



## 1890s Impacts

PHOTO: Edwin Remsburg

# Research, Teaching and Extension at 1890 Land-grant Universities have Impacts Nationwide

*Agricultural science research, Extension, and teaching at 1890s land-grant universities, also known as historically Black colleges and universities, are having big impacts on agricultural productivity, economic sustainability and the health of ecosystems and communities nationwide.*

### Here are some examples:

- Arkansas catfish production acreage has declined over the past two decades, but the consumer demand has increased. **University of Arkansas-Pine Bluff** scientists looked at ways to improve catfish production efficiency on less acreage. Researchers found that the split-pond system and the intensive aeration system can both allow for about 10,000 more pounds of catfish per acre than traditional production systems. Concentrating fish in a smaller area also helps producers cut costs on feed, disease treatments, aeration and harvesting. The economic impact of these production systems on local economies in the Mississippi Delta could be as high as \$36 million.
- Growing fruits and vegetables on beds of plastic mulch can double or triple yields for small-scale farmers by controlling weeds, enhancing water efficiency and extending the growing season, but the cost of the equipment needed to lay the plastic can deter small farmers. **North Carolina A&T University** created a program that allows farmers to rent “plasticulture” equipment for \$50 per day and get a refund of \$25 if the equipment is returned clean and undamaged. This low-cost rental option has expanded the use of plasticulture production among small farmers across North Carolina. So far, farmers using this equipment have saved a total \$67,580.
- Many lamb and goat producers are new to the industry. **Delaware State University** provided training and education for farmers who raise nearly 500 sheep and goats. As a result, 71% of these farmers said that they would implement a new practice. Implementing best practices will help producers

Continued

---

## [www.landgrantimpacts.org](http://www.landgrantimpacts.org)

**ABOUT LANDGRANTIMPACTS.ORG** | The Land-Grant University System is a uniquely American institution, and has operated successfully for more than a century. The [landgrantimpacts.org](http://landgrantimpacts.org) website documents and demonstrates the collective and individual impacts of the national system of joint teaching, research, and extension institutions.

Prepared by the National Impacts Database Communications Subcommittee, supported by ESCOP, ECOP and USDA/NIFA.

02/2021



## 1890s Impacts

manage successful, sustainable sheep and goat farms and take advantage of the economic opportunities related to increasing demand for lamb and goat meat by ethnic communities and health-conscious consumers.

- **Virginia State University** provided training and ongoing technical assistance to establish eight tilapia operations within or near to food deserts –areas where access to healthy fresh food is limited. In addition to providing affordable protein to residents in Virginia’s food deserts, these aquaculture operations can create jobs and infuse the local economy.
- In **Oklahoma**, researchers at **Langston University** investigated how various aquaculture species –including freshwater prawn, crawfish, turtles and frogs–respond to water quality, nutrition and stressors, and identified species and practices that are well suited for aquaculture in Oklahoma. This information helps Oklahoma producers capitalize on niche markets and improve profitability and sustainability.
- In **Texas**, more than two million jobs were lost by spring 2020 due to the pandemic. **Prairie View A&M University** Extension agents offered a virtual training program that provided about 1,500 people with information on improving their job search and professional skills. Researchers also identified communities that lack access to reliable broadband internet service, pinpointing areas that need different kinds of support.
- **Prairie View A&M University** also launched a loan-packaging program for limited-resource small and local business owners and entrepreneurs to help them take advantage of CARES Act COVID-19 relief funds. To date, 92 small business owners have participated in the training series and received more than \$500,000 in loans and grants. Participants have applied for another \$333,000 in business grants that have yet to be awarded.
- Consumption of deep-fried foods has been associated with coronary heart diseases, obesity and Type 2 diabetes due to high fat content of the frying oil. Researchers at **North Carolina A&T State University** developed a natural, edible batter coating that reduces fat intake of fried fish and chicken by 85%. The coating does not damage other food properties; in fact, the coating reduces moisture loss in fried chicken and fish. This product could benefit both the food industry and consumers who want to be health-conscious without fully sacrificing fried foods.
- Researchers at **North Carolina A&T University** found that biochar made from miscanthus, wood bark and swine manure can be used as a raw material for low-cost, high-performing supercapacitors, which are used to store and release large amounts of electricity –much like batteries, but faster. Other studies showed that biochar-based materials can block ionizing radiation like X-rays and gamma rays. These materials could be used in protective gear.
- **University of Arkansas-Pine Bluff** researchers developed a cost-effective method for livestock farmers to convert animal byproducts like crawfish shells and chicken feathers into biochar that can be used to absorb and/or degrade water pollutants. While plant-based biochar often uses costly chemical and metal modifiers to improve these abilities, animal byproducts have naturally occurring chemicals and minerals that can achieve the same level of functionality. These new biochar products offer a cost-effective way to reuse wastes and remove pollutants from runoff and other agricultural processes.
- **Alabama A&M University** is helping reduce and manage pharmaceutical waste, which can contaminate soil and water and harm plants, animals and people when discarded

Continued



## 1890s Impacts

improperly. University-led drug takeback drives collected 4,075 pounds of unwanted and unused prescription and over-the-counter medication from across the state in 2019. Over half of the program's participants indicated they would no longer throw away medicines and would purchase drugs in smaller quantities to avoid waste.

- Nearly one third of Virginia's family farms earn less than \$1,000 in sales annually. **Virginia State University** showed these farmers ways to earn additional income by selling niche crops like fresh ginger and turmeric directly to consumers. On average, the farmers who started growing ginger and turmeric earned an additional \$1,400 their first year.
- To reduce poverty and unemployment, **West Virginia State University** trained 156 rural small farmers in agricultural production methods, including aquaponics and hydroponics, assessment of local market needs, farm safety planning and post harvest handling. Scientists also provided technical assistance to help participants succeed in their new agricultural careers. Farmers indicate these programs have improved their knowledge, and many are now selling their produce to local markets and restaurants. Equipped with the skills and resources needed to launch and sustain their agricultural careers, new farmers will provide their communities with fresh, locally grown produce.
- **Alabama A&M University** found that STEM fields are growing at nearly twice the rate of other occupations and have developed a 4-H program to improve STEM skills among urban youths. Of the youths who participated, 84% demonstrated enhanced critical thinking, problem solving, collaboration and creativity. Over 1,000 youths expressed interest in STEM careers after participating in the program.
- **University of Arkansas-Pine Bluff** researchers are working with state and federal partners to reestablish native aquatic plants in DeGray Lake and promote healthy populations of recreationally-important fish species, which once thrived in the lake. Scientists used floating vegetation cages attached to buoys to disperse native aquatic plants throughout the lake and deployed submersible drones and boat-mounted sonar to assess plant reestablishment. The increase in submerged aquatic plants will increase the number of microbes, baitfish, crawfish, and snails in the lake. In turn, this will increase populations of predators like black bass, which are highly sought after by local fishers.