


Cassava Production Systems

 For more information, see the related CIAT Project Web site: [Sustainable Cassava Production Systems in Asia](#)

Cassava offers significant potential for linking smallholder upland farmers to growth markets. The crop's starchy roots are mainly sold for use as animal feed or in industrial processing but also serve as a secondary staple food. In addition, cassava leaves can be used for animal feed.



Through a collaborative cassava breeding program supported by the Japanese government, CIAT has helped create a new generation of high-yielding, high-starch cassava varieties. These have had a significant impact on cassava farming systems and on Asia's cassava processing industry. According to estimates from government agencies, improved varieties derived from germplasm originating at CIAT are planted to about 1.3 million hectares, or about 40 percent of Asia's total cassava area, including nearly all of Thailand's cassava area and about 25 percent of the area in Vietnam.

A major drawback to cassava, though, is that more or less continuous cultivation of the crop on sloping soils may lead to a sharp decline in soil fertility and to serious erosion problems, undermining the sustainability of cassava-based systems. To help ward off this threat, CIAT scientists and numerous national partners, with funding from Japan's [Nippon Foundation](#), have developed and are widely disseminating improved soil management practices for those systems.

Using farmer participatory methods at dozens of pilot sites, national teams of researchers and extension officers are successfully integrating these technologies into upland cassava-based systems on a large scale. New cassava varieties offer farmers a powerful incentive to improve soil management. In Vietnam, for example, an estimated 2,000 farmers have adopted practices such as better fertilizer management, intercropping, and the use of hedgerows for erosion control. In several Vietnamese villages that have taken part in the work since 1995, gross farm income has increased four- to fivefold.

Improving Livelihoods of Smallholder Upland Farmers Through Improved and Integrated Cassava-based Cropping and Livestock Systems in Lao PDR and Cambodia



Cassava is currently the third most important crop in Laos, after rice and maize. It is widely grown throughout the country by upland farmers but in small areas using local varieties and with very few inputs. The roots are used mainly for human consumption and for feeding livestock, especially pigs. Young shoots are also harvested

for human consumption.

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This new five-year project, funded by the Nippon Foundation, aims to improve the livelihoods of poor farmers living in upland areas of Laos and later Cambodia by developing sustainable cassava-based farming systems that are built on:

- highly productive and well-adapted cassava germplasm,
- improved crop and soil management practices, and
- on-farm utilization of the crop, increasing farm income mainly from the sale of meat and fish products produced from cassava-based feeds.

In addition small-to-medium scale starch processing will be developed in areas where this is feasible and appropriate. This could eventually evolve into a medium-to-large scale starch industry, which has been shown in neighbouring countries to be an ideal first step on the road to rural development and industrialization.

The project will work towards these objectives by:

- introducing and evaluating high-yield and high-starch cassava varieties for root production
- introducing and evaluating leafy varieties for production of fresh or processed leaf meals
- introducing and evaluating high carotene cassava varieties that are nutritionally more valuable than the current varieties, both for humans and animals.
- preparing and disseminating technical knowledge to support development of new technologies that will generate sustainable and integrated crop-livestock farming systems.
- developing cassava-based feed technologies that complement other feed resources (especially forages, sweet potato and maize) and have the potential to (i) reduce the labour allocated to collecting native feed resources for livestock, (ii) reduce the demand on firewood for cooking these native feeds and (iii) increase the productivity of livestock in smallholder systems.
- working directly with farmers, using farmer participatory research and extension methods, to develop sustainable and productive cassava-livestock production systems.
- consolidating the capacity of national institutions to conduct participatory research and extension.
- monitoring and documenting progress in technology development for assessment of impact on people's livelihoods and the environment.

The beneficiaries of this project will mainly be resource-poor farm families living in the isolated uplands. This will be achieved largely through the provision of adequate levels of dietary intake of high quality food and higher incomes from the sale of meat and fish.

The project commenced in Laos in April 2004 and will expand to Cambodia in 2005.


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