



Achieving Sustainable Agricultural Production in Haiti



A Stepwise Strategy to Improve Livelihoods and Restore Degraded Land

Land degradation is arguably Haiti's greatest obstacle to sustainable economic development. At the heart of the problem is a basic conflict between rising demand for food and fuel from a rapidly growing population and the limited capacity of the land to sustain supplies. Even though just 20% of the country's land area is considered fit for agriculture, according to the Food and Agriculture Organization of the United Nations (FAO), fully half has been brought under production at an unacceptably high cost in terms of soil erosion, declining soil fertility, and biodiversity loss.

Many of the farmers who work Haiti's marginal land have opted to grow cassava because of its remarkable ability to produce dependable yields under conditions that would cause most other crops to fail. Cassava has become the country's second mostly widely grown staple food, after maize, and its per capita cassava consumption has come to exceed that of any other country in the New World.

Based on superficial appearances, some development organizations have assumed that



Haiti's dependence on cassava is a cause rather than a consequence of land degradation. But new information and technologies provide grounds for optimism that cassava can contribute importantly to improving both the environment and rural livelihoods in this and other tropical countries.

Cassava: An entry point for sustainable growth

A major drawback of many land restoration schemes is that they have high up-front costs and take a long time to generate income for farmers. Cassava production can help address these concerns by meeting the immediate need for improved food supplies, higher rural incomes, and renewable fuel sources, while showing remarkable resilience under various stresses, which will become worse as a result of climate change:

- **Drought** – In contrast to beans, maize, and rice, cassava shows high tolerance to drought throughout its production cycle.
- **Infertile soils** – Whereas grain crops cannot survive for more than a few growth cycles without fertilizer, cassava performs well even under low levels of nitrogen and phosphorus, providing at least modest yields for many years.
- **Pests and diseases** – Climate change is increasing the severity of these problems in cassava, but while reducing leaf area, they have only a limited direct effect on root yields.

Though low in protein, cassava roots provide an inexpensive source of carbohydrates, which can be stored for long periods and used in diverse ways. In Haiti, the roots are most commonly processed into flour to make flat bread called casabe, which is a mainstay of local diets. Other food uses include boiling of fresh roots and preparation of other flour- and starch-based products. The roots and leaves can also serve as excellent animal feed components, especially for chickens and pigs. In addition, the crop shows potential for local production of ethanol to serve as cooking fuel.





Transitioning to higher value products

In areas where cassava is already widely grown, development organizations, using farmer participatory methods, can reverse land degradation and intensify production sustainably through the step-wise process described below:

1. Select sites where the land is moderately degraded and firewood or charcoal is in short supply.
2. Introduce improved cassava varieties from CIAT's ample collection of well-adapted materials, and promote the use of organic or chemical fertilizers to boost production.
3. Introduce low-cost practices to control soil erosion.
4. Develop new markets for cassava, including animal feed and ethanol production.
5. Invest in long-term land restoration through the introduction agrosilvopastoral systems, which combine crops with trees and forages.
6. As soils improve, introduce the production of high-value fruits and vegetables for urban markets and local consumption.

Within 7-8 years, this approach can bring about the transition from a degraded production system to one that is improving soil fertility and health, while providing multiple sources of food and income for farm families and urban consumers. The approach can also curb deforestation through the use of renewable fuels, and it can enhance human nutrition by incorporating animals into the farming system.

There is no easy way to reverse severe land degradation in Haiti. Even so, much experience in the tropics has shown that success is possible with approaches that involve farmer participation, draw





on local knowledge, and deliver important benefits in the short term. With its climate resilience and product versatility, cassava can serve as an entry point for such efforts, leading to major livelihood impacts – consisting of improved incomes and stronger food security – while also curbing the degradation of soil and land, and reducing the pressure on Haiti’s remaining forests by providing an alternative source of energy for cooking.

Partnerships: Research with development impact

In close collaboration with the Ministry of Agriculture, Natural Resources, and Rural Development, CIAT seeks to develop an integrated program in support of sustainable economic development in Haiti that brings together food security, economic development, and environmental sustainability. This program would be donor funded and executed in close collaboration with national research partners, farmer organizations, and civil society. Contact CIAT to learn more about ways you can support this initiative.

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