

From One Farmer, Hope—and Reason for Worry



OLAGARA, UGANDA—In this harsh, dry landscape, Winifred Omoding's fields are a welcome burst of color. Her neighbors' plots are pitifully brown, with shriveled maize and sorghum clinging to half-height stalks. Omoding's, however, are an embarrassment of green. Her sunflower, sesame, and cassava thrive amid the cacti and dust that surround this village of 500 people.

Just a few years ago, Omoding's prospects looked bleak. Civil war had left her life in disarray, her crops were failing, and she was struggling to feed her family. Now, the 41-year-old farmer not only produces enough food for her husband and nine children but also makes a healthy profit selling the excess.

"I enjoy farming very much," Omoding says as she weeds sunflowers that tower over her head. "It's a very noble profession: the backbone of our country."

It's just the kind of success story that food-security experts say needs to be replicated if fast-growing populations in Uganda and other developing nations are to avoid widespread hunger. Already, analysts estimate that nearly 2 million of Uganda's 31 million people experience food insecurity due to supply problems or rising prices. Nearly 80% of the people in Omoding's region, for instance, depend on food aid to survive. Such problems could worsen as Uganda's population, which has been increasing at

In Uganda, agricultural research is improving food security for some, but not all farmers are prospering

more than 3% per year, surges to an estimated 100 million by 2050. To keep pace, Uganda's farmers will need to at least triple current harvests.

Omoding's story offers some cause for optimism that they can meet that challenge. And it highlights the important role that scientists can play in boosting yields by helping farmers get the most from fundamental resources, such as water (see p. 800), soil (see p. 801), and seeds (see p. 802). But her experience also underscores the complex social, economic, and psychological challenges raised by food insecurity; science alone didn't enable Omoding to transform her fields from brown to green—nor will it do so for her neighbors.

Farming from need

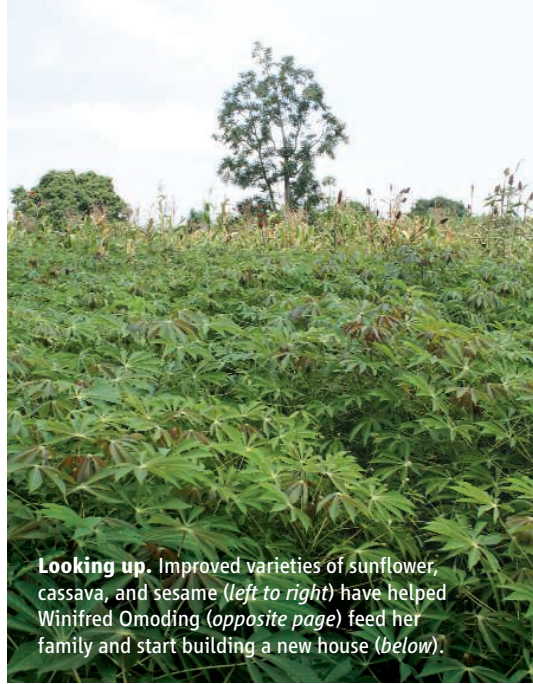
Like many developing-world farmers, Omoding fell into farming out of desperation. Her parents were schoolteachers and she had hoped to follow them into the classroom. But that dream ended with the political violence that enveloped her homeland for nearly 20 years starting in the 1980s. "Whenever we heard shootings, we would run into the bush and hide," she recalls. "The rebels killed my older sister and my dad. They burnt our house, took our seven cows and goats and sheep, destroyed our crops."

After Omoding married, she and her husband, Ephrem, inherited about 3 hectares of land. That is a large farm by Ugandan standards, but the couple struggled through the 1990s. Traditional farming practices, which rarely allow fields to lie fallow, had reduced the fertility of their soil. Poor-quality seeds bought at local markets often failed to thrive. A parasitic weed called striga sapped their sorghum crop, reducing yields. With no animals to help plow the hard ground, the couple "appealed to some of the men in the village, who tied their hands to the harness of the plow," recalls Omoding. "It was a terrible time. Many people went hungry and many children died."

