



AGRICULTURAL  
SYSTEMS



ENERGY &  
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ENVIRONMENTAL  
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NUTRITION & HEALTH



YOUTH, FAMILY  
& COMMUNITY

# COOPERATIVE EXTENSION **IMPACT**

*1890 LAND-GRANT INSTITUTIONS*



*Photo credits: North Carolina A&T State University, pages 2, 22, 23 and 28; West Virginia State University, pages 7 and 29; University of Arkansas at Pine Bluff, page 6; Langston University, page 14; Paradise Baptist Church, page 19; Southern University, pages 25 and 26.*

Every day the 1890's Cooperative Extension change the lives of the people it works with directly and subsequently change the communities where these people live. This document was designed to share some of the impact being made by the 1890s.

The 19, 1890 land-grant universities that make up what is called the 1890s have a mission to work with small, limited-resource and limited-opportunity farmers and rural and urban youth, families and communities. Cooperative Extension's job is to reach out and connect with people, many of them minorities with limited financial and social resources, and to provide solutions so they have the opportunity to be successful.

With primary support from USDA's

National Institute of Food and Agriculture and other related agencies, state and local governments, and private and public grants, Cooperative Extension Programs at these 1890 universities share the knowledge and expertise from the land-grant system with residents in the 18 states where they are located. They also work in partnership with the 1862 land-grant universities in their respective states and throughout the country.

Although the 1890 Cooperative Extension experts primarily work in their individual states and localities, collectively they help address many of the issues plaguing the country – small farm, positive youth development, STEM literacy, financial management, improve health and nutrition

and physical activity, community development and resource sustainability.

They work to ensure that farmers, many of them expanding from traditional row crops, are introduced to alternative and emerging enterprises. They work with youth to ensure they grow into productive citizens, and are STEM prepared for tomorrow's jobs and opportunities. They help families become homeowners and financially stable. They help communities get some of the resources they need like traffic signals at dangerous intersections and community centers for seniors and youth. And they address some of the major diseases, like diabetes and hypertension, that primarily affect minorities in the Black Belt region of the country.

**That's what Cooperative Extension does.**

The participating universities are: Alabama A&M University, Alcorn State University, Central State University, Delaware State University, Florida A&M University, Fort Valley State University, Kentucky State University, Langston University, Lincoln University, North Carolina A&T State University, Prairie View A&M University, South Carolina State University, Southern University, Tennessee State University, Tuskegee University, University of Arkansas Pine Bluff, University of Maryland Eastern Shore, Virginia State University and West Virginia State University.



## AGRICULTURAL SYSTEMS

Ensuring profitability, productivity, and sustainability for food and fiber production systems using innovative and time-tested methods



*Farmer Mike Pearl chats with a customer at the local farmers market.*

▶ When Mike Pearl left his marketing job in New York and moved his family back home to Platte County, Missouri, he decided to work the farm that had been in his family since the 1830s. He started with vegetables on about a third of an acre of fallow land and sold his produce at a local farmers market. He

soon realized he needed to expand his operation but had no idea what to do. Eventually he contacted the Farm Workers Outreach Program at **Lincoln University** Cooperative Extension.

With Extension's assistance, Pearl inventoried his assets and discovered he could sell some of his pecan trees for timber, giving him the funds needed to expand his operation. Extension also helped Pearl work on improving the soil on his farm and assisted him with getting a grant from Natural Resources Conservation Service Environmental Quality Incentive Program to install a high tunnel structure to extend his vegetable growing season. With the money from selling the trees, Pearl purchased a tractor and pickup truck and other farm equipment that would make it easier for him to work without any additional labor.

Today, Pearl has increased his vegetable acreage five-fold and is using plastic mulch for weed control. Pearl sells potatoes, onions, tomatoes, sweet potatoes, broccoli, spinach, cucumbers and cabbage and soybeans. In addition to Pearl and his three adult children, he hires 10-14 people during harvest.

He has developed a reputation with a number of local restaurants of providing high quality produce. He eliminates the refrigeration and gets the produce from field to restaurant as quickly as possible.

Pearl's goal is to plant 25-30 acres in vegetables and add on additional institutional and restaurant customers. Doing so, he said, has been made easier with the high-tunnel structure.

"I didn't just want to be a farmer," said Pearl. "I wanted to be good at it that's why I go to all the programs they have at Lincoln."

► Small-scale meat and dairy goat producers often find it difficult to know whether information they get online is accurate and will increase their economic viability. To assist those producers and ensure they get reliable, research-based information, Cooperative Extension at **Langston University** took the lead in developing an 1890 land-grant university online goat production certification course.

The Meat Goat Producer Course was launched in 2007 and updated in 2017. The Dairy Goat Producer Course was launched in 2017. The courses, written by experts in the field, include pre- and post-tests and a series of required and elective modules. To become a

certified meat producer, the farmer must successfully complete the 21 core modules and nine of the 12 elective modules. To become certified in dairy goats, a farmer must complete 18 of the core modules and seven of the 10 elective modules.

To date, 71 dairy goat producers in 33 states and three countries, and 403 meat goat producers in 44 states and 14 countries have completed the online course.

"As a person that has owned goats for 40 years, I thought I knew a lot," said Dyann Tate from Mojave, California. "I was very wrong. In taking your pre-test, I scored an average of 50 percent. After completing the chapter, I averaged 100 percent. The knowledge that I have so far learned will be of immeasurable benefit to help me with the management of my herd."

And added Jeannie Moers, from Mannford, Oklahoma, "This online course has given me so much to expand on. Thanks for this opportunity."

