



impacting
AGRICULTURE

2018 ANNUAL REPORT



fellow **TENNESSEAN**

In 1854, Tennessee established its first state agency — the Bureau of Agriculture. Comprised of nine staff members including the governor, the agency was created to promote agriculture through fairs and livestock expositions.

More than 160 years later, the Tennessee Department of Agriculture is still carrying out those initial duties in innovative ways. We now also take pride in serving Tennessee consumers, producers, and forest landowners.

TDA works to protect Tennesseans by ensuring food safety, proper pesticide use, fuel quality, and fairness in the marketplace. Our team supports the state's rural economy through farmer and forest landowner incentive programs, agribusiness development, and promotional activities to expand markets. Additionally, the department promotes the responsible use of forest resources by assisting landowners, fighting wildfires, providing quality seedlings, and monitoring insects and diseases.

The success of the Tennessee Department of Agriculture directly affects the progress of our state's number one industry — agriculture. That industry has an annual economic impact of \$81.8 billion. We understand how important our role is for the 52% of Tennessee's land covered in forests and the 40% that is farmland.

With more than 66,000 families in Tennessee engaged in farming and forestry, we owe it to them and to all our state's citizens to constantly search for ways to improve. The following pages of this annual report will show our efforts to do just that.

national rank **BY COMMODITY**

	TENNESSEE	
	2017	2018
Corn	17	18
Wheat	17	17
Soybeans	16	16
Hay, Alfalfa	32	31
Hay, Other	5	5
Cotton	9	7
Tobacco, Burley	2	2
Tobacco, Dark Air	2	2
Tobacco, Dark Fire	2	2
Cattle, All	15	16
Cattle, Beef	12	12
Cattle, Milk	30	31
Hogs & Pigs	21	20
Sheep, All	30	30
Goats, Meat & Other	2	3
Goats, Milk	16	19
Broiler Chickens	15	15
Number of Farms	11	8
Land in Farms	26	25
Average Farm Size	43	42

Source: USDA's National Agricultural Statistics Service

administration, grants, and commodities

IMPACT OF COLORFUL PLATES

Students in an East Tennessee school district are getting bold at the lunch table. School nutrition staff at Knox County Schools are making sure plates are filled with colorful foods and that variety positively impacts the well-being of students. Executive Director for School Nutrition Brett Foster credits the Fresh Fruits and Vegetable Program with the success of delivering fresh, quality food to students.

“Our kids are more adventurous to try foods that are colorful and appealing,” Foster said. “That translates to nutrition. The more fresh fruits and vegetables we can serve, the higher the nutritional value in that meal.”

Like most school districts across Tennessee, Knox County participates in USDA’s National School Lunch program and has available funds through the Department of Defense Fresh Fruit and Vegetable Program (DoD Fresh). Foster reports that the district uses funds mostly for fresh fruits and other fresh produce such as vegetable medleys and spinach.

“The DoD Fresh program has enabled us to offer our students a variety of foods that are high quality. It’s particularly beneficial during warmer seasons when we can get fresh berries and melons. Our students do eat fruits such as apples and bananas, but they really like these seasonal options when we put them on the serving lines.”

The Tennessee Department of Agriculture (TDA) coordinates the distribution of USDA-purchased foods to school districts participating in the National School Lunch Program.

School districts can choose to allocate part of their funds for fresh produce ordered through DoD Fresh.

The food distribution program supports American agricultural producers while providing nutritious, domestically-grown food to students. On an average day, USDA foods make up between 15-20 percent of the foods served in a school lunch.

During the 2017-18 academic year, Tennessee school districts were allotted approximately \$38 million in entitlement funds and more than \$13 million of those dollars were earmarked for the DoD Fresh program.

Knox County schools received approximately \$2 million in entitlement funds and used nearly half for DoD Fresh. Foster notes that the program offers several advantages, such as greater buying power, consistent deliveries directly to schools, emphasis on high quality, a large variety of produce items including pre-cuts and locally grown, and online ordering with funds tracking.

