AWARD
African Women in Agricultural Research and Development

Profile

Rose N. Kigathi
2015 AWARD Fellow

Position	Lecturer
Institution	Pwani University
Country	Kenya
PhD	Ecology, Friedrich Schiller University, Jena, Germany, 2011
Mentor	Dr. Hemedi M. Saha, Registrar, Research and Extension, Pwani University
Research Area	Use of knowledge on biodiversity gathered from natural ecosystems to understand how cropping strategies influence patterns of functioning.

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Rose Nyachomba Kigathi grew up aware of the problem of pests and diseases due to her father's job as an agrochemical sales representative. Growing up in Thika, the children—two boys and two girls—were responsible for tending the backyard garden. Her first experience with a large farm was when she was in upper primary school and the children helped harvest maize at the family farm in the Rift Valley.

The third born child in the family, Kigathi's choice of a career in research was influenced by college attachments in both industry and research during her diploma and BSc studies in Horticulture at Jomo Kenyatta University of Agriculture and Technology. "It was clear to me then that industry was not for me, and I was still interested in finding an alternative to using pesticides in agriculture," she recalls. She completed a one-year internship at ICIPE after her undergraduate degree before embarking on master's studies in Hannover, Germany, on a German Academic Exchange Service (DAAD) scholarship.

Kigathi's MSc and PhD research focused on alternatives to pesticides. Her MSc project assessed the effect of different types of plastic film used in greenhouses on the dispersal of insects. She began writing a PhD proposal immediately after completing her master's and enrolled in another German institution. She studied plant secondary metabolites, which play a role in plant defence and generally protect plants against environmental stresses. For her PhD research she used European grassland ecosystems to study how defence metabolites change with species richness, focusing mainly on Trifolium pratense (L), a legume occurring in natural meadows in Europe. Kigathi investigated volatile emissions from entire communities where T. pratense was growing and from individual plants in field and laboratory conditions.

"I found that T. pratense tends to increase emissions of volatile organic

compounds with increases in the richness of plant species, and that plants growing in monocultures emitted lower amounts of volatiles than those growing in higher diversity mixtures or on their own," Kigathi explains. "This indicates that plants growing in monocultures were compromised in their ability to defend themselves against pests."

Kigathi is currently developing projects to continue looking at the role of biodiversity of plants and microbes and their effect on the functioning of natural and agricultural ecosystems. Since soil fertility is one of the major constraints to agricultural production in Kilifi, she is supervising two master's students, one working on the use of readily available manures to improve soil fertility. Soils in this area generally have low organic matter and the manures are expected to improve organic matter. The project is also interested in determining how this will alter soil microbial diversity. The second student is working on using beneficial soil bacteria to improve plant defense.

Kigathi's post-graduate studies kept her out of the country for many years, but she is happy to be back in Kenya. She expects the AWARD Fellowship to improve her networks, especially with people doing work similar to hers. The networks will help attract research funding, which will improve the visibility of her department at Pwani University.

Kigathi hopes to become an influential researcher who inculcates the research culture in students, thus creating an impact at the community level and contributing to knowledge generation. "Science is something you can actively do to help you make an impact in the community," she says.

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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