The course, designed for small famers, Extension educators and other providers, includes information on primary housing and management, nutrition, herd health, reproductive issues, marketing, product safety and creating and marketing value-added products.

► As the demand for sweet potatoes increases in Arkansas, the Cooperative Extension Program at the **University of Arkansas at Pine Bluff**, developed the Sweet Potato Foundation Seed Program so farmers would have access to virus-indexed planting materials.

Without the UAPB materials, farmers often had to travel to other states to get plants, which was costly and sometimes were such a poor quality that it resulted in delayed planting, poor yields and root quality.

During 2017 and 2018, the program delivered over 103,000 virus-indexed sweet potato cuttings/slips and 2,900 pounds of seed stock to the industry. The lower production costs led to increased profits for the participating farmers. Having in-state access to the materials also decreased transportation costs and allowed farmers to market high-quality sweet potatoes to customers.

► USDA has many high-quality programs for small and socially disadvantaged farmers but farmers are often unaware of the materials, especially in the Bootheel area of Missouri, the southeastern most part of the state, named for its shape. This lack of knowledge hinders small-farm enterprises and reduces the profits those farmers could make.

Working with the NRCS Office of Advocacy and Outreach, the Farm Workers Outreach Program at **Lincoln University** Cooperative Extension developed a program to target these farmers. Four staff members were hired to work in the 12 counties in the Bootheel area. They initially developed a profile on each farmer so they can continue tracking and hosted 12 workshops and conducted 72 farm visits.

Thus far, 120 farmers have participated in the program. In 2017, 16 farmers applied for high tunnel grants, and 14 of them were funded \$9,000 each from the NRCS Environmental Quality Incentive Program. Once farmers got the materials, they came together to help each other erect their high tunnel structure.

Farmers are now using these high tunnels on their farms to extend their growing season and increase farm income and profits. Additionally, eight farmers applied for and got a farm tracking number, certifying that they are official farmers and not gardeners.

"We have seen a dramatic increase in applications for high tunnels from socially disadvantaged farmers and we think it is a result of the work LU does in the state," said Brad McCord, NRCS Natural Resource specialist.

▶ Feral, or wild hogs, are among the most destructive invasive species in the country, with 2 to 6 million hogs wreaking havoc for local farmers. Texas is home to one half of the feral hog problem, costing about \$400 million in annual damages.

Cooperative Extension at **Prairie View A&M University** worked with farmers in Fort Bend County to curb their growing nuisance of feral hogs (wild boars).

In 2018, 50 local farmers attended a series of workshops on field dressing and processing, eradicating and trapping and nuisance control of feral hogs. The presentations included humane trapping tips and ensuring that hogs are trapped alive and kept comfortable.

▶ Rapidly identifying nutrient imbalances in a variety of plants is critical to a farmer. Delay can mean the loss of a plant, an entire crop and a loss of funds.

To assist farmers, Cooperative Extension at **Lincoln University** developed an e-book with high resolution images to aid farmers in quickly identifying the nutrition deficiency of various plants. The book, translated in several languages and distributed worldwide, has the potential to save billions of dollars.

Once farmers are able to visually identify an issue,

they can then move to tissue tests and other analyses to help correct the problem before it spreads and causes additional damage.



*Staff at the University of Arkansas at Pine Bluff's Fish Health Services conduct testing to ensure a farmer's stock is healthy.*

▶ Arkansas is the second largest fish-producing state in the country and it's estimated that fish producers lose over \$2 million annually because of fish diseases.

Cooperative Extension at the **University of Arkansas at Pine Bluff's** Fish Health Services supports the state's four fish disease diagnostic laboratories.

These labs are responsible for the timely diagnosis and treatment of common fish diseases and parasites. Annually, they diagnosis over 1,500 cases.

The UAPB program has resulted in better farm biosecurity protocols and a rapid response rate by producers to get fish diagnosed when a disease outbreak occurs. Their work has also contributed to a 40 percent reduction in fish losses and saved producers \$500,000 annually.

▶ The continued loss of tobacco income has many of the small farmers in Southside Virginia looking for alternative crops, including berries.

Using a \$720,000 grant from Virginia Tobacco Indemnification Community Revitalization Grants and funding from USDA's Capacity Building, Cooperative Extension staff at **Virginia State University** are working with 55 small farmers, 18 of them in Southside Virginia, to assist with growing and marketing berries.

In 2017, the group produced and marketed more than 50 metric tons (30,000 flats) of blackberries and blueberries. The total wholesale value of the berries was \$540,000 and created 37 seasonal jobs for pickers and packers. Some of the berries have been sold in Food Lion, a national grocery chain.



*West Virginia State University is helping farmers become part of the craft beer industry by helping them grow hops, a basic beer ingredient.*

▶ The craft beer industry is booming in West Virginia, with more than 20 active breweries in the state. While this surge is great for business and consumers, agricultural opportunities for the state's farmers have yet to be fully realized.

**West Virginia State University** Extension Service is helping to alleviate this issue by researching the viability of growing hops, which gives beer its bitterness and aroma. On average, breweries reportedly pay up to \$10 per pound for fresh, locally grown hops.

With \$47,000 from the West Virginia Department of Agriculture's Specialty Crop Block Grant program, WVSVU is partnering with farmers in a hops trial program.

During the three years of the program, Extension has worked with 35 farmers on production trials, 35 farmers for information sharing, 80 people in educational workshops and events and reached farmers in 25 of the state's 55 counties.

Local brewers have been supportive of the program with some buying hops from local farmers. Two local brewers purchased a combined 250 plus pounds of hops from one farmer.

Additionally, a small-scale hammer mill and pellet mill are also being used by the hops growers to process their whole-cone hops into pellets, which are more desired by breweries.

