

A new method for growing crops in Haiti is starting to take root. A “greenhouse revolution,” introduced by USAID, is bearing exceptional harvests, increasing incomes and countering environmental degradation.

A view of the flower growers’ association’s greenhouses, constructed on terraces.

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Feed the Future West

The use of greenhouses is a common practice in many countries but unknown in Haiti until recently. Participating farmers, who previously were ready to abandon their increasingly challenging trade, are producing larger yields and are trading their produce more efficiently and for higher profits. That bounty includes lettuce, broccoli, peppers, tomatoes, leeks, beets, carrots, strawberries and flowers such as chrysanthemums and gladioli. These are now sold locally to supermarkets, hotels, restaurants and farmers markets.

About 60 percent of Haitians depend on agriculture for their income. But making ends meet is difficult and, until recently, agricultural productivity has systematically declined over the last three decades. The January 2010 earthquake prompted the Government of Haiti and its partners, including the U.S. Government, to put into place a new, comprehensive development strategy for guiding medium-term agricultural investments. USAID contributes through Feed the Future, the U.S. Government’s global hunger and food security initiative, as a major part of this effort.

In 2012, a drought, a tropical storm and a hurricane exacerbated agricultural development challenges, with flooding and mudslides washing away fields and vegetation. These catastrophes dovetailed with environmental degradation due to a longstanding practice of cutting down trees for agricultural land and to use as charcoal for cooking.

Farmers like Michel Dorlean, a flower producer, struggled financially. The horticulturalist grew up learning the family business of planting flowers on traditional hillside plots in his mountainous village of Furcy. The hillside locations leave flowers vulnerable to excessive heat, wind, humidity and rain. Dorlean used to lose a portion of his yields to weather.

But last year, his battered flower plots flourished into a profitable business thanks to greenhouse activities spurred by Feed the Future West, a USAID-supported project under Feed the Future. “You may not believe this, but my father has been working in the flower business for 40 years and, without exaggeration, I can say that within five years I will earn more than he made in all those years,” Dorlean said.

An average Haitian flower producer using traditional methods makes \$170 per year on a surface of 1,000 square meters; a farmer who owns a greenhouse can generate between \$1,500 and \$2,500 annually, depending on the crop, on only a 70-square meter area—a staggering difference.

Vertical Farming

In 2009, USAID started a project in the Port-au-Prince and St. Marc development corridors—Feed the Future’s focus areas in Haiti—to improve farmers’ livelihoods and create a sustainable model for agribusiness.

USAID has introduced agricultural training and better technologies, rehabilitated rural infrastructure, strengthened trade and marketing skills, and established farmers’ cooperatives to be able to form partnerships between farmers’ associations, private companies and other parties.

One effective productivity booster has been the adoption of greenhouses by smallholder farmers like Dorlean. Introduced by Feed the Future West, the greenhouse model is a tunnel-like, lightweight structure made of wood, PVC pipes and a plastic cover resistant to UV rays. Some greenhouses use local materials such as bamboo for support. A water-efficient drip-irrigation system is used, while some farmers’ collectives also catch rainwater to irrigate their crops. Because the flower and vegetable pots are arranged vertically, the farmers can produce more within a smaller space.

Today, Dorlean is the president of a 120-member flower growers’ association in Furcy, which generates \$18,000 per year in revenue.

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Dorlean said his biggest accomplishment has been planting 3,000 chrysanthemum plants in a regular greenhouse rather than planting 1,500 in an open field.

“The results were spectacular,” Dorlean said of the pilot study, which he undertook on his own initiative.

Less Water, More Harvests

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Video: The Greenhouse Revolution

In addition to increasing incomes for rural Haitians, Feed the Future also helps reduce farming’s impact on water and land—precious resources on the island nation. Feed the Future West has been working with farmers harvesting vegetables, flowers and fruit to promote sustainable agriculture on hillsides by focusing on protected and vertical agriculture through small, drip-irrigated greenhouses.

“Our project teaches farmers how to build and manage a greenhouse, as well as provides them with financial management and business development pointers so their business can be self-sustaining,” said James Woolley, senior agronomist for USAID/Haiti.

By protecting flowers from humidity and rain, greenhouses boost production to three harvests per year, compared to the one or two harvests using traditional mountainside plots. Since the flowers are drip-irrigated, the greenhouses use less water to generate larger yields. “You only need three gallons of water to irrigate an entire greenhouse, compared to over 50 gallons needed outdoors for the same number of plants,” Dorlean said excitedly.

Dorlean’s association operates 10 greenhouses that are built on a newly terraced landscape to help protect the mountain against soil erosion.

A 70-square meter greenhouse typically costs about \$3,000, including the greenhouse structure, pots and drip-irrigation system. So far, Feed the Future West has supported the construction of 300 greenhouses in Haiti, and several farmers associations are now funding and building their own greenhouses and providing construction training and assistance to other associations.

The success of the Furcy flower growers’ association has so impressed Haiti’s Ministry of Agriculture that it funded construction of 10 more greenhouses in the region. In return, Dorlean’s association will plant 7,000 trees as part of agro-forestry efforts to reduce soil erosion. Four new greenhouses have already been built with assistance from the ministry, and Furcy’s flower growers are eager to share their knowledge with others.

“What I really aspire for is to be able to travel through Haiti to give technical assistance to other farmers on vertical and protected agriculture through the use of greenhouses,” Dorlean said. “I dream that Haiti will be able to produce enough flowers for the local market so there is no need for imports – I know it is doable.”

While the farmers in Dorlean’s association mainly produce flowers, they also harvest vegetables and fruits, including the recent addition of peaches from trees planted as part of reforestation activities.

Steve Olive, deputy mission director of USAID/Haiti, said that the support through Feed the Future has turned a page for a growing number of Haitian farmers, from subsistence workers to entrepreneurs who are now creating trade connections with local supermarkets, hotels and factories. There is potential for a transformational change in the agricultural sector, but he added that more remains to be done. Poor roads and lack of efficient transportation inhibit farmers’ full business potential.

“I must admit we still have areas we need to improve,” Dorlean said. “For example, we don’t have an optimal way of transporting our flowers. We are not yet in a position to buy a truck for transportation, but we are looking for financial partners to help support our vision. I am confident that we will achieve this soon.

“What makes me the happiest is the recognition we get from everyone who comes to visit and see our greenhouses. I am very proud of the farmers who have been able to transform

their lives and environment through the assistance we have received through Feed the Future,” he added.

Since 2010, USAID assistance, largely under Feed the Future, has helped build nearly 170 greenhouses, and another 130 are being installed. This has freed up space for high-value tree planting to combat deforestation, with more than 1.9 million trees planted in 2012. Feed the Future has introduced improved seeds, fertilizers and new technologies to approximately 13,000 Haitian farmers and provided training for over 1,600 master farmers—over a quarter of whom were women—to improve their skills and income potential.

By the end of the program in May 2014, Feed the Future West aims to install 1,000 greenhouses, setting an example for sustainable hillside agriculture in Haiti.