



Juliana Amaka Ugwu
2015 AWARD Fellow

“I want to make a positive impact in the area of pest management...I have a vision to minimize chemical pesticide use by developing environmentally friendly approaches...”

Position	Lecturer I
Institution	Forestry Research Institute of Nigeria (FRIN)
Country	Nigeria
PhD	Forest Entomology, University of Ibadan, 2013
Mentor	Dr. Elizabeth Ekpo, Director, Forest Conservation and Protection Forestry Research Institute of Nigeria
Research Area	Development of an ecological and environmentally friendly approach for the sustainable production of fruits and vegetables in Nigeria.

Juliana Amaka Ugwu grew up in a large family in Eastern Nigeria. The third of nine children, she was determined to excel in school and attend university. She was admitted to study medicine at a local university, but as the first daughter, she faced family pressure to get married. After her first year at university, she agreed to get married. “I was schooling in the East while my husband was staying in the western part of the country,” she recalls. This proved to be a challenge and she eventually decided to seek a transfer to a university in the western state to join her spouse. She was unsuccessful in getting into medicine but got an opportunity to study zoology. It is here that she developed an interest in entomology, which she pursued for her master’s. “Without the study of insects, agriculture cannot survive,” states Ugwu. She explains that insects play an important role in pollination, contributing to higher yields, but is quick to note that they also damage crops leading to losses for farmers.

For her PhD, Ugwu studied *Phytolyra lata*, a pest that attacks Iroko (African teak) seedlings. “They lay their eggs on the young stem, leading to gall formation on the shoot and dieback of foliage down to woody tissue,” she explains. Raising seedlings has been difficult—the seed loses viability if it is stored for three months. But although she faced some challenges, Ugwu was pleased to get a breakthrough in propagating the native tree. “For a year, I surveyed the sources of seed, made my collection, processed it, and developed the technique that I used to raise 1,000 seedlings,” says Ugwu proudly. She also developed an integrated pest-management system that resulted in 80 percent survival of Iroko trees in the field over a period of two years. Through FRIN, Ugwu is looking for funds to establish and monitor Iroko plantation to ensure the sustainability of the indigenous tree. “In the next 30 years, these trees will become extinct if we do not replace them,” she adds.

Her current research is on the management of the African invasive fruit fly (*bactrocera invadens*) on the *Irvingia* (bush mango) species to ensure production of healthy fruits, which would contribute to better livelihoods for farmers. “To produce fruit for the international market, it must be pest-free,” says Ugwu who would like to see farmers improve

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their incomes by exporting their fruit. She is looking for environmentally friendly ways of controlling the insects through mass trapping and biopesticides. Ugwu is testing the efficacy of naturally occurring biopesticides from *Azadiractaindica* (neem) and *Piper guineense* (West African black pepper) in controlling the invasive fruit flies. “Most research does not get to rural farmers—they stick to using chemicals, which have adverse effects on their health, consumers and the environment,” notes Ugwu. She would like to conduct multi-locational trials and train rural farmers, especially women, on pest-management practices by demonstrating the technologies on their farms.

Ugwu wants to reach the academic pinnacle by becoming a renowned professor of entomology. “I want to make a positive impact in the area of pest management,” she says. “I have a vision to minimize chemical pesticide use by developing environmentally friendly approaches like biopesticides to control major insects in African agricultural systems.”

A former AWARD Fellow’s Mentee, Ugwu hopes to improve her research skills through an AWARD research attachment. “As some aspects of this research cannot be achieved in my institute, I would like to go to a well-equipped lab to carry them out,” she says. Ugwu feels it is a great achievement to be an AWARD Fellow, adding that she hopes to inspire younger scientists through knowledge sharing.