“When we offer students colorful fruits and vegetables, they are more interested in lunch and more daring when we try new items. We were able to offer a spinach and berry salad and it was well received. So, we know we can continue to offer that healthy dish, and we’ll use DoD Fresh to do it,” Foster said.

Knox County Schools serves a nutritious lunch to about 35,000 students daily in 90 cafeterias throughout the district.



SCHOOL LUNCH

USDA food makes up 15-20% of the food served



DISTRIBUTION

Foods valued at \$38.6 million were distributed to schools



PROGRAMS

Foods worth \$10 million were distributed to assist those in need

forestry

IMPACT TO FORESTS

A specialized strike team protects Tennessee forests against an invasive pest that is putting the ecosystem at risk. The eastern hemlock is a shade-tolerant evergreen that typically has a long life. However, the trees are facing potential extinction due to the hemlock woolly adelgid, an invasive, sap-sucking insect that attacks North American hemlocks. To combat this ecological crisis, the Tennessee Department of Agriculture's Division of Forestry created the Hemlock Woolly Adelgid (HWA) Strike Team.

"Our team uses an efficient, intensive, and environmentally-conscious pest management plan to fight the pest and prevent additional infestation," HWA Strike Team Coordinator Jackie Broeker said. She leads the seasonal team that is comprised of licensed pesticide applicators JT Newburn, Wolfgang Boehm, and Chris Yeatman. With gear on their backs, Broeker and her team navigate the steep terrain to treat hemlocks. Most of their work is done on state-owned lands in areas such as Savage Gulf, "The Gorge" in Fall Creek Falls, and Pogue Creek Canyon.

The team works in cooperation with land managers from various agencies and conservation easements to protect stands of hemlocks, one tree at a time. "We work from October 1 through May 31 in East Tennessee and along the Cumberland Plateau in an effort to protect the vital ecosystem," Broeker said.

Tennessee remains one of the final harbors of eastern hemlock-dominant forests in the southeastern United States.

Hemlocks provide invaluable ecological benefits, such as habitat, stream temperature regulation, and stream bank stability. Eastern hemlock stands are also considered important as shelter for white-tailed deer and other wildlife species.

Broeker's forestry experience and education brings the needed foresters' view on HWA management, and her strong organizational skills assure the team runs smoothly. "The Division of Forestry was one of the first organizations to employ the strike team model to combat a forest health threat," Broeker said. "The team's agility and ability to travel provide us the proficiency to manage HWA on the landscape."

In the 2018 season, the HWA Strike Team treated approximately 15,000 trees that cover more than 1,300 acres. As part of the integrated pest management plan, thousands of predatory beetles were released to combat the threat. The team also conducted community workshops to train private landowners, volunteers, and state employees to protect hemlock trees. With its success, the Division is pursuing the use of the strike team model for other priorities, such as urban forestry and prescribed fire projects.

The Division employs the seasonal team, which is funded through a federal grant from the USDA Forest Service. The team is based at the Division's Rockwood office in Roane County.



TOTAL TREES

*Treated 14,850
trees for hemlock
wooly adelgid*



TOTAL ACRES

*Protected 1,330
acres*



PROGRAMS

*Conducted 5
community outreach
programs*

consumer and industry services

IMPACT OF NEW DESIGN

Businesses that rely on certified scales, meters, and temperature measuring devices now have a state-of-the-art space to serve their needs. The Julius T. Johnson Metrology Lab opened in May, providing cutting edge equipment and a wide range of scales for precision testing.

“This new metrology lab offers the most current equipment and testing capabilities,” Commissioner of Agriculture Jai Templeton said. *“We increased the number of metrologist positions to accommodate the increased workload anticipated as a result of our ability to offer several more services to our citizens, stakeholders, and customers.”*

Design and function of the new metrology lab meet the National Institute of Standards and Technology requirements for unconditional accreditation. This high mark of quality demonstrates the Tennessee Department of Agriculture’s efforts to ensure the accuracy of measurements, enhance consumer protection, foster fair competition, and facilitate economic growth.