▶ Cooperative Extension at **Tuskegee University** began working with local farmers in 2011 to determine how small, disadvantaged and limited-resource farmers could form a cooperative and land a large national client.

Using local contacts and existing partnerships, the farmers formed the Small Farmer Agricultural Cooperative, negotiated agreements with each

other and with Walmart, obtained production equipment, supplies and wells, got access to transportation and refrigeration units, secured training and technical assistance on harvesting, grading, packing, producing, food safety, integrated pest management and record-keeping.

As a result, 20-30 farmers are supplying either watermelon, collards and other leafy greens, southern peas, yellow and zucchini squash and eggplant to Walmart. These sales represent over \$2 million in revenues between 2014-2016. Additionally, some of the farmers have gone on to negotiate deals with Whole Foods and Kroger and one farmer is supplying produce to Walmart directly. They are also supplying produce to Red Diamond, which is a regional wholesale producer, restaurants like Jim 'N Nicks Barbecue and to local schools, hospitals and other institutions.

Individually, participating farms have seen a 25 percent increase in revenues and an additional 350 full- and part-time jobs have been created.

▶ Once a family member dies, the issue of what happens to the farm can cause family division.

At the request of farmers and in partnership with the Center for Heirs Property in Charleston, the Small

Farm Assistance and Outreach Program at **South Carolina State University**, hosted a two-day workshop on developing a will and getting other personal affairs in order.

Over 100 participants from the Williamsburg community attended these sessions where they talked about healthcare, power of attorney, the probate process, claims against the estate, deed of distribution and defining heir property. Since the workshop, 10 percent of them have developed a will that they have on file and others are in the process.

Having a will can assist family members with retaining their farms and ranches and keep families together.

▶ Gadsden County, Florida has a high incarceration rate and many of the inmates, after serving their time, return to society with little or no skills, education or experience. As a result, they have a hard time finding employment, and without a job, recidivism is high.

To assist with reentry, Cooperative Extension at **Florida A&M University**, in partnership with the Gadsden County Sheriff's Department, created a hands-on agriculture training and certification program for inmates.

Eight inmates completed the eight-week training program, which includes 16 hours of instruction in soils, botany, plant anatomy and physiology, gardening and landscape and 74 hours of farm practical experience. An additional 13 inmates participated in a Green Industries Best Management Practices Certification training that provided lessons on how to reduce non-point source pollution in the landscape and using landscape practices that are environmentally safe. Eight completed the training and five of them received a score of 70 percent or better and earned the State of Florida Green Industries BMP certification.

▶ Small farmers often struggle to be profitable. High tunnel production is a season extension method that allows farmers to plant and harvest high-value crops earlier and later. Extending the growing season allows farmers to have more produce earlier and longer and thereby increases profits.

Many of the 1890 land-grant universities have a high tunnel program. Cooperative Extension at **North Carolina A&T State University** helped link farmers with the USDA Environmental Quality Incentive Program.

In Sampson County, North Carolina, the owners of Butler Family Farms successfully completed the program and applied for an NRCS cost share and were awarded a \$7,972 grant to construct a high tunnel, valued at \$10,000. The Butlers picked up the remaining cost. They also decided to become Good Agricultural Practices certified so they can offer their customers safer foods.

The Butlers planted tomatoes in the high tunnel. By August 2017, they earned \$3,155 selling those tomatoes to Lowes Foods, Subway and Carlie C's IGA. The family has now planted winter greens in the unit.

The high tunnel increased their income and netted the Butlers four new markets.

► In an effort to assist farmers with keeping a close watch over their fields and to interest the younger, more technologically savvy in farming, Cooperative Extension at **Fort Valley State University** set up an on-site drone demonstration at the campus.

Drones can be used for field scouting, GIS mapping, determining crop health, remote sensing and field crop spraying. Additionally, the drones at FVSU were used to scout forestry locations plagued by pine beetle infestation to help a farmer determine

which trees to salvage from his land lot.

FVSU has also hosted a number of campus demonstrations allowing farmers to see how to effectively use the drones on their farms and how the technology can save them time and money. One such demonstration involved the use of a spraying drone applying liquid pesticides, fertilizers and herbicides. The drones allowed for a higher spraying coverage rate, about seven to 10 acres per hour, and were able to do the work previously manually done by a farmer.



*Drone demonstration showing farmers just how to incorporate the smart technology into their farming enterprises.*

This smart agriculture is still in the demonstration stage, but the desire is to encourage farmers to consider this new technology to save time and money.

► Becoming a successful, productive and profitable farmer requires more than just putting seed in the ground or hoofs on the land. It requires a lot more science and skill than some people realize.

To help small, disadvantaged and limited-resource farmers and new veteran farmers, Cooperative Extension at **Delaware State University** developed a number of initiatives to address specific issues identified by the farmers.

One, was the development of a Farm School Mentoring Program. The two-year program requires 70 hours of classroom and hands-on training and completion of an agricultural business plan. Eighteen beginning farmers have completed the program with 90 percent of them adopting a farming practice they learned in the program and an additional three farmers have purchased a farm and started a new enterprise.

Additionally, DSU has been working to assist farmers with securing the funding they need to support their enterprises. Thirty-three farmers finished the program and four have secured a loan from the

Farm Service Agency and others have inquired about other programs, although not yet funded.

DSU also created a three-month program to help farmers address risk management. At the conclusion of the program, 23 farmers completed a farm business and a marketing plan.

► After six years in the U.S. Navy and as an Operation Desert Storm veteran, Julian Harris moved back to South Carolina to help his aging parents, but soon realized he needed help to make the family farm productive.

