

# Sowing Hope

## Saving the seeds of Rwanda

By TINA ADLER

**A**fter violent warfare ravages a country, much of what enables it to prosper collapses, including the government, factories, and schools. But something much smaller and more difficult to replace can also get depleted or wiped out: farmers' supplies of their best, hardiest seeds. This can lead to mass malnutrition or even starvation without vast quantities of international aid.

Over centuries, farmers and nature both help to select plants best suited to withstand a region's temperatures, rainfall, soil conditions, and insect populations. More recently, researchers have worked to identify and grow well-adapted plant types. Seeds from these crop varieties are a valuable resource.

But following a war, farmers returning to their lands often find their seed reserves gone. They have little to plant except perhaps a handful of seeds donated by well-meaning relief agencies.

Those handouts, however, may not produce more than one good crop, as aid groups often can't provide seeds suited to a particular region. It can take farmers several years to expand their stocks of locally adapted seeds. And during that time, the country must continue to rely on food donations, agricultural experts acknowledge.

Photos: CAIT



Rwandan women in a field of climbing beans in 1993.

**T**his scenario could have occurred throughout the tiny central African country of Rwanda following the fighting and mass killings that took place there last year. Fortunately, it may not, thanks to a new international effort to grow and maintain Rwandan seed stocks. The project shows the value of seed banks and highlights the role researchers play in maintaining them.

Last April, civil war erupted between Rwanda's Hutu majority and Tutsi minority, causing many farmers to flee for safety before crops could be harvested. Agriculture took a big hit. Soldiers and hungry civilians ate or destroyed crops and seed supplies before the violence died down in late summer.

Farmers' supplies of seeds became diseased or fell so low that they were at risk of disappearing, says William R. Scowcroft of the International Center for Tropical



CIAT and Zairian agricultural scientists inspect a Seeds of Hope bean-growing operation in Mulungu, Zaire, near the Rwandan border in August.

Agriculture (known by its Spanish acronym CIAT), in Cali, Colombia.

In fact, the cereal and bean harvest that ended last July was 60 percent below normal, and the root crop harvest dropped by 30 percent, Scowcroft says. Except in small pockets of the country, people now rely heavily on donated food.

In addition, Rwanda's several centers for testing and growing seeds suffered severe damage during the civil conflict.



Beans growing in front of plantain trees in Rwanda before the war.

Losing a significant number of its adapted seeds could have proved particularly devastating for Rwanda, agricultural experts say. Though slightly smaller than the state of Maryland, the country is fairly mountainous and the growing conditions vary considerably from region to region.

As a result, Rwandans require many versions of their major crops. Indeed, they harvest roughly 500 types of beans, 50 varieties of sorghum, 10 to 12 kinds of maize, and 8 or 9 different sweet potatoes. CIAT's seed bank contains 300 varieties of Rwandan beans. Some of them have been grown in that country for over 400 years, Scowcroft says.

Farmers are quite savvy about what types of seeds work best on their farms. But much of this expertise has been lost. Many farmers died in the fighting or remain stuck in refugee camps outside or inside the country. Only about half of them are back on their land.

**N**evertheless, some farmers are beginning the new year looking forward to harvesting crops grown

from seeds ideally suited to their fields.

To protect Rwanda's seeds, staff from eight International Agricultural Research Centers, including CIAT, initiated Seeds of Hope soon after the mass killings began in April. As part of the \$2 million program, center members have collected seeds from their own small supplies and from Rwanda's neighbors. Under contract with Seeds of Hope, farmers outside Rwanda are producing seeds for different varieties of most of Rwanda's main food crops: beans, sweet potatoes, potatoes, corn, and sorghum.

International groups have helped other countries rejuvenate their seed stocks depleted by war or natural disaster (SN: 12/18&25/93, p.416). But they have never acted this quickly, usually waiting until after the fighting has ended, international agricultural experts say.

In September and October, staff from five international relief agencies distributed a total of 400 to 500 kilograms of Rwandan seeds grown by Seeds of Hope to about 5,000 farmers, says Scowcroft.

Aid agencies also provided non-Rwandan seeds, which "aren't bad [but some] didn't have high farmer acceptability," says CIAT's Wayne Youngquist, a plant breeder stationed in Arusha, Tanzania.

Beginning this month, aid workers will give out about 40 tons each of bean, sorghum, potato, sweet potato, and corn seeds to about 10 percent of the coun-

try's farmers for the January to July planting season, Scowcroft says. Seeds of Hope organizers plan two more rounds of seed distribution. By 1996, 40 percent of Rwandan farmers should have received these hardy seeds.

CIAT staff and other agricultural experts will also talk to farmers and analyze their crops to find out which of the seeds they received are the most successful.

The distribution program has gone well so far; local growers planted much of the seed provided to them, says Wilmer J. Collett, the United Nations Food and Agriculture Organization representative in Rwanda.

Farmers have seeded 80 to 90 percent of the land normally planted in northwest Rwanda but less than 60 percent in the southwest, according to Collett, who participated in an aerial survey of the country's farmland in November. Near the capital of Kigali, 75 to 80 percent of the farmland is planted.

"I think [Seeds of Hope] is going to make a significant difference," says Joe Siegle of World Vision, an international aid organization helping to distribute seeds and food in Rwanda.

**D**evelopment and agricultural groups report that they are interested in starting seed protection programs like Seeds of Hope elsewhere

in Africa, says Scowcroft. Such efforts would help reduce the rising costs of providing food aid, he notes.

In fact, Seeds of Hope may serve as a model for a larger program in Africa to protect crop seeds, organized by the United States Agency for International Development (AID), which helped fund Seeds of Hope, says Barry N. Heyman of AID's Foreign Disaster Assistance office.

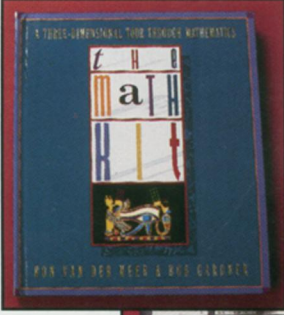
Among the actions being considered, for example, is the formation of an association of African seed growers. To ensure that important types of seeds can't get wiped out in a war or natural disaster, the association could see to it that key varieties grow in more than one country, explains AID's Raymond E. Meyer.

"It's really a fairly new area we're trying to develop" in the next 2 years, Meyer asserts.

Countries that might participate in the program include Rwanda, Burundi, Tanzania, Kenya, Uganda, Eritrea, Sudan, Ethiopia, Djibouti, and Somalia.

Some African nations still don't have seed banks, a fact that highlights the need for such initiatives. Moreover, many groups — including relief agencies — too often fail to realize the importance of well-adapted seeds, agricultural experts say.

"If you are not in tune to beans, a bean is a bean," CIAT's Youngquist laments. □



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