Weights and measures inspectors in the field are tasked with testing weighing and measuring devices such as fuel pumps, scales, and liquid propane gas meters; package check weighing; and the verification of accurate universal product codes in retail. The purpose of calibrating weights and volumes is to ensure equity and fair trade in the marketplace across the state and nation.

The Consumer and Industry Services Division also administers several food-related programs. To enhance TDA’s work and provide consumers with a way to know their milk is locally produced, legislators enacted the Tennessee Milk logo.

“Consumers now have a way to know that their milk comes from Tennessee dairy farms,” Dairy Administrator Danny Sutton said. *“When dairies and producers display the logo, consumers have even more opportunity to support local farmers.”*

Milk featuring the marketing label must be entirely sourced, processed, and bottled in Tennessee.

“Middle Tennessee State University is proud to be one of the first producer/processors to participate in the new Tennessee Milk program,” MTSU Director and Professor of Animal Science Dr. Jessica Carter said. *“Being part of this program will allow us to brand our milk as a locally-produced product and enable consumers to confidently purchase dairy products from Tennessee farmers. Our freshly bottled MTSU milk will proudly display the new Tennessee Milk logo to help promote Tennessee’s dairy industry.”*

There are seven Tennessee dairy plants using the official milk logo: Middle Tennessee State University, Hatcher Family Dairy, Broadacres/ Weigels, Cruze Dairy, Stooksbury Dairy, G & G Dairy and Sunrise Creamery.





METROLOGY LAB

3,000+ calibrations performed



NEW LOGO

There are 7 dairy processors using the new milk logo



FOOD

There were 13,015 retail inspections

agricultural advancement **IMPACTING VALUE**

When Tennessee farmers and foresters gain access to more markets, both the producer and the consumer benefit. While it is difficult to control commodity prices, Tennessee producers can control which markets they enter. Whether developing a value-added agriculture business or processing an end-product to expand deeper into the production chain, producers throughout our state have found success in expanding and diversifying their operations to access new opportunities.

The Patrick family operates Pilaroc Farms in Lincoln County, home to Angus cattle, Berkshire-cross pigs, and Katahdin-cross sheep. This farming family believes in growing their brand by using multiple channels to serve various customer groups.

“The ability for us to target various markets with diverse meat cuts is driving our production,” Jennie Schutte-Patrick said. “The best way for us to move our product is to get into multiple channels, including restaurants, grocery stores, shipped sales, and direct-to-consumers. We’ve had to bend and flex to these avenues and offer our meats at every opportunity, and the Tennessee Department of Agriculture has been an invaluable resource to us as we’ve gone through this process.”

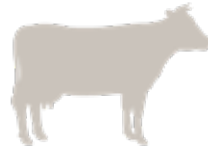
To assist businesses like Pilaroc Farms, the Agricultural Advancement Division focuses on supporting processing facilities that add value to Tennessee’s farm and forest products. Edgefield Prime, a meat processing facility in Bledsoe County, was able to expand and grow their business with help from the Division.

“Support and guidance from the Agricultural Advancement team is enabling us to provide our services to more livestock producers throughout our region,” owner Joe Riddle said. “Increasing processing and improving efficiencies have allowed us to reduce wait times for farmers to have livestock slaughtered and processed.”

From meat processors to sawmills, the Division will continue to work with businesses throughout the agricultural and forestry supply chain to ensure that Tennessee’s leading industry remains strong, innovative, and dependable.

“The Tennessee Department of Agriculture will always be a resource for standard farm and forest production,” Deputy Commissioner of Agriculture Tom Womack said. “Beyond that, we’re confident that our efforts to create new markets through value-added and diversified production will lead to opportunities that will make a true difference to Tennesseans.”





CATTLE

Market News staff recorded data on 449,707 head of cattle sold



CONTESTS

3,253 Fill Your Grill contest participants



GRANTS

19 Specialty Crop Block Grants awarded, totaling \$505,568

agriculture enterprise fund

FIRST YEAR IMPACT

What began as an idea from the Governor's Rural Task Force has become a successful grant program for Tennessee's agriculture and forestry businesses. The Agriculture Enterprise Fund (AEF) is an incentive program that supports economic development and job creation through agricultural business development. The program advances new and expanding Tennessee agriculture, food, and forest products businesses, particularly in rural counties.