He then contacted the Small Farm Assistance and Outreach Program at **South Carolina State University** for assistance. Harris has attended a number of workshops focused on risk management, developing farm management plans and establishing farm record keeping procedures. He has developed a farm plan and recently obtained a loan from the Farm Service Agency. Harris has also purchased some farm equipment, including a truck, tractor and a plastic mulch roller. He is now using 10 acres of the family farm to plant vegetables.



## ENERGY & BIOPRODUCTS

Leading the way in energy technologies such as bioproducts, biofuels, biomass and other energy technologies and techniques

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► Rural farmers and landowners are interested in how to save on their energy costs, but lack the knowledge.

To provide the information needed, Cooperative Extension at **Fort Valley State University** installed solar arrays in the school's greenhouse. This off-grid solar operation has fueled the greenhouse's furnace, lighting, exhaust fans and electrical outlets.

Since the project began two years ago, more than 250 people participated in workshops and field days focused on alternative energy solutions and examined how to adopt what the university has learned at their personal ag enterprises.

Additionally, a local power company is interested in installing a solar farm on the campus, allowing additional research and opportunities to assist small farmers in how to develop similar off-grid operations on their farms.

► The Community & Economic Development Unit of the Cooperative Extension Program at **Prairie View A&M University** partnered with USDA Rural Development to train, counsel and provide business opportunities to entrepreneurs interested in starting a business in energy auditing and home weatherization.

The program is designed for low-income people wanting to open a business in the green industry.

Twenty-two participants have completed the program, with one tripling her business and another securing a \$100,000 contract.

► Without proper management, soil can be depleted of nutrients and that can lead to lower crop yields and profitability. A 2017 needs assessment survey in Tennessee showed that 91 percent of the farmers wanted assistance in soil health training.

To answer the need, the Cooperative Extension Program at **Tennessee State University** created workshops focused on soil health and sustainability. Seventeen agents, 125 farmers and 37 youth participated in these sessions.

Agents said they learned about measuring soil health, and felt they were more confident about assisting farmers in sustainable soil practices. The farmers said they know more about how nitrogen and soil pH affect their crops, learned how to incorporate sustainable agricultural methods and learned how to measure their soil health. The youth said they learned how to measure soil texture and to judge a soil pit, assessing an area's soil profile to determine how the soil is best used, and to assist in developing measures to stop or hinder soil erosion.



## ENVIRONMENTAL STEWARDSHIP

Creating a sustainable future for our natural environment through stewardship of the ecosystem energy conservation, and water management

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► Some public offices in Midwest City and Stillwater, Oklahoma have put away their lawnmowers and replaced them with goats.

Working in partnership with Cooperative Extension at **Langston University** they have used the goats to clear unwanted brush and vegetation, including poison ivy and Johnson grass, from the wastewater treatment plant, particularly around sloped areas where mowing has been hazardous for workers.

"I like the idea of goats clearing vegetation because it's eco-friendly and may prove beneficial for managing especially difficult areas," said Cody Whittenburg, storm water manager in Stillwater. "Goats are natural mowers and may be more efficient in certain areas than machines. Using goats instead of herbicides and machinery can be more cost effective, efficient and eco-friendly."

Added Chris Thomas, wastewater treatment plant operator in Midwest City: "With the use of the goats at the facility we have eliminated any issues that have occurred in the past maintaining our sloped areas. This has been a more environmentally friendly solution by eliminating emissions from moving equipment and having a safer workplace by keeping employees off of

slopes. The goats did and continue to do an incredible job removing underbrush. This program has been a huge success."

Goats are quick and precise eaters and can select the most nutritious parts of the available biomass and they have a preference to browse and consume significant amounts of vegetation. Instead of spending between \$10 and \$25 per acre for chemical control, goats can handle the tasks at almost no costs.

Langston started the program in 2008 in partnership with the Kiamichi Forestry Research Station at Oklahoma State University with a forestry and goat demonstration site. The success of that program led to a second project in 2010 that allowed for the co-grazing of goats and cattle to remove invasive species from pastureland and adjacent woodlands. In 2011, a pilot project with Stillwater was established and has continued adding additional clients along the way.

► Cooperative Extension at **Kentucky State University** partnered with Franklin County Solid Waste to develop and pilot the state's first master recycler course. The six classes focus on solid waste stream, composting, source

reduction of waste, recycling economics and community education. Participants also toured the county landfill, recycling center and livestock compost site as part of their sustainability education.

After completing the program, the participants placed new recycling bins and educational materials at various worksites, staffed recycling booths at the county fairs and other events, created displays about recycling for other countywide and community events, presented materials at local community association meetings, developed a master recycler Facebook page and assisted others with placing recycling and compost bins.

Franklin County sends an average of 7,000 tons of waste to the landfill, annually. The goal is to reduce this amount by 50 percent. The county now stands at 22 percent, but sees the master recycler program as a key partner in helping to reach its goal.

▶ Cooperative Extension at **Delaware State University** formed new partnerships with two county conservation districts and hosted a series of soil-health and cover-crop workshops to educate farmers about protecting their land. Additionally, DSU formalized an agreement

with the state SARE program to continue to provide professional development programs in all of the state's three conservation districts, and hosted numerous workshops on woodlot management. The classes, which included tree identification, proper chainsaw use, maintaining a sustainable forest and caring for trees and woodlots, were specifically designed for small and limited-resource farmers.

