

## CAREERS &amp; EDUCATION



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# Bearing Fruit

USDA funds research at HBCUs  
to yield innovative solutions

By Robin Roenker

**S**AMUEL MWANGI, ASSISTANT PROFESSOR of animal sciences at Alcorn State University in Lorman, Miss., specializes in poultry research. But a gratifying side effect of his work is watching students get inspired by the array of careers that are possible in agriculture.

When students arrive on campus, many of them think of agriculture as “laborious work. They think it’s only about tending animals and sweeping barns. They haven’t been exposed to the science behind it,” Mwangi says.

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## CAREERS &amp; EDUCATION

By involving students in research — as he plans to do on an upcoming USDA National Institute of Food and Agriculture (NIFA)-supported project to study how raising chickens in pastures impacts the quality of eggs and poultry — Mwangi is helping introduce a new generation to all that agriculture encompasses.

“This is an opportunity for them to see the science that’s involved and the opportunities that exist within agriculture,” he says. “Our goal is to help develop a community of minority researchers and small-scale farmers.”

**CRITICAL PARTNERSHIPS**

Supporting equity, inclusion and diversity in agriculture is also a driving goal of the USDA. In 2021 alone, NIFA received \$212.5 million in federal appropriations to support agricultural research and extension programming at a consortium of 19 historically Black colleges and universities (HBCUs) known as 1890 land-grant institutions, according to NIFA Director Carrie Castille.

Awarded competitively via grants, these funds support teaching, research, facilities improvements and community outreach, as well as efforts to enhance student recruitment and retention targeting underserved communities.

“Solving the challenges that we face in agriculture — from food production to environmental protection and economic development — requires every voice to be heard and every culture to be considered,” explains Castille.

In one particularly large award distribution announced last July, NIFA pledged \$21.8 million to support 58 new, multiyear research projects at the 1890 land-grant institutions on topics as diverse as forest management, water quality, food packaging and aquaculture. The projects also explore hemp production and combating food deserts through local, small-scale urban gardens.

“This investment will strengthen the ability of our land-grant institutions to deliver innovative solutions that address emerging agricultural

challenges impacting diverse communities,” Agriculture Secretary Tom Vilsack said in the award announcement. “We are pleased to be able to build the research and training capacity of these critical institutions as they develop the next generation of leaders in agriculture.”

**FINDING SOLUTIONS**

At Tuskegee University in Alabama, home to one of four NIFA-supported 1890 Centers of Excellence, USDA financial support has helped fund an array of research projects, from the feasibility of solar-powered irrigation systems for rural farms to research on nutrition and obesity.

“NIFA has been key to providing financial resources, which allow the 1890s land-grant institutions to help develop solutions to these key issues in agriculture,” says Raymon Shange, associate dean of Tuskegee’s College of Agriculture, Environment & Nutrition Sciences.

“I’ve seen the impact that (this support) has on students,” he adds. “We’ve got alumni now who are actually farming, which is, to me, a huge thing, in a landscape that has been traditionally losing minority farmers.”

At Virginia State University, agriculture professor Leonard Githinji can frequently be found encouraging

minority farmers as well, though on an intentionally small scale. Helping community groups, including local elementary schools, build and optimize small urban gardens has become a passion for Githinji, because he believes community gardens hold the key to getting fresh fruits and vegetables to minority and other underserved urban communities with limited access to them.

“We’re trying to focus on food deserts in urban settings, where space is limited, to teach people how to create micro-gardens to grow their own produce,” Githinji explains. With recently received NIFA funding, Githinji plans to research optimal lighting, temperature and fertil-

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— GULNIHAL OZBAY,  
Delaware State University

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Pens with hanging feeders are part of professor Samuel Mwangi’s poultry research at Mississippi’s Alcorn State University.



Virginia State University professor Leonard Githinji plants fall vegetables with elementary school students to encourage interest in community gardens.

VIRGINIA COOPERATIVE EXTENSION AT VIRGINIA STATE UNIVERSITY

## CAREERS &amp; EDUCATION

izer conditions for hydroponic growing systems outfitted in shipping containers — which, thanks to climate control, allow for production year-round.

Once he has that data in hand, Githinji hopes to train extension agents so they can, in turn, teach urban neighborhoods how best to use similar systems for their own production, even in limited spaces.

“We are showing them a different way to grow crops,” Githinji says. “And once they

learn that process, they can use a modification of it, if needed — even if it’s a raised bed garden covered in plastic — to grow their own food.”

**PREPARING FUTURE LEADERS**

At Delaware State University (DSU), agriculture and natural resources professor Gulnihal Ozbay has had the joy of watching former participants in the college’s annual agriculture summer camp for 8- to 12-year-

olds — which she directs — grow up to enroll at DSU as agriculture majors.

“Students from underrepresented communities often have a misconception about agriculture — that it’s just working on a farm,” Ozbay says. “We are trying to teach students, from a young age through high school and college, to have a better understanding of what agriculture encompasses. We help them see how agriculture involves an integrated approach

to science on critical issues like food security and the impact of climate change on food supply.”

Ozbay is completing a five-year, NIFA-supported project on sustainable agriculture that gave students from Delaware State and several partnering HBCUs the opportunity to study in Belize. There, they learned about rainforest management and Indigenous communities’ sustainable farming practices as well as coastal management to protect

marine habitats.

After their study abroad component, participating undergraduate and graduate students returned home to conduct their own projects, which included research on oyster habitat restoration, blue crab management and the ways that heat stress — due to climate change — affects animal health. “These programs allow us to prepare the next generation of agricultural scientists and leaders,” Ozbay says.



Entomologist George Mbata

FORT VALLEY STATE UNIVERSITY



Food science professor Leonard Williams

NORTH CAROLINA A&T STATE UNIVERSITY



Professor Florence Anoruo researches hemp at South Carolina State University.

SOUTH CAROLINA STATE UNIVERSITY

**HISTORIC DESIGNATION**

These 19 HBCUs are known as 1890 land-grant institutions because they achieved land-grant status through the Morrill Act of 1890:

- ▶ Alabama A&M University, Huntsville, Ala.
- ▶ Alcorn State University, Lorman, Miss.
- ▶ Central State University, Wilberforce, Ohio
- ▶ Delaware State University, Dover, Del.
- ▶ Florida A&M University, Tallahassee, Fla.
- ▶ Fort Valley State University, Fort Valley, Ga.
- ▶ Kentucky State University, Frankfort, Ky.
- ▶ Langston University, Langston, Okla.
- ▶ Lincoln University, Jefferson City, Mo.
- ▶ North Carolina Agricultural & Technical State University, Greensboro, N.C.
- ▶ Prairie View A&M University, Prairie View, Texas
- ▶ South Carolina State University, Orangeburg, S.C.
- ▶ Southern University System, Baton Rouge, La.
- ▶ Tennessee State University, Nashville, Tenn.
- ▶ Tuskegee University, Tuskegee, Ala.
- ▶ University of Arkansas at Pine Bluff, Pine Bluff, Ark.
- ▶ University of Maryland Eastern Shore, Princess Anne, Md.
- ▶ Virginia State University, Petersburg, Va.
- ▶ West Virginia State University, Institute, W.Va.