The AEF program addresses key components of agricultural economic development, such as improving producer access to markets. Waverly Woods, a fourth-generation lumber company in Humphreys County, received an AEF grant for a new mill to produce pine lumber for pallet manufacturers.

"With extensive pine forest in our immediate area and a large market for pine lumber, we decided to enter into a new market by producing pine pallets stock," company president James Richardson said. "The support we received from the Ag Enterprise Fund opened up new opportunities for our business by allowing us to target customers who can utilize pine lumber in their pallet building process."

The AEF program also awards grants to entrepreneurs marketing a new technological innovation to create efficiencies in production or reduce costs. One of those innovative AEF recipients is Alex Adams. Adams founded GeoAir, which uses drones to pinpoint mold in field crops, enabling farmers to quickly act to stop the mold from spreading.

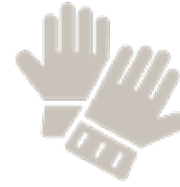
"The Agriculture Enterprise Fund has been extremely beneficial in allowing GeoAir to reach Tennessee farmers," Adams said. "We will be servicing farmers who grow commercial vegetables, gourds, and hemp. Through the impact of the grant, we are working to increase Tennessee farmers' yields and reduce their input costs."

In 2018, the first full year of implementation, the program supported 28 expansion projects that have a cumulative total budget of more than \$11 million.

"The Agriculture Enterprise Fund is serving agribusinesses, farming operations, and forest-product businesses impacting strategic areas throughout the state," Commissioner of Agriculture Jai Templeton said. "The program empowers Tennessee entrepreneurs, and it is a significant part of our plan for rural economic development. The first full year proved to be a success and we expect to continue for many years to come."

www.tn.gov/agriculture/businesses/aef





JOBS

164 jobs created



FUNDING

*\$1.3 million
awarded*



INVESTMENTS

*\$26.5 million
leveraged in private
investments*

agricultural enhancement program

DOLLAR IMPACT

For more than 90 years, the Watson family has worked early mornings and late evenings milking cows in East Tennessee. Brothers Caleb and Josh Watson grew their herd to more than 270 dairy cows, but ultimately, market conditions left them no choice but to focus on other forms of farming.

“With the challenges that dairy producers are now facing with the price of and market for fluid milk, we decided to diversify with row crop and beef cattle production,” Josh Watson said. “Thankfully, we received financial assistance from the Tennessee Agricultural Enhancement Program (TAEP) that allowed us to successfully adapt to the changing market conditions.”

TAEP has supported the Watsons and other farm families through cost-sharing to maximize farm profits, adapt to changing market situations, improve operation safety, increase farm efficiency, and make a positive economic impact in their communities.

“We couldn’t have made our farm adjustments without this program,” Watson said. “Whether it was a grain bin or a feed bin, every piece of storage equipment we’ve built with TAEP dollars is full. Even our hay barn that we built more than ten years ago is still proving to be a valuable resource for us.”

The Watsons have also used TAEP cost-share to improve the genetics of their cattle herd. In 2018, TAEP approved first and second priority applications for genetics. With this additional funding, Tennessee farmers purchased 1,248 bulls to strengthen the state’s cattle industry.

TAEP will continue to collaborate with Tennessee’s farmers. Through strategic agricultural investments and continued program improvements, the Tennessee Department of Agriculture will ensure that Tennessee’s leading industry continues to grow and provide for the state, the nation, and the world.

