

Rwanda: Climbing beans – an upward spiral



Science for a food secure future

Despite the rain and mist blowing through his farm in Kagamba village, northern Rwanda, 41-year-old Bizimana Jeandascene was beaming when he showed us his climbing beans, throwing out his arm as if introducing a star performer.

“When I see the bean pods looking like this – at this time of the season – I know it is money in my pocket!” he said, with a big, infectious grin. *“These beans give hope to the farmer.”*

Jeandascene is one of many thousands of farmers in Rwanda who have switched from the more traditional bush beans to improved climbing beans.

And it’s easy to see the appeal. The bush bean plot adjacent to his climbers is as good as finished – stricken by disease, and dilapidated by heavy rain. There are hardly any leaves left, and few plants have healthy seed pods. By comparison, the plot of climbers is so dense it seems almost impenetrable.

Climbing to the challenge

Climbing beans make a lot of sense in Rwanda, which is fast running out of land. Already there are 11 million people squeezed into a country half the size of Costa Rica, and by 2100 that number is expected to leap to more than 40 million. Rarely has the need to sustainably boost food production been so pressing.

By virtue of growing upwards, climbing beans can produce up to three times more food on the same area of land than bush beans. They also enjoy two growing seasons per year; in some regions, three.

While both types of beans are crucial sources of protein, some of the improved climbers also offer greater resistance to diseases of the leaves and roots, while others have been

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bred to contain higher levels of iron. After years of research, many of the improved varieties were released in Rwanda, including 15 in 2010, and more due in 2012.

For Jeandascene, who had been trailing climbers since 2008, the impact was almost instantaneous. With the money he earned from climbing beans, he constructed a huge tank to collect rainwater from his roof. The following year he bought cows, using the manure as compost, and as fuel for his newly-installed biogas generator. The generator in turn powers a light bulb in his home, enabling his 15-year-old daughter, Igirimbazi, to do her homework. She tells us that since the light was installed, she has moved from 15th position in the class, to fourth.

From sowing to sewing

In Gikore village, also in northern Rwanda, 28-year-old Nakure Olive is sitting at a large sewing machine in front of her house, concentrating hard. The hill behind her is covered in climbing beans.

She won't go back to bush beans, she says, shaking her head and smiling at the suggestion. She used to plant five kilos of bush bean seed and harvest around 100 kilos, but the same amount of climbing bean seed brings a harvest weighing 250 kilos. There's just no comparison, she says.

With the support of a local women's organisation, she bought the sewing machine with the money she earned from selling her surplus beans. Now she makes sweaters, selling the majority to local schools. She told us she has made around 500 sweaters in the last year.

A collaborative effort

The bean improvement work has relied on the financial and technical support of a wide range of partners.

The seed originally came from CIAT's headquarters in Colombia, home to one of the largest bean gene banks in the world, and distributed via the CIAT-supported Pan-Africa Bean Research Alliance (PABRA). Scientists at the Rwanda Agriculture Board (RAB), through conventional breeding, have made the beans suitable to the country's many ecosystems, and the demands of farmers.

The project to develop biofortified varieties, complements the Rwandan government's drive to tackle rural malnutrition, especially in women and children. Five new high-iron climbing bean varieties are due to be released in the country in 2012, in a joint initiative of the International Food Policy Research Institute (IFPRI), CIAT and the Bill & Melinda Gates Foundation-funded HarvestPlus project.

The work has now transformed beans from a subsistence crop to a cash crop in Rwanda. The country now produces more beans than it can consume, and exports the surplus to its neighbours. It even supplies the new varieties to scientists in other Central and East African countries for their own bean improvement programs.

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