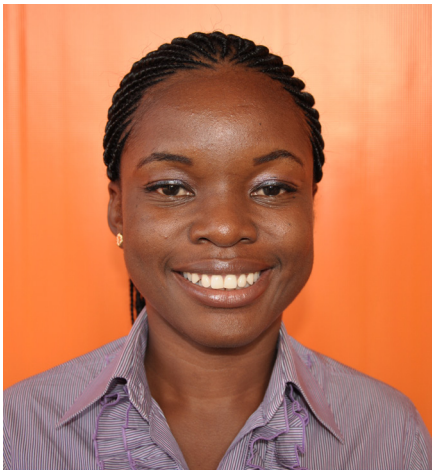
AWARD
African Women in Agricultural Research and Development

Profile



2014 AWARD Fellow
Blessing Adanta Odogwu

Position	Doctoral Candidate
Institution	Makerere University, Uganda
Country	Nigeria
MSc	Planting Biosystematics and Taxonomy, University of Port Harcourt, 2011
Mentor	Dr. Mildred Ochwo-Ssemakula, Lecturer, School of Agricultural Sciences, College of Agricultural and Environmental Sciences, Makerere University
Research Area	Resistance to rust (*Uromyces appendiculatus*) disease in common beans in Uganda.

"We have an abundance of different food crops in Africa, but we need to modify and improve what we have to fit the people's needs and move farmers from subsistence to greater income generation."

Blessing Adanta Odogwu remembers from childhood how her mother grew vegetables between rows of corn and cassava, and would caution Odogwu and her five siblings not to disturb the plants' delicate seeds. But only as an adult, studying plant sciences and genetics, did she fully appreciate the preciousness and potential of seeds, including the role improved seed can play in bettering the lives of smallholder farmers.

"We have an abundance of different food crops in Africa, but we need to modify and improve what we have to fit the people's needs and move farmers from a subsistence to greater income generation," says Odogwu.

Following her undergraduate studies in plant science and biotechnology, Odogwu taught basic plant science courses and completed an MSc in Plant Biosystematics and Taxonomy at the University of Port Harcourt, Nigeria. Her training in biotechnology opened her eyes to the practical applications of her research, particularly regarding the improvement of basic food security crops.

Currently, Odogwu is pursuing a PhD at Makerere University, where she is conducting research using the biotechnology laboratories and expertise of the researchers working at the National Crops Resources Research Institute and the International Center for Tropical Agriculture - CIAT in Namulonge, Uganda. Her work is focused on exploring the genetic diversity of rust disease (*Uromyces appendiculatus*) in common bean (*Phaseolus vulgaris L.*), which is an important staple crop in Uganda.

"Imagine women who are empowered as a result of gender-responsive research. Imagine the positive changes this will cause and the effect it will have on their families and the larger society."

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

Uganda is one of the largest producers of common bean in Africa, and the crop is grown by more than 80 percent of farming households. The leaves, pods, and dried beans can be consumed, providing protein, complex carbohydrates, and valuable micronutrients, and are a source of both income and food security. However, average yields (500 kg per ha) are well below the average for sub-Saharan Africa (770 kg per ha), and have been dropping steadily.

Rust disease is a major cause of yield losses, which can reach 100 percent in severe cases. Fungicide treatment is effective but unaffordable for most farmers. And because the infection is caused by airborne spores, crop rotation is insufficient. Breeding varieties that are disease resistant is the most practical and sustainable solution for smallholder farmers.

"The first step is to identify and characterize the plant rust pathogens, and the disease-causing variants among them, called pathotypes, which have distinct molecular markers and levels of virulence," explains Odogwu. "Various rust disease pathotypes have been identified in Tanzania and Mozambique, but we have yet to see if they will be similar or different in Uganda."

Odogwu will also be working on 200 lines of common bean varieties, including both local and introduced varieties, to screen them for rust disease resistance.

"The local varieties favored by farmers are not resistant, so we need to use traditional and molecular plant-breeding techniques to breed varieties that will resist disease, produce higher yields, and still meet producer and consumer preferences," she says.

Following her PhD, Odogwu's goal is to teach and lead an active breeding program in her native Nigeria. She will bring back not only the scientific skills learned in a top-notch research facility, but also many applied skills, such as the use of participatory approaches with farmers to inform the breeding process.

Becoming an AWARD Fellow has further sensitized Odogwu to the importance of integrating gender in her research and participatory breeding activities, and the program's training is helping her acquire the skills and visibility to be more effective.

"Imagine women who are empowered as a result of gender-responsive research," she exclaims. "Imagine the positive changes this will cause and the effect it will have on their families and the larger society."