“If the purpose of TAEP is to make long-term investments on Tennessee farms and in rural communities, you’ll see a fine example of that here in Sweetwater,” Watson said. “We appreciate this level of support and plan to continue utilizing this program in a way that positions our farm to remain efficient, adaptable, and sustainable.”

www.tn.gov/agriculture/farms/taep





FUNDING

*\$37,310,281
requested*



APPLICATIONS

*6,955 approved
TAEF applications*



TOTAL INVESTED

*From FY06 to FY18,
\$168,286,284
invested in 57,555
producer projects*

pick tennessee products **IMPACTING BUSINESSES**

The Pick Tennessee Products program is known for connecting people to an array of fresh and delicious foods from Tennessee's farms. However, the beloved program does so much more than that. Pick Tennessee is your best source for local products, agricultural events, restaurants committed to using local ingredients, and seasonal fun.

For more than 30 years, the program has also been the premier resource for producers to access their local markets. This year, international markets became the focus. Five Pick Tennessee Products businesses joined the Tennessee Department of Agriculture for a trade mission to Toronto, Canada to find new markets far from their local communities.

The international trade promotion gave a boost to Nashville business Bluegrass BBQ, Inc., a producer of award-winning sauces. "To be presented this opportunity is just one of the reasons I find value in being a member of Pick Tennessee Products," owner Larry Crane said. "The PTP program has been a resource for our company as we have grown during the past 15 years. My association with PTP has led to new markets outside of Tennessee and, now, outside of the U.S."

During the four-day trade mission, companies toured retail grocery stores, got advice on labeling and compliance, and were briefed from the USDA Foreign Agricultural Service on the Canadian-U.S. trade landscape. The U.S. companies also participated in one-on-one meetings with potential buyers. Several states were represented at the Canadian trade mission, but Tennessee had the largest delegation. Nearly

one-quarter of the participants were from the Volunteer State.

"Whether it's promoting new farms within their communities or connecting established agribusinesses with international buyers, it's a win for all Tennesseans," Assistant Commissioner for Agricultural Advancement Ed Harlan said. "To see where we've been and what we've offered to Tennessee agriculture for decades encourages me for the future of Pick Tennessee Products."

The Pick Tennessee Products program continues to evolve and grow with additional products and retailers. The program provides opportunities for producers through educational workshops, conventions, connections, and international trade missions. From produce and pumpkin patches, to honey and handmade soaps, to cheeses and artisan chocolates, Pick Tennessee Products is the go-to for trusted products from Tennessee.

www.picktnproducts.org





DOWNLOADS

*The PTP app had
37,697 downloads*



MEMBERS

*PTP had more than
2,500 members*



PTP WEBSITE

*Attracted 706,602
site visits*

by commodity **PRODUCTION**

2018

Corn (Bushels)	112,560,000
Wheat (Bushels)	18,525,000
Soybeans (Bushels)	75,985,000
Hay, Alfalfa (Tons)	66,000
Hay, Other (Tons)	4,165,000
Cotton (Bales)	770,000
Tobacco, Burley (Pounds)	9,010,000
Tobacco, Dark Air (Pounds)	7,420,000
Tobacco, Dark Fire (Pounds)	23,180,000
Cattle, All (Head)	1,800,000
Cattle, Beef (Head)	914,000
Cattle, Milk (Head)	36,000
Hogs & Pigs (Head)	225,000
Sheep, All (Head)	48,000
Goats, Meat & Other (Head)	89,000
Goats, Milk (Head)	7,000
Broiler Chickens (Head)	177,300,000
Number of Farms	70,000
Land in Farms (Acres)	10,900,000
Average Farm Size (Acres)	156

Source: USDA's National Agricultural Statistics Service

by commodity **CASH RECEIPTS**

2018

All Commodities	\$3,508,548,000
Animals & Products	\$1,411,257,000
Meat Animals	\$628,324,000
Cattle & Calves	\$548,804,000
Hogs	\$79,520,000
Dairy Products, Milk	\$109,446,000
Poultry & Eggs	\$612,851,000
Broiler Chickens	\$525,292,000
Miscellaneous	\$60,636,000
Crops	\$2,097,291,000
Food Grains	\$97,213,000
Wheat	\$97,213,000
Feed Crops	\$531,597,000
Corn	\$374,209,000
Cotton	\$267,714,000
Tobacco	\$99,356,000
Oil Crops	\$655,279,000
Vegetables & Melons	\$58,469,000
Fruits & Nuts	NA*
All Other Crops	\$387,663,000

*NA indicates that commodity survey data is not available, and the amounts are instead included in either the 'miscellaneous crops' or 'all other animals and products' category, depending on the commodity type.