▶ When the Water Wheels rolls across Alabama, its purpose is to help the state's residents learn about water conservation. Water Wheels, a 36-foot mobile conservation laboratory operated by Cooperative Extension Urban Affairs and New Nontraditional Programs at **Alabama A&M University**, taught 3,219 individuals about water conservation last year. Additionally, they sold and installed 50, 60-gallon rain barrels across the state, and those barrels caught approximately 165,000 gallons of rainwater.

One client, the Anniston's Lingleaf Botanical Gardens, collected and used 200,000 gallons of rainwater for their operation. Since the state normally charges \$32.80 for 5,000 gallons of water, they saved an estimated \$1,312 in water utility costs.

Other customers used the barrels for home use or to irrigate crops. In a state where the average family uses 109,500 gallons of water, annually, every bit of water saved and collected is critical to the drought-stricken state.

▶ More than 20,000 participants from 22 states and across Kentucky have participated in The Third Thursday Thing, a monthly training program focused on sustainable agriculture. Working in partnership with SARE, **Kentucky State University** Cooperative Extension has hosted sessions on pastured poultry, alternative farm enterprises, the USDA Farm Bill, farm management and opportunities for farmers with disabilities.

An estimated 12,000 participants said they have improved their farm income and their farm practices, reduced costs and implemented sustainable farming methods. Additionally, the state has expanded the number of farmers markets, providing farmers with additional marketing outlets and allowing consumers the opportunity to buy local, sustainably produced foods.

▶ More than half of Alabama residents, particularly rural residents, use groundwater as their primary

drinking water source. However, the water sources are becoming increasingly contaminated by agricultural nutrients, pesticides and pathogens. And since these private wells are not protected by the Safe Water Drinking Act, the rising levels of contaminants go undetected and can cause health and environmental issues statewide.

**Tuskegee University** Extension, Agricultural Research and Outreach programs developed a water quality education and testing program to serve residents in the Alabama Black Belt Counties.

They conducted workshops and disseminated educational materials in Macon, Lowndes, Wilcox, Sumter, Marengo, Dallas and Perry counties. Topics included watershed principals, sources and effects of water contaminants, water testing, septic systems and best management practices.

In 2016 and 2017, awareness increased from 35 to 77 percent, knowledge gained increased from 57 to 71 percent and changes in behavior to affect water quality went from 50 to 78 percent. A notable longer-term impact showed a gradual decrease in nitrate and coliforms in the water supply as participants have adopted water-quality best management practices.



## FOOD SECURITY

Ensuring everyone's family has enough to eat, and that their food is safe, affordable, nutritious and readily available



*One of the raised beds at Paradise Baptist Church's Garden of Eat-In in Dallas.*

► As Paradise Baptist Church approached its 50th church anniversary, they and Pastor Anthony Nolan, who had recently lost his mother, looked for an appropriate commemoration.

After identifying that the church had a number of avid gardeners, a trait Rev. Nolan's mother also possessed, members decided to plant a community

garden. That plan also fit nicely with the Dallas church's health and wellness ministry.

Once they got started with the 20 raised-bed gardens, they contacted Cooperation Extension at **Prairie View A&M University**, that offered technical assistance and guidance.

The garden, aptly named Paradise Garden of Eat-In, provides fresh fruits and vegetables to the church and the surrounding community and serves as a teaching laboratory for the two elementary schools that have gardens at the church and the young men who attend the church's summer camp.

"I'm one of those pastors who believes you can worship God without being inside the church," Rev. Nolan said. "These gardens have given us an opportunity to be in tune with nature and get fresh food. When you till and gather fresh food you live longer. You think better. You feel better. Your whole life is better."

Nolan admits that the gardens have been enhanced with work from Cooperative Extension, which not only helps with technical aspects of gardening, but also frequently conducts wellness

workshops and sessions with church members.

The program at Paradise Baptist Church is part of Extension's Garden 2 Table program, a collaboration between Prairie View, Texas AgriLife Extension Service and The Methodist Dallas Health System. The overall objective is to help people grow their own food, make healthy choices and to stretch their food dollars.

Eating more fresh fruits and vegetables has been shown to improve health and community gardens help revitalize communities.

► More than 70,000 residents in East Baton Rouge Parish live in food deserts, which can contribute significantly to obesity among low-income preschool children. Food deserts affect all income levels, but have a greater impact on those with limited incomes because they often don't have transportation, so getting to a grocery store can be a problem.

Obesity-related health care cost Louisiana taxpayers \$2.3 billion in 2014 and are expected to increase to \$4.4 billion in 2018. Any efforts to improve health and thereby reduce costs, is needed.

Armed with this knowledge, Cooperative Extension at the **Southern University** Research and

Ag Center developed a 12-week Sustainable Urban Agriculture Certification Program focused on helping participants grow fresh fruits and vegetables, tend to animals, work with local ordinances and learn to recycle available resources and discarded items to promote healthier lifestyles and communities.

Partnering with a local community foundation, Grow Baton Rouge, 31 participants in the Baton Rouge community graduated from the latest class. Thus far, the group hosted the first-ever farmers and makers market in the Eden Park area of East Baton Rouge Parish, held a hands-on field day and broke ground on a community garden next to a community center in the heart of Eden Park.

Additionally, 21 of the graduates sold their produce at the farmers market, which also included cooking demonstrations, food tastings and sharing healthy living information.

► Like Louisiana, **Virginia State University** Cooperative Extension also coordinates a 12-week Sustainable Urban Agriculture Certificate Program, designed to increase the number of trained urban agriculture professionals. Ultimately, the participants are expected

to own or operate a profitable urban farm. The course is science-based and includes sessions on plant propagation, nursery management, plant disease and pest management, sustainable soil management, animal husbandry, hydroponics and aquaponics.

