



2013 AWARD Fellow
Delphina Peter Mamiro

Position	Senior Lecturer
Institution	Sokoine University of Agriculture (SUA)
Country	Tanzania
PhD	Plant Pathology, Pennsylvania State University, 2006
Mentor	Dr. Kalunde Pili Sibuga, Professor Department of Crop Science and Production, SUA

Research area: Sustainable alternative integrated pest-management methods to reduce the cost of crop protection; production of safer (minimum chemical/mycotoxin levels) food and introduction of new crops and biotechnology (mushrooms, sunflowers, onions, tomatoes) for agricultural diversification to combat climate-change challenges and alleviate poverty in rural farming communities.

Delphina Peter Mamiro is dedicated to using integrated pest-management (IPM) methods to make a measurable difference in her community. She is convinced that IPM technologies will enable rural women farmers to produce oyster mushrooms in order to improve their household nutrition and generate income for their families.

Raised in the Kilimanjaro region to coffee and banana farmers, Mamiro understands the needs of smallholders well. "Agriculture was a part of me even in primary school," recalls Mamiro, who spent a lot of time as a child planting gardens, tilling, and weeding. She entered SUA directly after high school, earning a BSc in Agriculture. After graduation she worked for a year as a researcher at the Tanzanian Ministry of Agriculture, Agriculture Research Institute, Ilonga, Kilosa and then enrolled in a master's program in Integrated Pest and Disease Management at the University of London's Wye College in the U.K.

Mamiro returned to Tanzania after completing her master's degree, married and had three children before pursuing a PhD in Plant Pathology. "I received a scholarship from the Ford Foundation's International Fellowship Program to study at Pennsylvania State University for my doctorate, which I appreciated so much," she says. "Although I enjoyed the experience, it was a very competitive environment. Thankfully, I have a very supportive husband, who looked after our children for the three years I was in the U.S. He was there when I defended my thesis to encourage me."

Today Mamiro, a trained plant pathologist cum mycologist, is preparing spawn in order to grow mushrooms. "Tanzania is one of the poorest countries in the world, and some households consume little protein," she says. "But in just 28 days you can have a crop of oyster mushrooms from which women can make relish. Mushrooms are better than meat; they have no cholesterol and are full of nutrients and vitamins."

During the rainy season in Tanzania, women collect wild edible mushrooms and dry them for future use.

However, mushroom gathering can be dangerous due to snake attacks and the chance of collecting poisonous mushrooms by mistake. “Growing mushrooms is the solution to these hazards,” says Mamiro, who has instituted a mushroom-cultivation program, which trains local women to dry mushrooms, resulting in their households becoming more food secure.

“I am also growing mushrooms for myself, so I can know them intimately,” says Mamiro. “If farmers are having problems with pathogens in their crops detected during field diagnostics, I want to be able suggest to them management and control of the plant diseases.”

Mycotoxin contamination is another focus of Mamiro’s research. “Mycotoxin contamination starts in the fields, and ultimately cuts across the value chain, affecting farm families, traders, markets, and finally, consumers,” she explains. “Several mycotoxins exist, produced by a plethora of fungi, and toxin profiles differ across crops, countries, and even regions within countries.”

Maize, one of the most important staples in Tanzania, is among the crops most prone to aflatoxins, as are groundnuts. Mamiro is working with a team of fellow researchers who are quantifying the amount of aflatoxins in maize, groundnuts, and cassava chips from 20 regions across the country. “We are trying to identify *Aspergillus* species that do not produce toxins—atoxigenic species—to develop biological control of aflatoxin production as part of an IPM,” she says.

Mamiro is also promoting community-based seed multiplication to produce a seed class referred to as Quality Declared Seed (QDS). “This is the least expensive and fastest way to make improved seeds available in the rural areas,” she says. “Under community seed multiplication, rural farmers can select a variety of their preference, produce seeds, use them, and sell them to other farmers to create wealth and increase agricultural productivity.”

Mamiro’s dream is to be a university professor, and she is confident that the AWARD Fellowship will help her to strengthen her leadership skills and prepare her to take on greater responsibilities in her career. “I have my goal set and I’m working toward it,” she resolves. “I will publish, grow in my ability to write fundable proposals, and I will empower myself to compete for various leadership positions at the university.”

Mamiro is one of a growing number of African women agricultural scientists who have won an AWARD Fellowship. AWARD is a career-development program that equips top women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills through tailored fellowships. AWARD is a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women.

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