Values are rounded to the nearest thousand. Sub-categories may not sum to total because not all sub-categories are reported.

Source: USDA's National Agricultural Statistics Service

by commodity MILK PRODUCTION

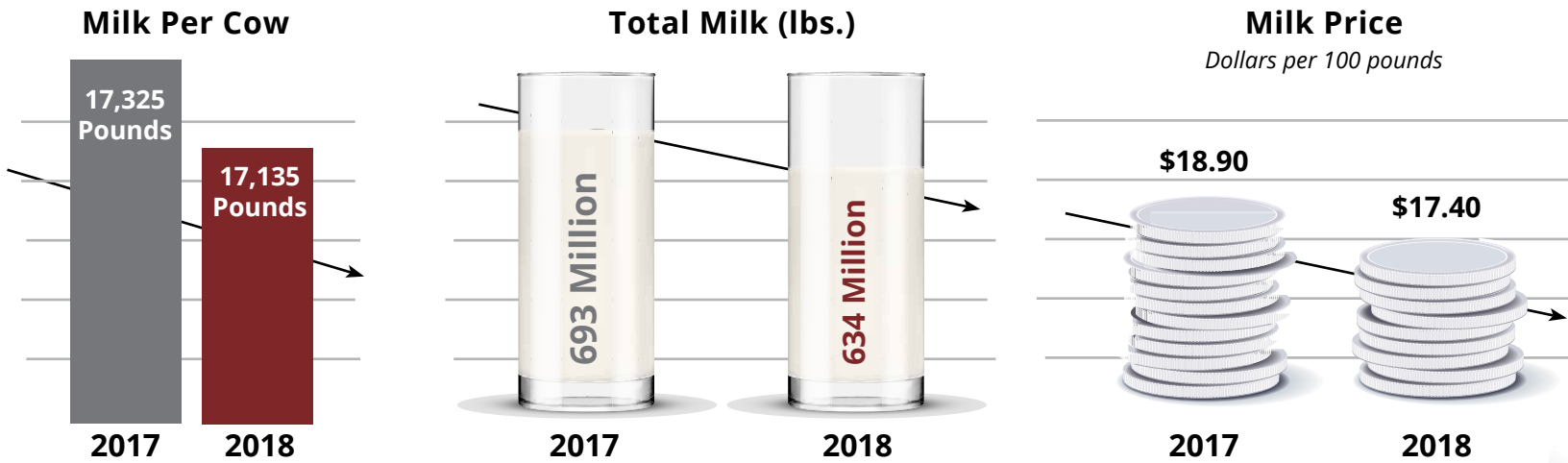
NUMBER OF MILK COWS ON FARMS

Number of cows on farms during year, excluding heifers not yet freshened.



MILK PER COW, TOTAL MILK PRODUCTION, AND PRICE

Milk sold to plants and dealers as whole milk and equivalent amounts of milk for cream. Includes milk produced by dealers' own herds and small amounts sold directly to consumers. Includes milk produced by institutional herds. Excludes milk sucked by calves.



Source: USDA's National Agricultural Statistics Service

by commodity
CROP PRODUCTION

	Acres Harvested	Yield Per Acre	Production	Value (1)
Corn (2)	670,000	168.0 bu.	112,560,000 bu.	\$434,700,000
Soybeans (2)	1,670,000	45.5 bu.	75,985,000 bu.	\$676,016,000
Wheat, Winter (2,3)	285,000	65.0 bu.	18,525,000 bu.	\$96,330,000
Cotton (4)	355,000	1,041 lbs.	770,000 lbs.	\$272,563,000
Hay, All	1,720,000	2.46 tons	4,231,000 tons	\$510,353,000
Hay, Alfalfa	20,000	3.30 tons	66,000 tons	\$14,718,000
Hay, All Other	1,700,000	2.45 tons	4,165,000 tons	\$495,635,000
Tobacco, All	15,700	2,523 lbs.	39,610,000 tons	\$99,980,000
Tobacco, Burley	5,300	1,700 lbs.	9,010,000 tons	\$17,750,000
Tobacco, Dark Fire-Cured	7,600	3,050 lbs.	23,180,000 tons	\$63,977,000
Tobacco, Dark Air-Cured	2,800	2,650 lbs.	7,420,000 tons	\$18,253,000

