



2014 AWARD Fellow  
**Bukola Rukayah Aminu-Taiwo**

<b>Position</b>	Principal Research Officer
<b>Institution</b>	National Horticultural Research Institute, Ibadan
<b>Country</b>	Nigeria
<b>MSc</b>	Phytopathology (Nematology) University of Ibadan (UI), 2006
<b>Mentor</b>	Dr. Biodun Olufunmilayo Claudius-Cole, Senior Lecturer Crop protection and Environmental Biology, UI
<b>Research Area</b>	Determination of the effect of root-knot nematode (RKN) on production of cucumber ( <i>Cucumis sativus L.</i> ), to develop a locally adaptable, environmentally friendly management practice that uses resistant crops in rotation.

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Bukola Rukayah Aminu-Taiwo is motivated by a desire to make agricultural research more practical, suited to farmers’ needs, and effective at shaping public policies. Her ambition is to lead a research institution and devise policies that can increase farmers’ incomes, promote productivity, and enhance food security, while also protecting the environment.

“If we want to eradicate poverty and malnutrition for the long term, we need both substantial improvements in agricultural productivity and sound management of natural resources,” she says.

Currently a principal research officer with the National Horticultural Research Institute in Ibadan, Nigeria, Aminu-Taiwo is also pursuing a PhD in Nematology at UI. She sees a direct link between her work to control the tiny crop pests and the much larger goals of food security and sustainable livelihoods for rural farmers.

Plant-parasitic nematodes are a major cause of crop losses globally and can decimate production in individual fields. Aminu-Taiwo’s research is focused on controlling root-knot nematodes (*Meloidogyne incognita*) in cucumber (*Cucumis sativus L.*). Although RKNs are invisible to the naked eye, they are among the most damaging plant-parasitic nematodes to horticultural and field crops. They live in the soil and infect the roots, preventing the transmission of nutrients to the plant. The result can mean severe yield losses, potentially wiping out a farmer’s entire crop. RKNs also make plants more susceptible to other pathogens, such as bacterial wilt infection.

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Chemical pesticides can be effective against RKNs, but they are costly and not biodegradable. If not used properly they can leach into groundwater, causing ecological and health hazards.

“The management of RKNs calls for approaches that are cost-effective, culturally acceptable, and environmentally safe,” says Aminu-Taiwo, who tests methods using organic soil management, with a current focus on crop rotation.

The cucumber has a short, three-month maturation and can be planted twice a year. It is a good crop for studying nematode control through crop rotation with more resistant plants. Cucumber is widely consumed in Nigeria, eaten raw or cooked, and contains key micronutrients, such as potassium, sodium, magnesium, silicon phosphorous, chlorine, and fluorine. It has also been found to contain anti-inflammatory, antibacterial, and other medicinal properties.

For her MSc, Aminu-Taiwo worked with farmers on experiments using soil amendments with organic materials to control the RKNs of fluted pumpkin (*Telfaria occidentalis L.*). For her PhD research, she screened 24 horticultural crops for their susceptibility to root-knot nematodes. She identified 15 that are resistant, including sesame, marigold, sorghum, and others that can be grown for economic returns. She is collaborating with farmers to see if by rotating between the cucumber and more resistant crops, they can control nematode infestations.

Aminu-Taiwo highly values her collaboration with farmers. “All research in the field of agriculture must be geared toward problem solving,” she says. “It should be taken to the doorstep of the farmers to inform the research process, increase farmers’ knowledge and improve their practices for better gains all along the food value chain.”

As an AWARD Fellow, Aminu-Taiwo expects to build new skills, increase her self-confidence, and develop a range of contacts to help her move from a technical position to management. Her goal is to have more influence in designing and implementing population-based agricultural interventions that will make a difference in the lives of smallholder farmers.

“I want to become a world-class expert and leader in translating evidence from research to policies for sustainable development and global impacts, especially on the livelihoods of women and children, since they are the most vulnerable.”