The couple's fortunes changed with the return of political stability in the early 2000s. The men gave up soldiering and could help in the fields. And in 2003, aid groups helped Omoding and other Ologara women form an agricultural "microloan" cooperative. In exchange for making small deposits into the co-op, the women could get small loans. Omoding used her first one to hire oxen to plow and weed her fields.

Such help didn't end the crop failures, however, so in 2006 Omoding traveled to the nearby town of Soroti to seek help from scientists at the government's new National Semi-Arid Resources Research Institute (NaSARRI), created as part of a 2005 overhaul of Uganda's agricultural research system. "She was in a terrible way with her harvest having just failed again," recalls NaSARRI's Florence Olmaikorit-Oumo, an outreach worker who helps connect farmers to institute scientists.

The timing was right. The scientists were developing new crop varieties customized to prosper in places like Ologara, which typically gets less than 800 millimeters of rain annually (and much less



Looking up. Improved varieties of sunflower, cassava, and sesame (left to right) have helped Winifred Omoding (opposite page) feed her family and start building a new house (below).



recently). They were also looking for local farmers to help field-test and multiply the seeds. Omoding was a prime candidate, says Olmaikorit-Oumo: “You could see that she really wanted to learn.”

Institute staff began giving Omoding advice on which crops to grow. Maize was out (too thirsty); sorghum, cassava, and millet were in. They also showed her new ways to restore soil fertility, such as by plowing postharvest leftovers back into the soil. And Omoding got access to the institute’s latest seeds, which she bought using a microloan.

She saw immediate results. The first harvest was so successful that she had a surplus—and a few kilos of desirable new seed—to sell through a marketing network created by NaSARRI. Since then, farm profits have allowed her family to add land, send their children to boarding schools, and start building a brick house. “Before, I farmed to feed my children,” Omoding says. “Now, I think of it as a way to make our lives better and to become more rich.”

Success has also given her the security to experiment with new crops. One is a drought-tolerant sunflower that yields a high-quality oil and a “cake” that farmers can feed to livestock. She’s also planting a new drought-tolerant sesame. “It is ready to harvest in just 4 months rather than 6 months like the local variety,” she says as she wades through a ripe bumper crop.

Duplication challenge

To ensure food security in Uganda, however, many more farmers will soon need to duplicate Omoding’s success. And that could be a problem if the many struggling farms around Olgara are any guide. Even as the Omodings and others have changed their practices and prospered, many neighboring farmers have not—and understanding why will be key to ensuring food security.

Omoding herself believes one important difference is her willingness to take risks and embrace new ideas. “Whatever the scientists tell me, I try it and see if it works,” she says. “I am not happy with just planting the same seeds every year and hoping, like others in the village.”

To overcome that mindset, NaSARRI officials have launched efforts to have innovative farmers teach their neighbors—a model that has worked well elsewhere. But progress has been slow, they say, perhaps in part because so many people here are still recovering from decades of traumatic violence and crop failures that sapped hope for the future. It can seem pointless to put in the hard work necessary to rebuild soil fertility or dig a well, for instance,



if you fear being uprooted from your home or losing your crop to weather or pests you can’t control.

Omoding, however, is looking ahead with confidence. “I always ask how I can do better,” she says. “I want my crops to be bigger.” She wants to plant an orange grove, for instance, to supply a planned juice factory. To get the needed water, she’s already gotten a loan for a treadle pump and is saving up to build a shallow hand-dug well. Eventually, she’d also like to start buying the fertilizers, pesticides, and tractors that farmers in industrialized nations take for granted.

Those dreams, however, rest on a shaky foundation. Part of Omoding’s income, for instance, still comes from aid groups that buy part of her sunflower harvest in order to help jump-start the industry. That income could disappear if the donors withdraw. Reliable water supplies also remain a major challenge, which could get worse with climate change. And experts say Uganda’s government will need to spend much more to develop the infrastructure—from better roads and irrigation systems to reliable banks and markets—needed to give rural farmers incentives to increase yields and connect them to important urban markets.

Still, those trying to ensure food security in Uganda and elsewhere take some hope from Winifred Omoding. If one woman from a small village can create food from the dust, they say, perhaps the challenge of feeding 9 billion of the planet’s future inhabitants becomes a little less daunting.

—GAIA VINCE

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