



2013 AWARD Fellow
Phyllis Wambui Muturi

Position	Doctoral Student
Institution	Makerere University, Uganda
Country	Kenya
MSc	Crop Protection, University of Nairobi, 2008
Mentor	Dr. Stephen Mugo, Principal Scientist (Maize Breeder) International Maize and Wheat Improvement Center (CIMMYT)

Research area: Enhancement of resistance to African and spotted stem borers in sorghum.

Phyllis Wambui Muturi understands food insecurity first-hand. Raised on a small farm in a family of seven, she witnessed pests and diseases destroy their crops, which influenced her future career path. She was raised by her illiterate, hard-working grandmother, who encouraged her to aim high.

“When I finished my chores, I would study by kerosene lamp until 11 p.m., and then get up early the next morning,” she recalls. Realizing how brilliant Muturi was, her father’s employer paid for her secondary-school education, as well as her undergraduate studies at the University of Nairobi. “Mothers in our village now bring their daughters to me to encourage them, since I have become a role model,” Muturi says.

Agriculture was not Muturi’s first career choice, but Dr. Njeru Rose, her supervisor for her bachelor’s degree project on potatoes, got her hooked. Praising the young woman’s attitude toward learning and working hard, Dr. Rose also helped her obtain a research project on sweet potatoes supported by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). Today, Muturi is collaborating with researchers at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) on sorghum breeding for arid and semi-arid conditions. Her work centers on improving locally preferred varieties, which are rather susceptible to insect pests and disease, in order to increase resistance against stem borers and improve food security among smallholder farmers in the face of the impact of climate change.

“Among insect pests, *lepidopteran* stem borers, mainly *Busseola fusca* Fuller (African stem borer) and *Chilo partellus* Swinhoe (spotted stem borer) are the most damaging,” states Muturi. “They are associated with 15 to 80 percent of reductions in grain yields in sub-Saharan Africa.”

In her research, Muturi focuses on these two pests, which mainly cause leaf feeding, dead-heart formation, and stem-tunneling damage. Spotted stem borer is a highly invasive and persistent Asian species. First reported in Malawi, it has since expanded to Eastern and Southern Africa. Interestingly, spotted stem borers co-exist with the African stem borers in the moist mid-altitude zones in Kenya. This study is the first to report on sources of resistance to the African and spotted stem borers in sorghum. “Several stem borer

control strategies—including intercropping, introduction of parasitoids, such as *Cotesiaclavipes*, and using synthetic pesticides—have been used but yielded little success,” she says.

Muturi is excited that she has identified sorghum genetic material resistant to the African and spotted stem borers. The responsible genes that condition-resistant traits to stem borers are inherited in both additive and non-additive type of gene action. “This is a real breakthrough for the semi-arid regions of Kenya, since breeders can develop new sorghum with superior traits,” she says.

As an AWARD Fellow, Muturi is determined to increase her international professional networks. “The fellowship will help me contribute to improved food security and see happy, prosperous Kenyans who have nutritious food throughout the year,” she says. “I especially want to improve my leadership skills and develop collaborative projects with other women scientists from across the continent, and even around the world.” Muturi also expects to become a better communicator and manage the double challenge of having a career and being a good parent to her young daughter. Choosing a renowned scientist from CIMMYT as her mentor is a first step toward realizing her ambitious goals.

Muturi 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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