



2014 AWARD Fellow
Abigael Nekesa Otinga

Position	Lecturer
Institution	University of Eldoret
Country	Kenya
PhD	Bioscience Engineering, KU Leuven, Belgium, 2012
Mentor	Professor Wilson Ng'etich, Head, Soil Science Department, University of Eldoret
Research Area	Increase of cereal and grain legume yields using integrated soil-fertility management to improve the livelihoods of small-scale farmers.



“I was concerned that there were technologies available that farmers were not using. I found that they were unaware that soil pH could be improved.”

Abigael Nekesa Otinga studied agriculture because she wanted to help increase the productivity of smallholder farms. “Mum used to farm an acre of land,” she says. “She worked very hard, but struggled to make ends meet. I wanted to change this.” She chose soil improvement for her undergraduate project.

Otinga’s disappointment with the job market after her first degree prompted her return to academics for MSc studies. Finding money to pay for the course was difficult, especially since she also had to pay her brother’s school fees. A loan from the Higher Education Loans Board covered part of her first-year studies, and she won a scholarship from the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) to do her fieldwork.

For her research, Otinga conducted an adoption study on two different ways of increasing soil pH in acidic soils—agricultural lime and Minjingu phosphate rock. “I was concerned that there were technologies available that farmers were not using,” she says. “I found that they were unaware that soil pH could be improved.”

After graduating, Otinga was employed as a tutorial fellow at Moi University. That same year, she won a scholarship for doctoral studies in Belgium, as part of a Belgium-Kenya cooperation program for university academic staff capacity building. She studied soil fertility because smallholders need to use fertilizers to produce food, but cannot use the recommended rates. “The problem is that fertilizer is expensive and the supply of organic materials, or manure, is too low to meet farmers’ needs,” explains Otinga. “I wanted to find a way to help them decrease the amount of inorganic and organic fertilizer they use while increasing crop yields.”

“I want to train and encourage young people, just as my supervisor did for me.”



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

Working with grain legumes and maize (the staple in the region), Otinga investigated how to increase the efficiency of the small quantities of fertilizer farmers can afford by reducing the amounts applied. She applied the fertilizer in small areas around the crops rather than broadcasting it throughout the field, ensuring that similar concentrations of nutrients were achieved. This is possible when the volume of the soil to be amended is reduced. “I used only one-quarter of the amount of fertilizer used for broadcast,” says Otinga. “Farmers can also combine the little quantities of mineral fertilizers they can afford with organic materials, such as manure, to increase nutrient efficiency, which consequently increases field productivity.”

Now a lecturer at the University of Eldoret, Otinga is researching integrated soil fertility management to increase cereal (maize, millet, and sorghum) and grain legume (beans, groundnut, and soybean) yields in western Kenya to improve the livelihoods of small-scale farmers. She is involved in two RUFORUM-sponsored projects. The first is a community action research project studying the dynamics of farmer associations to determine if they are effective pathways to disseminate information and promote technology adoption. The project aims to improve service delivery of associations to smaller groups through capacity building.

Otinga is the co-principal investigator on the second project, which is an assessment of the biological nitrogen fixation of groundnuts in western Kenya and eastern Uganda. The aim is to identify indigenous rhizobium from the field and introduce it in groundnuts to increase productivity and soil fertility. Groundnuts are an important food crop in the region, and the team wants to determine whether the amount of nitrogen they fix in these systems can reduce the nitrogen requirements of cropping systems.

“We intend to patent and commercialize the indigenous strains identified in western Kenya and eastern Uganda for use in groundnut production in the region,” Otinga says. “This will help improve groundnut yields.”

Through AWARD, Otinga expects to improve her leadership skills so she can achieve her goal of influencing policy, working toward becoming the vice chancellor of a university, and eventually the minister for agriculture. The networks she will start to build during the program will set her on the right path to achieve this goal. “I applied for the AWARD Fellowship because I wanted to improve myself,” says Otinga.

Otinga expects to use the knowledge and experience gained from the fellowship, especially the mentoring skills, to improve her service delivery as a teacher and researcher. “I want to train and encourage young people, just as my supervisor did for me,” she says.