In two years, 50 participants have written business plans and completed over 1,500 hours interning at various agricultural sites, preparing them to operate their own farms.

In addition to providing access to healthy and affordable food, urban gardens can offer a wide array of community benefits including closer neighborhood ties, reduced crime and education and job training opportunities for low-income residents.

► Mississippi ranks in the top 35 percent of states with the highest rates of obesity among adults. A lack of access to fresh fruits and vegetables contributes to the state's poor health.

The Expanded Food Nutrition Education Program at **Alcorn State University** was recently recognized as the first institution in the state and the second 1890 land-grant university to partner with Oldways, which blends nutrition with cultural history and has diets

of Mediterranean, African, Latin American and Asian cuisines.

The Oldways curriculum includes a six-week cooking class focused on how to cook and eat healthy, traditional and enjoyable meals by learning to modify traditional recipes so they are healthier. Research shows that eating more whole grains lowers the risk for diabetes, so one of the recipes suggests a millet porridge with bananas for breakfast. Additionally, Alcorn added a physical fitness and movement component to the program.

The first 20 participants completing the free course reported increasing their fruit and vegetable consumption by one cup each day and three of the participants reported starting container gardens and using the harvest to prepare their meals.



## NUTRITION & HEALTH

Providing for your family's health through nutrition, genomics, physical activity, wellness and management of chronic disease



*Students walking through the Speedway to Healthy, stop to get a health lesson from a staffer.*

▶ North Carolina's rich tradition of NASCAR, including legendary drivers Richard Petty and Dale Earnhardt, fueled Cooperative Extension at **North Carolina A&T State University's** souped-up approach to teaching nutrition education and healthy eating to young, school-aged children by creating a 1,200-square-foot, walk-through exhibit called the Speedway to Healthy. Extension works with schools and community-based

organizations to train volunteers to set up and man the 11 pit stops that focus on food and exercise and how to maintain healthy teeth, heart, brains, lungs and other body functions.

Since 2014, more than 25,000 students from kindergarten to fifth grade in 27 counties have toured the exhibit.

To help teachers incorporate the learning into the state's standard course of study, Cooperative Extension developed an accompanying curriculum to be used to prepare students for their "ride" through the Speedway to Healthy.

For Grace Faircloth, a third grader at Mintz Christian Academy in Sampson County, North Carolina, the most interesting part of the exhibit was the heart.

"I learned that it's good to exercise a lot," she said.

For Noah Styles, a fourth grader in the Davidson County schools, the teeth were his favorite pit stop: "We got to floss the big teeth and use the big toothbrush. It makes learning fun, and it will help me remember things better than I have learned in class."

Sampson County teacher David Joyner said: "It's been helpful for the teachers. We get back to our school and are able to apply what we learned here

with our textbooks and lessons in our classrooms.”

Added Dr. Michael Murray, superintendent of the Cherokee Central Schools: “What we’re doing is bringing science alive by integrating it in a hands-on approach. To build engagement in the classroom, it’s critical to make sure you don’t just read it out of a book, but that you participate in it, you see how it ties into your every day.”

▶ Alabama ranks as one of the country’s highest in the nation for writing opioid prescription medications that led to 736 reported deaths in 2015. Treating opioid abuse is estimated to cost an average of \$92,000 per patient whereas it only cost \$1,775 to incinerate a ton of pharmaceutical waste.

Hoping to get prescription opioids off the streets, Cooperative Extension Urban Affairs and New Nontraditional Programs at **Alabama A&M University** placed prescription drop boxes in secure locations in five urban counties throughout the state. Approximately 634 people dropped off 4,255 pounds of prescription and over-the-counter medications. Not only removing them from the streets and potential abuse, but keeping them out of public landfills and the water supply.

▶ In 2016, Arkansas ranked among the nation’s top 10 for obese youth, ages 10-17. Research shows that providing kids with physical activity and healthy eating can reduce the obesity rates and build a lifetime of healthy eating patterns. Additionally, children have great influence over what foods parents or other adults purchase.

The Cooperative Extension Program at the **University of Arkansas at Pine Bluff** hosted a five-day summer enrichment camp for youth ages 6-11, hoping to reduce the state’s high youth obesity ranking. The focus was on healthier eating, basic cooking skills, food safety and fun ways to be physically active.

Approximately 25 children participated in the most recent camp. They prepared healthy foods, planted their own tomato plants and participated in dancing and yoga. Staff will continue to follow the participants to see if the material translated into healthier eating, not just for them, but for other family members as well.

▶ Only seven of the 19, 1890 land-grant universities participate in the Supplemental Nutrition Assistance Program (SNAP). In Kentucky, SNAP-Ed assistants from

Cooperative Extension at **Kentucky State University** help supplement the basic skills education lost in the schools because of budget cuts.

During the regular school day, after school and at in-school clubs, staff offer sessions on healthy activities, basic cooking skills and nutrition education. The younger children focus on age-appropriate activities and the older students focus on web-based nutrition programs, food groups and attaining calorie credits for exercising.

Last year, 1,544 students participated in the KSU program. Parents report to the schools that their children are requesting more milk and water and are sharing healthy recipes with their families. At one of the demonstration sites, one 5-year-old participant explained MyPlate to his father.

In Tennessee, the Cooperative Extension Program at **Tennessee State University** created the Faithful Families program to teach SNAP to low-income families. Working in six counties with high concentrations of low-income families, 9,952 participants of all ages have been involved in the Faithful Families program.

Staff have worked in 205 community-based sites

including faith-based facilities, community centers and housing authorities. They have also used ads on the outside of public transportation and social media, like Facebook, to help spread the good nutrition, healthy eating messages.



