

FEEDING A HUNGRY WORLD

CALS alumnus and MSU research professor feeds farmers, inspires family

BY VANESSA BEESON

SOMETIMES FEEDING HUNGRY PEOPLE in your local community takes you nearly 6,000 miles from home. At least, that was the case for **DR. GEORGE AWUNI**, now an assistant research professor in the Department of Plant and Soil Sciences in MSU's College of Agriculture and Life Sciences.

Born and raised in Northern Ghana, Awuni has always been passionate about food security for his nation. That drive propelled him to work for Ghana's ministry of agriculture for 10 years and pursue a bachelor's in natural resources management in 2003. It's what led him to the United States—first to Tuskegee University where he earned a plant and soil sciences master's degree in 2009, and then to MSU where he earned a doctoral degree in entomology in 2013.

When it was time to graduate from the land-grant, his wife and two daughters traveled from Ghana to MSU to see him walk across the stage of the Humphrey Coliseum. His two sons, both older, stayed home in Ghana for their own studies. After the ceremony, Awuni traveled to New York with plans to see his family off to Ghana.

During the trip, a phone call from an MSU professor opened the door to an opportunity for Awuni to continue working at MSU, but this time with a focus on feeding farmers from his home country.

"Dr. Dan Reynolds called and said he was looking for someone to apply for a project in Ghana and asked if I would be interested in applying," Awuni remembered.

The project, funded through the USAID

Soybean Innovation Lab at the University of Illinois, focused on providing Ghanaian farmers insight into growing soybeans.

Awuni interviewed for and accepted the position, at the time as a post doctorate. While he has since moved into his current role as an assistant research professor, he stills serves on the project where, alongside Reynolds, he has established demonstration farms aimed at providing soybean farmers in Africa with the tools they need to increase yield in an impactful way.

"Soybean is an important cash crop and provides sustenance for smallholder farmers in Africa and increased yield means better income and nutrition for households," Awuni said.

Since the project's inception in 2014, the work has expanded from Ghana into Ethiopia, Malawi, Mozambique, and Zambia, where researchers have provided resources and best management practices to a total of approximately 6,000 soybean farmers across Sub-Saharan Africa.

Reynolds, who is now interim associate vice president and director of MSU's International Institute, said Awuni brings a unique perspective because he's from Ghana and went to school an hour's drive from where the first demonstration farm was created.

"Dr. Awuni knows the local practices and culture, which has been invaluable in understanding the challenges of soybean production in Africa and has provided unique insights into how to approach workable solutions," Reynolds said.

Reynolds also pointed out that Awuni's

work ethic and ingenuity were both tremendous assets to the team.

"It has truly been a blessing having George on this project. While we may have given structure and plans for the program, Dr. Awuni has given it life and function. Without his efforts I do not believe the program would have been as successful as it is today," Reynolds said.

Awuni said his favorite part of the work is giving back.

"I enjoy helping change lives for the better in terms of nutrition and income," he said, noting the team has partnered with local educators to see how soybeans can be used to provide milk for school nutrition programs there.

He said a combination of hard work, determination, and luck brought him to the place he is today.

"I would encourage anyone to work hard and believe in themselves," he said. "I tell my family, 'You have to trust and believe in yourself and once you do, work hard and be good to others. That is the only way to success.'"

Awuni's words of wisdom have been taken to heart by his four children, including his eldest daughter, **URITA AGANA**, who as a young girl watched her father receive his doctorate from MSU.

Agana has followed in his footsteps and attends her dad's alma mater as a senior biochemistry major in the Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology also in the College of Agriculture and Life Sciences.

While food security drives Awuni,



Urita Agana and George Awuni in a soybean field at the MAFES R. R. Foil Plant Science Research Center. (photo by David Ammon)



a passion for human health propels his daughter.

“Coming from Ghana, I’ve grown up around illnesses including malaria, which turned me to science. I want to work in a health-related field, conducting research and finding solutions for certain diseases,” she said.

While Agana hopes to study human health one day, a research opportunity studying disease in soybeans brought her closer to the work her father does. Under the direction of Dr. Sorina Popescu, an associate professor in the department, Agana is studying taproot decline, a prominent disease found in soybeans.

“If I can figure out what’s wrong with certain plants and we depend on plants to eat, then I’m still working toward human health even though it’s based on plants,” she said.

Agana pointed out that practices to mitigate taproot decline in soybeans might be doing more harm than good.

“Currently, taproot decline is managed through no-till or conservation tillage practices, which are not effective to stop the spread. Since the fungus was found to overwinter on root stubble of soybean and other crops used in a rotation program, current management practices may actually be contributing to the widespread occurrence of taproot decline in Mississippi,” she said.

Agana hopes to help find a biological control that stops the disease.

“The main goal of this project is to explore the potential of beneficial microorganisms isolated from the plant rhizosphere to control the disease,” she said. “Biological control of pathogenic

microorganisms in crop plants is an environmentally safe and effective way of reducing or mitigating disease and minimizing yield loss through the use of natural enemies.”

While she irons out plans for a master’s degree, Agana said she thinks she’ll ultimately wind up studying human health at some point.

“I told my dad a while ago even if I end up getting a master’s studying plant health, I might switch to human health for my Ph.D.,” she said.

In the meantime, she welcomes a chance to collaborate on research with her dad.

“It would be cool if we ended up working together on a soybean research project. If that happens, hopefully I can teach him something he doesn’t know and vice versa,” she said. 🐾