into the tree, sucking out essential sugars and nutrients, starving the tree and reducing its overall vigor. With HWA already in 41 counties across the state and spreading, the work of this small but effective strike team is more important than ever.

“My team works to survey the spread of HWA so that we know how far and fast this pest is moving,” says Anne Windham, leader of the Hemlock Woolly Adelgid Strike Team. “We are also continually looking for field insectary sites – or areas to release predator beetles – for a possible biological control of the HWA.

“We want to be as environmentally conscious as possible so we make sure not to mark or treat any trees near flowering plants to avoid any pesticide contact with pollinators,” Windham says. “And we keep at least a 10-foot buffer from any water in the area.”

The pesticide is applied in the soil at the base of each marked tree. The root systems soak up the pesticide and it is passed to the HWA when it sucks the tree nutrients.

The HWA Strike Team combats the infestations with the goal of preserving forests in Tennessee, educating land owners of viable treatment options and working toward a long-term sustainable approach to managing HWA.

“Without the team, Tennessee’s fight against HWA would be much harder and slower,” Windham says. “We are going to continue to do our best to keep this pest from infesting our forests of hemlocks before it is too late.”

– Blair Thomas

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Rise a glass to Tennessee’s growing number of wineries. With more than 70 across the state, this sector is yet another bright spot in Tennessee agriculture, helping spark wine grape cultivation and agritourism.

RESURGENCE

Tennessee is no stranger to a thriving wine industry. In the 1800s, the state boasted a substantial wine grape sector, and it was even one of the top wine-producing states in the nation. However, production saw a steep decline during Prohibition. It suffered until changes to state laws took hold in the 1970s, sparking a resurgence.

“The wine industry in Tennessee has grown over the years – and continues to grow,” says Nikki Riddle, vintner at The Winery at Seven Springs Farm in Maynardville. “We are changing people’s perception about the local wine industry by producing amazing wines.

“Also, legislative changes – self-distribution, wine in grocery stores, satellite sales facilities and being able to sell wine by the glass – have made it easier to run a profitable business, allowing more wineries to open up,” she adds.

GRAPE EXPECTATIONS

The Winery at Seven Springs Farm produces a Heritage red wine and several varieties of white wine,

Grapes grow on the vine at The Crown Winery in Humboldt.
including Moscato and Riesling. The Winery grows 6 acres of French-American hybrid grapes and American varietals, including Concord and Catawba, but also purchases grapes from local growers, which Riddle says provides jobs in these rural areas.

“The weather and pest pressure can make Tennessee a challenging place to grow grapes, but if you choose the right varietals, they will flourish. The rolling hillsides of East Tennessee allow for well-drained soil and provide the perfect location to plant the grapes,” Riddle says.

David Lockwood, UT Extension Fruit & Nut Crops Specialist, says the state’s geography offers an advantage for viticulturists.

“Tennessee is in a transition zone. We can grow pretty much what’s grown north of us and south of us within the state,” he says. “We can grow a fairly wide array of grape varieties and can make a lot of different types of wines. And, of course, we have a fair demand for fruit wines as well.”

Walt Chism, owner of Chisholm Vineyard in Arrington, grows 10 varieties of grapes and is a supplier of the fruit for Arrington Vineyards. He says grapes are an important crop for Tennessee because there is so much potential for the farmer to add value.

“Most of the crops that we raise we sell through another party, and then they process and sell it to the consumer,” he says. “The crop value, when you finish it out and turn it into wine, is probably nine to 10 times more than it is coming out of the field as grapes.”

UNCORKING OPPORTUNITY

Lockwood says another reason for the growing success of the wine industry is that it naturally ties in with agritourism, a boon for many operations.

“Wine is allowed to offer tastings on-site, and it allows them

\[56\% \text{ of the state’s grape acreage jumped 56 percent between 2007 and 2012.} \]

Source: UT Institute of Agriculture
to give visitors a real pleasant experience,” Lockwood says. “You can visit the farm to see the vineyards, see the wines being made and taste the different types of wines. It’s entertainment as well as an opportunity to get a really good wine.”

The Winery at Seven Springs Farm, for example, offers tastings and tours of the facility. It also hosts special events throughout the year.

Riddle’s father, James R. “Rick” Riddle, founded the Appalachian Region Wine Producers Association (ARWPA) and established the Great Valley Wine Trail in 2015. The trail received a grant to promote the wine and grape industry in the Nine Lakes region of East Tennessee.

In addition, an American Viticultural Area that recognizes the Appalachian High Country and Mississippi Delta as lying within parts of Tennessee and other states allows some state winemakers to market under a label that recognizes those defined grape-growing regions.

“A great aspect of the wine industry is that having multiple wineries in an area is beneficial,” Nikki Riddle says. “Wineries do not compete with each other, but rather promote each other. Many of us are in very rural areas and off the beaten path. The wine trail is a way to advertise and entice customers to each of our locations.

“Plus, it is another way that my father is supporting and promoting his children’s business and futures,” Riddle adds.

Tennessee wineries are listed at picktnproducts.org and available via the free Pick TN mobile app. The app provides GPS mapping capabilities to wineries across the state.

— Teree Caruthers

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<th>1999</th>
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Tennessee’s bonded wineries increased from 21 in 1999 to 67 in 2015.

THE STATE’S WINE INDUSTRY PROVIDES 464 JOBS, INCLUDING SELF-EMPLOYED OWNER/OPERATORS.

Source: UT Institute of Agriculture
At McGavock High School in Nashville, agriculture students have the opportunity to get hands-on experience with farm animals in an urban environment.

The school is home to Raider Ranch – named for the school’s mascot – which includes a veterinary laboratory, small animal laboratory and a new barn that agriculture teacher and Future Farmers of America (FFA) advisor Jessie Lumpkins calls “a dream come true.”

According to Lumpkins, the school’s agriculture department received $100,000 from Metro Nashville Public Schools in 2016, and that money was largely used to build the barn that now houses alpacas, goats, ducks and chickens. Lumpkins’ students helped design the barn, with many of their ideas coming to life in the final structure.

Some of McGavock High School’s funding also went toward the small animal laboratory that has included creatures like rabbits, guinea pigs, a hedgehog, snakes and a cat, giving agriculture students the well-rounded experience Lumpkins was intent on providing.

“It was really important to me that we have animals,” Lumpkins says. “We couldn’t talk about them every day and just read about them in a book or look at them online. I wanted the students to see the animals in person and actually practice what they were learning in the classroom.”

That’s exactly what’s happening at Raider Ranch, with students cleaning cages and feeding the animals as part of their regular coursework. In addition, students are responsible for trimming goats’ hooves and practicing behavioral techniques with the animals.

– Jessica Walker Boehm
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