*C.H.E.F. Camp Cooking participants work on preparing healthy meals, increasing exercise and drinking more water.*

▶ In Louisiana, young people have the opportunity to don chefs hats and aprons as part of the Cooking Healthy Enjoyable Foods (C.H.E.F.) Camp, hosted by Cooperative Extension at **Southern University** Ag and

Research Center in collaboration with the **Louisiana State University** Ag Center.

The percentage of overweight people in the state nearly doubled since 1999, and two-thirds of the state's school children get less than 20 minutes of vigorous activity a day.

The C.H.E.F. Cooking Camp is a one-week



*Creating a healthier pizza always excites the C.H.E.F. camp participants.*

program for students ages 8-14. The students, divided by age groups, focus on MyPlate federal nutrition guide, promoting a healthy lifestyle, food safety, selection and preparation. Each student also gets an apron, cutting board, vegetable peeler, dry and liquid measuring cups, a spatula and thermometer they use at camp, but also take home once the camp is over.

Based on pre- and post-tests, the students had a growth of 34 to 92 percent when asked about MyPlate, food safety and physical activity.

► Obesity in children and youth is a significant health problem in Georgia – 20,500 children, ages 2-4 in the WIC program are obese, 28,000 third-grade children are obese, 43,000 middle-school students are obese and 55,000 high school students are obese. Georgia exceeds the Healthy People 2010 and 2020 national goals for children and youth in every age, race and ethnic group.

The 4-H Program at **Fort Valley State University** created the Healthy Living Program to allow youth participants to learn about physical activity, nutrition, social-emotional well-being, unintentional accidents, safety and alcohol/tobacco/drug prevention. The program is also supported with a grant from the Walmart Foundation.

Approximately 3,665 young people in three counties, participated in the program in 2018. All of them reported eating healthier, 50 percent say they drink more milk and water and 50 percent say they eat at least one less take-out meal each week.

Program participant Janya Green, a 10th grader, was featured in the 2017 NIFA/USDA Annual Report for teaching her peers and younger children

how to eat healthy and how to grow healthy food. The program has also helped Green increase her confidence and she is now speaking at 4-H programs and is a healthy living ambassador.

"This gives me a warm feeling inside because I know I'm helping people learn to be healthy," Green said. "They also know they don't have to go to the store or a restaurant, but can go to the garden and get something good to eat."

► The Food and Agriculture Organization of the United Nations estimates that a third of all soils are degraded and thus teaching youth about soil health and its relationship to food is vital.

The Cooperative Extension 4-H STEM team at the **University of Maryland Eastern Shore** taught 1,000 first graders and 500 second graders soil health using the "Power of People, Soils, Compost and Worms!" curriculum from 2015-2018.

The team also trained 20 educators at the 2014 Maryland Association for Environmental and Outdoor Education Conference.

"Fourth-grade youth, who I taught the curriculum in the second grade, continue to call soil by its correct

name, not dirt," said one educator. "When asked what the difference is, they reply 'soil is alive.'"

► Cooperative Extension's Health and Nutrition team at the **University of Maryland Eastern Shore** in collaboration with the National 4-H Council and the Robert Wood Johnson Foundation is implementing the Culture of Health Initiative in three communities on the Lower Eastern Shore of Maryland.

Since December 2017, under youth leadership and the guidance of the multi-sector health council, three counties are working to identify their community health needs and to develop action plans. To date, approximately 75 community volunteers - including pastors, law enforcement officers, teachers and retirees - and 80 youth have been mobilized.

UMES is one of the first land-grant universities selected to implement this pilot project; eventually, all LGUs will join the 10-year initiative.



## YOUTH, FAMILY & COMMUNITY

Creating engaged citizens for our future with economic and community development, leadership and youth development programs



*Grandparents in the parenting program operated at West Virginia State University learn how to work with today's youth.*

► In West Virginia, like most other places across the country, the prevalence of grand families is on the rise. Grandparents as primary caregivers for their grandchildren often struggle because they are aging, and in many cases, have limited-resources.

Additionally, their failing personal health adds to the stress of being second-time parents. According to 2014 census data, approximately 57 percent of the state's grandparents are the primary caregiver for grandchildren living with them, making the state the nation's fourth in the number of grandparents raising grandchildren.

With a \$600,000 USDA Capacity Building Grant, **West Virginia State University** Extension developed the Healthy Grandparents program, which is a series of nine innovative discussion sessions on a variety of timely topics like social media, navigating schools and the legal system, and three months of follow-up services with a licensed social worker. Child care and meals are provided at each program to allow the grandparents to be fully engaged in each session.

Throughout the initial grant, 120 participants completed the program with 97 percent of them reporting they are better prepared to raise grandchildren. Ironically, their overall health also improved as a result of program participation.

The program has expanded throughout the state and is providing services to seniors with at least one grandchild or another child relative.

"I felt so lost," said Susan Lister of Clarksburg, West Virginia. "The topics were just all the things I was feeling, I guess. I'll be 80 when my grandson graduates high school. There's not been one thing presented that I haven't taken something away from."

► On average, attending an income tax preparation program netted some low-income households in Macon County, Tennessee an additional \$1,500 as a tax refund.

The free sessions, hosted by Cooperative Extension at **Tuskegee University** in partnership with the IRS, the Macon County Community Development Cooperative and VITA, volunteer income tax assistance, aided low-income and elderly taxpayers with tax preparation and educational resources like budgeting, saving strategies and credit management. Earlier this year, more than 500 taxpayers participated in the sessions with many of them claiming earned income tax credit and education assistance for the first time. The IRS estimates that 15 percent of earned

income tax credits are unclaimed because people don't know they exist.

