AWARD
African Women in Agricultural Research and Development

Profile

2014 AWARD Fellow

Wezi Esther Mkwaila

Position	Lecturer
Institution	Lilongwe University of Agriculture and Natural Resources (LUANAR)
Country	Malawi
PhD	Plant Breeding Genetics and Biotechnology Michigan State University, 2013
Mentor	Dr. David D. Mkwambisi Programs Coordinator, LUANAR
Research Area	Use of field-based techniques and modern biotechnology tools to understand mechanisms controlling disease resistance in beans and yams to increase productivity of both crops, thus achieving food security.

Mkwaila worked on an American bean variety that was later released by Michigan State University as Eldorado Pinto. She is a co-author of the variety's plant-registration article.

Wezi Esther Mkwaila attended a girls' boarding school whose teachers instilled hard work and determination in their students. The experience paid off, as she excelled in her final examinations. "The combination of discipline and good grades laid the foundation for my dream of going to college," she says.

Mkwaila's excellent performance during her BSc in Biology prompted her undergraduate project supervisor to help her obtain funding for graduate studies through a Rockefeller Foundation fellowship project. After graduating with her MSc in Biology from the University of Malawi, she was hired by the Bunda College of Agriculture—now known as LUANAR—to teach horticulture, with a focus on root and tuber crops.

Her interest in biotechnology was sparked during her graduate studies when she shifted from pure biology to agricultural science. Mkwaila worked on the characterization of yams, laying the groundwork for the eventual release of the first official yam varieties adapted to many agro-ecological conditions in Malawi. This enabled farmers to adopt better yielding varieties of the crop versus the traditional lines passed down through generations.

"I had always wanted to study in the U.S.A., so I applied for a research assistantship at Michigan State University and was invited to join a program working on common beans (*Phaseolus vulgaris*)," says Mkwaila.

Her PhD research was on white mold, a fungal disease that rots bean plants, reducing yields by up to 80 percent. "Farmers can use chemicals to kill the mold, but this is not good for the environment. The best way to manage the problem is to use resistant varieties of the bean," Mkwaila explains.

Mkwaila identified some regions in the genetic make-up of the plant (genome) that contribute toward resistance. She also worked on the beans' agronomic traits that make them attractive to farmers. "I managed to select a line that was tolerant to white mold and that had good agronomic traits," she says. "It was later released by the university as an American variety called Eldorado Pinto." Mkwaila is a co-author of the variety's plant-registration article.

Toward the end of her PhD program in Plant Breeding Genetics and Biotechnology, the African Union/NEPAD African Biosafety Network of Expertise gave Mkwaila a partial appointment in the form of a one-year fellowship to train as a resource person on biosafety in Africa. "This training made me think about raising the profile of biotechnology and what it can offer to Malawian farmers by giving information to policy makers and regulators so they can make science-based decisions," she says.

Now back in Malawi, Mkwaila is teaching horticulture and is developing a new university program on biotechnology. The skills she developed during her studies can lead to the development of new seed varieties that are adapted to whatever breeding environment one chooses. She foresees herself using these skills to develop varieties suited or adapted to Malawi.

Mkwaila is trying to establish her own breeding program by developing bean populations and expanding her yam germplasm collection. She eventually plans to start a seed company that serves under-researched crops, including legumes, and root and tuber crops.

"Being an AWARD Fellow will help me improve my writing skills, which I need in order to publish and become a professor," Mkwaila says. She hopes that her improved writing skills will help her write winning research grant proposals so she can develop locally adapted bean and yam varieties for Malawian farmers.

Mkwaila enjoys mentoring and teaching, and plans to use the interpersonal skills that she develops during the fellowship to help her undergraduate students. "I want to mentor students and build them up as my advisor did for me," she says. "AWARD will increase my visibility as a woman in science in Africa—it will help put me on the map."

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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.

AWARD is generously supported by the Bill & Melinda Gates Foundation, the United States Agency for International Development, and the Alliance for a Green Revolution in Africa. For more information, visit www.awardfellowships.org