(1) Preliminary for 2018 crop year. (2) Area harvested represents grain.
 (3) Includes area planted in preceding fall. (4) Production in 480-lb. net weight bales.
 Source: USDA's National Agricultural Statistics Service



summary per head **LIVESTOCK**

	2017	2018
All Cattle and Calves	1,830,000	1,830,000
Cows and Heifers That Have Calved	950,000	950,000
Beef Cows	909,000	910,000
Milk Cows	41,000	40,000
Calves Under 500 Pounds	410,000	430,000
Steers 500 Pounds and Over	135,000	150,000
Heifers 500 Pounds and Over		
Beef Cow Replacements	145,000	135,000
Milk Cow Replacements	35,000	25,000
Other Heifers	90,000	80,000
Bulls 500 Pounds and Over	65,000	60,000
Calf Crop	850,000	860,000
Total Hogs	235,000	225,000
All Meat & Other Goats	100,000	96,000
All Milk Goats	7,000	7,500
All Sheep & Lambs (1)	46,000	46,000
Lamb Crop (2)	35,000	33,000
Total Layers	1,872	1,658
Total Pullets	915	1,019
Other Chickens	170	147
All Chickens	2,957	2,824

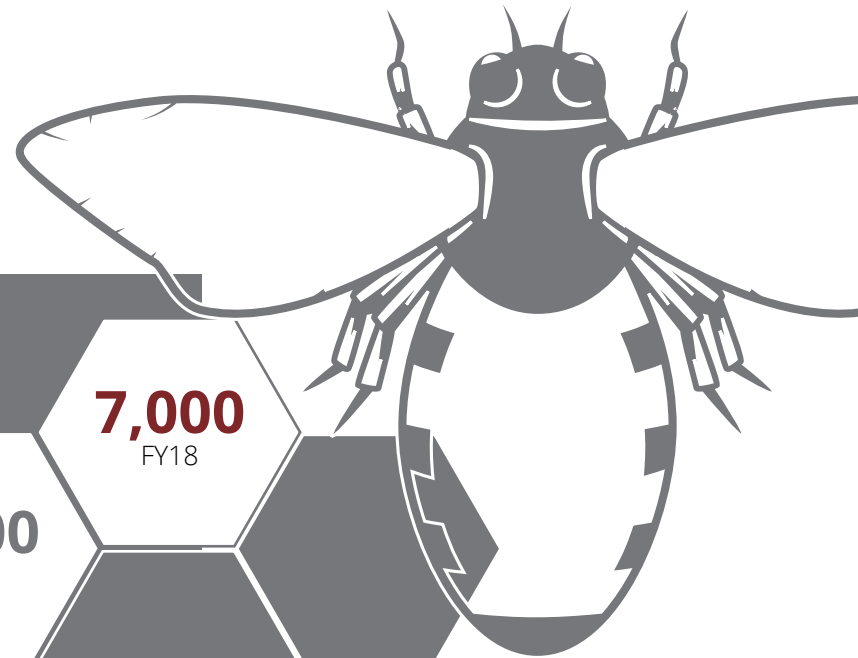
(1) All sheep includes new crop lambs. New crop lambs are lambs born after September 30, the previous year.

(2) Total for the year. Lamb crop defined as lambs marked, docked or branded.