In addition, rather than apply for high-interest refund anticipation loans, averaging from 50 to 800 percent interest, the taxpayers opted for direct deposit or opened new bank accounts. These options help move the families toward saving and investing and becoming financially stable.

► Over the past two years, 99 families in Fayette County, Kentucky have learned skills to reduce child abuse and neglect after participating in a parenting program hosted by Cooperative Extension at **Kentucky State University**. Without intervention, these children are at risk for winding up in abusive situations or become part of state child protective service systems.

In 2015, Prevent Child Abuse Kentucky reported about 54,177 cases of child abuse and neglect, with 3,394 of those cases in Fayette County. Kentucky's average costs per child in foster care is approximately \$80 per day.

Parents in the 12-week SKY Family Program are taught effective parenting skills including modeling

healthy behavior, anger management, conflict resolution, alternatives to discipline, family nutrition, communicating with respect, building self-worth and understanding feelings.

After completing the program, participant Donna Parker was able to have her two sons returned to her care. Twelve other children were also returned to their families, estimating to save the state \$350,000 in 2017, but reuniting families, which is priceless.

Since 2004, over 3,000 participants in North Carolina have participated in parenting education programs conducted by Cooperative Extension at **North Carolina A&T State University**. These parents are under court order to participate or lose their parental rights.

Most recently in Hoke County in North Carolina, three children were returned to their parents, with an estimated savings to the state of \$19,644.

► After participating in home buyer education classes hosted by Cooperative Extension at **Florida A&M University**, 17 families purchased homes with loans totaling over \$1.8 million, 65 families increased their credit score to 580, qualifying for USDA and FHA

loans and another 85 individuals established savings accounts for a down payment.

While the program operates statewide, these results were reported for Havana, Florida, which is a rural area, just outside Tallahassee, that is 56 percent African-American with a median household income of \$38,487.

In addition to the pride associated with home ownership, owning a home builds equity, is a good investment, provides significant tax deductions, builds a strong credit history, builds community and, research shows, makes young people better students.

► Most of the 1890 land-grant universities are using a number of programs and strategies to increase the number of low-income, women and minorities in science, technology, engineering and mathematics (STEM).

**Tennessee State University** has developed a STEM 4-H Youth Development curriculum called DRONE and is working with staff and volunteers statewide to implement the program.

The **University of Maryland Eastern Shore** has developed a partnership with local middle schools where the students visit the UMES Small Ruminant

Farm for hands-on opportunities to focus on animal science and agriculture careers.

Cooperative Extension at **North Carolina A&T State University** reached over 500 students last year with its 4-H robotics program. At a robotics competition held at the University of North Carolina at Asheville, the junior 4-H team from Mitchell County received awards for teamwork, engineering and problem-solving. Many of the team members have been accepted to college with the intent of majoring in physics or engineering.

Additionally, members of the senior team have been mentoring younger students and helping them hone their STEM skills.

► Cooperative Extension at **Alcorn State University** is making sure high school students in Jefferson County are work ready.

Using the Working-Class Curriculum, in conjunction with Skills USA of Jefferson County, over 150 students have learned to become better job candidates. They have focused on completing job applications, writing resumes, dressing for success and effective interviewing skills. Approximately 85 percent

completed the workforce portfolio and 80 percent participated in at least two mock interviews.

The skills learned will ensure the participants are on the road to work or higher education and learning to work cooperatively, think critically, solve problems



*Summer time reading helps these students maintain lessons learned the previous school year and keeps them on target for the coming school year. and pursue goals.*

► For young students, the two months in the summer is a good time to binge on watching TV, use

the telephone or sleeping in. But teachers know it's also lost teaching time and many students fall behind. Parents able to afford summer camps can combat that learning loss, but for limited-resource parents, that option is not viable.

Since 2011, Cooperative Extension at **Langston University** has operated a six-week, low-cost summer camp to help engage students and help retain their writing, reading and math skills.

The K-fifth-grade camp, which only costs \$15 per camper, provides a safe and enriching summer environment and helps the students focus on personal growth and well-being.

An annual assessment with affiliated teachers shows that 100 percent of camp participants maintained or improved their math and reading performance. Students also showed improved self-esteem, socialization skills, health and physical endurance and have avoided grade retention.

► Lots of low-income, elderly households in southeast Arkansas have remodeled homes after working with Cooperative Extension at the **University of Arkansas at Pine Bluff**.

The homeowner assistance program is primarily operated by USDA's Rural Development, but because the program does not have an office in every county, accessing the services was difficult for many of those families. Cooperative Extension worked with the regional Rural Development offices, conducted housing outreach meetings and helped the residents complete applications for housing assistance.

To date, socially disadvantaged seniors in southeast Arkansas have received services totaling \$250,000 in housing grants and \$500,000 in housing loans. This assistance includes new roofs, new central heating and air conditioning systems and remodeled kitchens and bathrooms. One 108-year-old participant received a wheelchair-accessible ramp and new lights for her mobile home.

Allowing elderly residents to stay in their homes is less expensive than skilled nursing facilities and research shows that it makes them happier and reduces health issues.



Alabama Agricultural and Mechanical University  
Alcorn State University  
Central State University  
Delaware State University  
Florida Agricultural and Mechanical University  
Fort Valley State University  
Kentucky State University  
Langston University  
Lincoln University  
North Carolina Agricultural and Technical State University  
Prairie View Agricultural and Mechanical University  
South Carolina State University  
Southern University  
Tennessee State University  
Tuskegee University  
University of Arkansas Pine Bluff  
University of Maryland Eastern Shore  
Virginia State University  
West Virginia State University