Feed the Future Country Fact Sheet

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Healing Plants to Feed a Nation

Photo by Miriam Otipa

Miriam Otipa pursued a degree in science out of a desire to develop solutions for farmers to combat crop losses and help ease their suffering. Today, she does just that as a research scientist and leader in Kenya.

Growing up in a small village in Western Kenya, I often accompanied my mother and other village women on customary weeding expeditions. Whenever we came across sick plants in the fields—which was all too often—my mother would instruct me to pull them out and cast them aside.

I did as she asked, but wondered to myself: Why do we simply throw out the plants instead of doing something to make them better?

At times, my mother lost nearly 80 percent of her tomatoes to plant disease. The loss was so bad that she eventually stopped growing tomatoes all together. Yet when one of our cows got sick, my mother would call a veterinarian to come and treat the cow. I wondered: Were there no doctors who could also cure our plants?

I turned this curiosity into a career in science and became the first child in my family to attend university as well as the first woman in my village to earn a science degree. Seeking answers to my childhood questions, I studied botany and zoology as an undergraduate to better understand the diversity of crop and animal pests and diseases afflicting farmers like my mother in Kenya and her peers across Africa. I wanted nothing more than to find a practical solution.

So, I became a plant doctor.

I started in plant pathology, diagnosing plant diseases at the Kenya Agricultural and Livestock Research Organization. Here, I came face-to-face with the enormity of the crop loss that farmers were experiencing due to pests and diseases. For example, in Kenya, greenhouse farmers routinely lose between 80-100 percent of their tomato crops to pests and diseases. In the process, they lose their start-up capital and incur financial strain. Some, like my mother, give up farming and resort to buying the crops they were trying to grow from others instead.

I wanted to do more to ease these farmers' suffering—I wanted to find a solution for them.

Solutions Through Science

Eager to learn and improve my skills, I applied to the **African Women in Agricultural Research and Development (AWARD) Fellowship** and was selected as a 2008 Fellow. Thanks to this unique training program, I was on my way to becoming an agent of change in my community by learning how to treat plant pests and diseases.

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I was exhilarated to finally have the skills and knowledge to discover and develop solutions using science. With my new grant writing skills, I secured USAID funding to develop environmentally friendly crop protection technologies. Working with partners in the Feed the Future Innovation Lab for Collaborative Research on Integrated Pest Management was an eye-opener. I used new equipment and learned from the experts around me. During this time, I also had an opportunity to attend Ohio State University as a visiting scholar, where I honed my diagnostics skills and developed Kenya's first-ever methodology for screening passion fruit for disease at nurseries, to help stop disease before it made its way to farms.

Success Spreads Across Kenya

Today, I help farmers properly diagnose plant disease and heal their sick plants, and I'm training others to be plant doctors too! Through the PlantWise program, supported by an international non-profit called CABI, I've helped train more than 140 agricultural extension staff to operate 89 Plant Clinics in 13 counties across Kenya. I've also jointly trained 45 farmers as Plant Nurses, who regularly visit farms, assist with plant examinations, and encourage farmers to use nearby plant clinics. Farmers can take their diseased plants to these clinics and receive guidance and expertise from plant doctors on how to best tackle their plant pest and disease problems.

It is incredibly fulfilling for me to see such progress, as farmers can now confidently diagnose and treat their plants. Instead of throwing out sick plants, farmers are able to fight crop losses and have the chance to adopt new farming practices that help them proactively boost their harvests and incomes.

During a recent training session, a female farmer exclaimed: "Now you have opened my eyes. I can tell the difference between insect pest and disease damage on plants! Now I'll be able to use the right approaches to control the insects and pests on my farm. I'm going to share this information with my neighbors when I go back home! *Asante sana, mwalimu* – thank you very much, teacher!"

She was greeted by hearty laughter from the rest of the trainees, many of whom share the same feeling.

I live for such days. If more farmers can accurately identify pests and diseases early on, they can treat them with approaches that involve little to no pesticides and before the disease or pest threat spreads.

Innovation In Action

One popular, effective and eco-friendly technology is a 'mosquito net' for plants. Developed with the Feed the Future Innovation Lab for Collaborative Research on Horticulture, **the net** reduces the need for pesticides and helps farmers protect against crop losses in fruit and vegetable production by acting as a visual barrier to pests like whiteflies, aphids and thrips, while also reducing the risk of pesticide residue.

Farmers who use the nets are enjoying higher and better-quality yields from crops such as cabbage, kale, tomatoes, and green beans.The list of benefits goes on and on: The nets help farmers produce more nutritious foods, optimize their water use, and provide more income to farmers. They've created tremendous market opportunities for smallholder farmers, particularly women.

I am proud to say that my dream of becoming a 'doctor of plants' has come true. I only wish that there were more like me in Kenya. As one of the few female plant doctors in my country, I'm passionate about training the next generation of plant doctors to narrow this deficit.

The concept of a plant doctor is relatively new in Kenya, but new plant diseases are increasing demand for scientists like me and our services to help stop threats to food security. I even advise my aunts, uncles and older sister on best farming practices and treatments for their crops, as they consult me regularly. It's as if I'm a walking agricultural book for them! I'm

glad that I can help.

I am doing my bit to help feed my village and my nation.

Additional Reading

- **Learn more** about the eco-friendly agriculture nets Miriam mentioned
- **Explore a full list of the Feed the Future Innovation Labs** working with scientists like Miriam to tackle challenges in agriculture
- **Check out the AWARD website** for stories from more fellows
- **Read more** about Feed the Future's work in Kenya