Source: USDA's National Agricultural Statistics Service



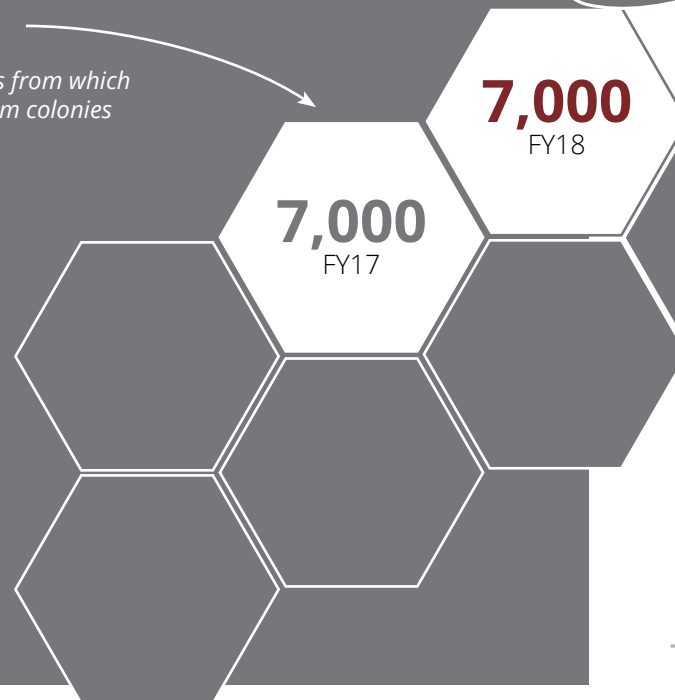
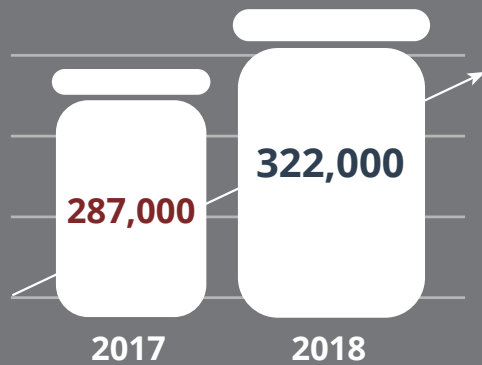
by commodity HONEY PRODUCTION



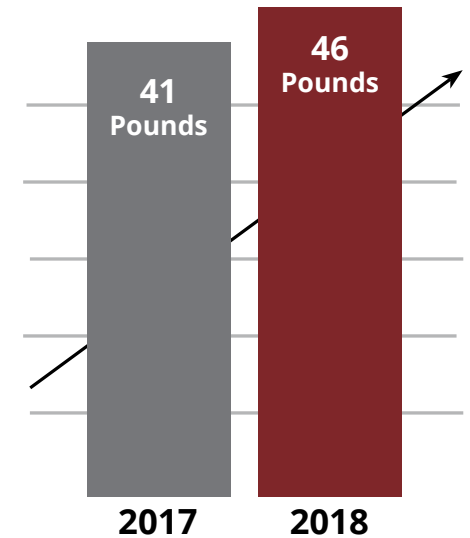
HONEY PRODUCING COLONIES

Honey producing colonies are the maximum number of colonies from which honey was taken during the year. It is possible to take honey from colonies which did not survive the entire year.

PRODUCTION (POUNDS)



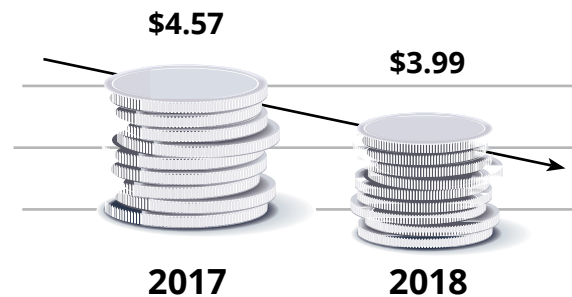
YIELD PER COLONY



VALUE OF PRODUCTION



AVERAGE PRICE PER POUND



*Producers with 5 or more colonies. Average price per pound based on expanded sales. Value of production is equal to production multiplied by average price per pound.

Source: USDA's National Agricultural Statistics Service



Department of
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Source: USDA's National Agricultural Statistics Service