AWARD
African Women in Agricultural Research and Development

Profile

2019 AWARD Fellow
Angela Gerald Mkindi

Position	Assistant Lecturer
Institution	Nelson Mandela African Institution (NM-AIST)
Country	Tanzania
MSc	Environmental Science, NM-AIST, 2016
Mentor	Professor Anna Treydte, Lecturer, NM-AIST
Research Area	Evaluating agro-ecological intensification using pesticidal plants.

Mkindi's research focus on leading experiments to inform the efficacy of botanical pesticides and to create awareness among farmers who process and use scientifically validated botanicals.

When Angela Gerald Mkindi was growing up in a rural Tanzanian village with five siblings, she was fond of science and did her best to excel in school. She credits her father, an agronomist, with encouraging her to pursue an education in the sciences. After completing a degree in Environmental Sciences and Management at Sokoine University of Agriculture (SUA), she attended NM-AIST, where she earned an MSc in Environmental Science. She is currently a PhD candidate and expects to graduate in 2020 with a doctorate in Sustainable Agriculture and Biodiversity Management.

During her undergraduate studies, she worked with her supervisor on a project investigating East Coast Fever in cattle. "I started testing the effects of using crude extracts against diseases in cows," she recalls. "My objective was to see whether using plant extracts was effective against diseases in cattle."

Next, she took a job as an agriculture extension officer with an Italian NGO dealing with agricultural-based development and biodiversity conservation. "My main tasks were to supervise vegetable gardening, home gardening, poultry keeping, and beekeeping. But then I observed high pesticide use on tomato production," she says. "I was working with small-scale farmers in a community where there was very heavy use of pesticides. We decided to advocate for the safe use of synthetic pesticides. As part of this effort, we worked with groups of farmers who planted and grew organic fruits and vegetables."

It was at this point that Mkindi began thinking about the use of botanical pesticides, her current research focus. "I lead experiments that inform the efficacy of botanical pesticides" she reveals. "My

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greatest achievement to date is imparting knowledge about the processing and use of scientifically validated botanicals."

Mkindi thinks her work environment influenced her career path. "That job prepared me for this career, giving me a chance to think about things and suggest solutions," she says.

She is enthusiastic about her current work on using botanical pesticides. Home formulation of the botanical pesticide involves pounding specific plant leaves into powder and mixing overnight. "It's a bit of a hassle," she admits. "But my thinking is, I will work to convince the farmers about the essence of using botanical pesticides—I want to work together with them. The main thing is that these plants can just grow in your back yard, or at the margin of your field, or along the road—and you don't need to buy."

She says farmers are hard to convince, which explains why the technique is not yet being widely practiced. But she is undeterred.

Mkindi has spent time with farmers to discuss pest control, "and we all agree that pesticides are the problem." During her master's studies, she involved farmers in her on-farm experiments in their fields. "The farmers observed and helped record the results," she explains. "The farmer-oriented research approach was phenomenal! The farmers easily determined which technique was working against insects and which wasn't. Eventually, they took up and owned the technology, and we just sat down to discuss any challenges that arose."

Now a PhD candidate, Mkindi is analyzing the uptake of the use of biological pest controls among small-scale farmers. "One thing we are not going to introduce is sophisticated extraction methods," she affirms. "We'll enhance local extraction techniques to make them easy and applicable for farmers. With time and research, we will improve the technology by incorporating farmers' ideas."

She first applied for an AWARD Fellowship during her master's studies, but was unsuccessful. She was delighted to be selected for this round, and is thankful that other AWARD Fellows with whom she works offered to sit with her to give advice and guidance. She expects to benefit greatly from the fellowship, especially the training in leadership skills and scientific skills. She is also hoping to get an advanced science placement. "I am already feeling better prepared to do what I'm doing, and in six months I will be even further along," she enthuses. "AWARD will help me to connect and collaborate." Mkindi says her professors are very happy that she is connected to AWARD. "It's a big asset for my institution," she declares.

"I want to have a change platform," Mkindi asserts. "My thinking is, if I had a key to the world, I would wish to create a collaborative platform for pesticides, especially in developing countries where there is a grave concern about food safety and food security."

Mkindi 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.

The AWARD Fellowship is a career-development program that invests in top women agricultural scientists to ensure that confident, capable, and influential women are available to lead critical advances and innovations in the agricultural sector.

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