



2018 AWARD Fellow
Esther Andrew Masumba

Position	Principal Agricultural Research Officer
Institution	Ministry of Agriculture, Livestock and Fisheries, Sugarcane Research Institute, Kibaha
Country	Tanzania
MSc	Agriculture, Sokoine University of Agriculture, 2006
Mentor	Dr. Regina Emilian Kapinga, Head of Advocacy and Resource Mobilization, International Institute of Tropical Agriculture (IITA)
Research Area	Developing new cassava varieties with resistance to major diseases through conventional and molecular breeding technologies.

Using her training in conventional and molecular breeding, Masumba is developing varieties that have high nutritional value and are resistant to major diseases—cassava brown streak disease and cassava mosaic disease.

Esther Andrew Masumba’s interest in agriculture was nurtured when she attended an agricultural secondary school. “We used to go to agricultural institutes and dairy farms for field visits,” she recalls “I am a practical person—I love doing things with my hands. I think this is why I enjoy working in agriculture.” This exposure paid off as she is now at the pinnacle of her career in the Tanzania National Agricultural Research System (NARS), where her research at the Sugarcane Research Institute, Kibaha focuses on root and tuber crops, specifically, cassava and sweet potato.

“My vision is to use my scientific knowledge to help farmers in cassava and sweet potato-growing communities improve their production,” says Masumba. Using her training in conventional and molecular breeding, she is developing varieties that have high nutritional value and are resistant to major diseases—cassava brown streak disease (CBSD) and cassava mosaic disease (CMD). “There are high malnutrition rates especially in cassava-growing areas, so my interest is also in developing biofortified yellow- and orange-fleshed cassava varieties that are rich in vitamin A,” she asserts.

“I have a passion for science, so when I do not see my plants, I am not happy,” declares Masumba with a smile. As a lead scientist, she has participated in the evaluation, selection, and official release of three sweet potato and nine cassava varieties. “I like hearing farmers say these varieties are good,” she states with pride. After completing her master’s in Crop Science at Sokoine University in Tanzania, Masumba worked outside the NARS but did not veer from agriculture. She joined Catholic Relief Services as a country manager, where she was involved in disseminating new technologies. “My main

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Masumba is one of a growing number of women agricultural scientists who have won an AWARD Fellowship. AWARD works toward inclusive, agriculture-driven prosperity for the African continent by strengthening the production and dissemination of more gender-responsive agricultural research and innovation. We invest in scientists, research institutions, and agribusinesses to deliver sustainable, gender-responsive agricultural research and innovation.

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aim was to push cassava from the research shelves to the farmers' fields," she explains. "I was working on the variety development chain." In addition, she still worked with her NARS colleagues to release the varieties that were still in the development pipeline. "The lead scientist was very cooperative and encouraged me to work on releasing my varieties even while I was outside," she says.

In 2017, Masumba was the first recipient of the Ndunguru Award for Female Agricultural Researchers. The award celebrates the contribution of women scientists working in agriculture by recognizing their efforts to disseminate their research findings by publishing as primary authors in high-impact journals. Masumba will soon complete her PhD in molecular genetics at the University of Pretoria. Through this work, she has identified the quantitative trait loci associated with resistance to CBSD and CMD in two Tanzanian cassava varieties, Namikonga and Albert, respectively. "These are very old varieties, grown in southern Tanzania where these diseases have a devastating impact on cassava production," she explains. "Using molecular tools, I discovered that these varieties have high genetic resistance to the two diseases." Masumba has recently received funding to advance the work of introducing Latin American varieties to map for CBSD resistance as a pre-emptive breeding method.

As cassava is a crop cultivated by both men and women—with men participating in land preparation and marketing especially for the big farms, and women in planting and weeding—all groups are represented in the evaluation and selection stages. "When we select farmers, we deliberately ensure that we have representation from men, women, and youth," explains Masumba.

The major constraint in her work is a lack of resources. "I have a lot of ideas but I need money to execute them," she laments. "We also do not have irrigation facilities on-station or on farmers' fields," says Masumba, explaining their heavy reliance on rain-fed agriculture. "Cassava takes 12 months to mature, so you lose the whole year when there is unreliable rain." Masumba is grateful for the support she has received from her husband, an agricultural engineer, while she has pursued her studies. She celebrates that their three children have turned out well, despite her absences in the quest for knowledge.

Masumba is already seeing a difference in her outlook since becoming an AWARD Fellow. "I am able to understand different personalities—I will be a driver in helping my colleagues understand different personalities at work," she resolves. She hopes that her participation in the AWARD Fellowship will help her address some of the challenges by equipping her with skills to write winning grant proposals. "I have started writing a proposal to meet my goals—if I am successful, I will get resources that will benefit my institution."