

Overview

Cassava, *Manihot esculenta* Crantz, is a perennial woody shrub with an edible root, which grows in tropical and subtropical areas of the world. It is also called yuca, manioc, and mandioca. Cassava has the ability to grow on marginal lands where cereals and other crops do not grow well; it can tolerate drought and can grow in low-nutrient soils. Because cassava roots can be stored in the ground for up to 24 months, and some varieties for up to 36 months, harvest may be delayed until market, processing, or other conditions are favorable.

Cassava is the basis of many products, including food. In Africa and Latin America, cassava is mostly used for human consumption, while in Asia and parts of Latin America it is also used commercially for the production of animal feed and starch-based products.

In Africa, cassava provides a basic daily source of dietary energy. Roots are processed into a wide variety of granules, pastes, flours, etc., or consumed freshly boiled or raw. In most of the cassava-growing countries in Africa, the leaves are also consumed as a green vegetable, which provides protein and vitamins A and B.

In Southeast Asia and Latin America, cassava has taken on an economic role. Cassava starch is used as a binding agent, in the production of paper and textiles, and as monosodium glutamate, an important flavoring agent in Asian cooking. In Africa, cassava is beginning to be used in partial substitution for wheat flour.



Statistics

According to FAO estimates, 172 million tonnes of cassava was produced worldwide in 2000. Africa accounted for 54%, Asia for 28%, and Latin America and the Caribbean for 19% of the total world production. In 1999, Nigeria produced 33 million tonnes making it the world's largest producer.

In terms of area harvested, a total of 16.8 million hectares was planted with cassava throughout the world in 2000; about 64% of this was in sub-Saharan Africa.

The average yield in 2000 was 10.2 tonnes per hectare, but this varied from 1.8 tonnes per hectare in Sudan to 27.3 tonnes per hectare in Barbados. In Nigeria, the average yield was 10.6 tonnes per hectare.

How cassava is grown

In Africa, cassava is mostly grown on small farms, usually intercropped with vegetables, plantation crops (such as coconut, oil palm, and coffee), yam, sweetpotato, melon, maize, rice, groundnut, or other legumes. The application of fertilizer remains limited among small-scale farmers due to the high cost and lack of availability. Roots can be harvested between 6 months and 3 years after planting.

Constraints to cassava production

The major pests of cassava in Africa are the cassava green mite, the cassava mealybug, and the variegated grasshopper. The main diseases affecting cassava are cassava mosaic disease, cassava bacterial blight, cassava anthracnose disease, and root rot. Pests and diseases, together with poor cultural practices, combine to cause yield losses that may be as high as 50% in Africa.

The production of cassava is dependent on a supply of quality stem cuttings. The multiplication rate of these vegetative planting materials is very low compared to grain crops, which are propagated by true seeds. In addition, cassava stem cuttings are bulky and highly perishable as they dry up within a few days.

As a root crop, cassava requires considerable labor to harvest. Because they are highly perishable, roots must be processed into a storable form soon after harvest.

Many cassava varieties contain cyanogenic glucosides, and inadequate processing can lead to chronic toxicity. Various processing methods, such as grating, sun drying, and fermenting, are used to reduce the cyanide content.

Our work on cassava

Our scientists at IITA have played a leading role in the development of improved cassava varieties which are disease- and pest-resistant, low in cyanide content, drought-resistant, early maturing, and high yielding. The improved varieties have been introduced throughout Africa's cassava belt. Varieties with resistance to the major diseases give sustained yields of about 50% more than the local varieties. Today, 60% of the area cropped with cassava in Nigeria is planted with improved varieties and Nigeria is the current world leading cassava producer. Impact studies have revealed that in Nigeria the introduction of improved varieties has provided food for 50 million people. The benefits of our improved varieties are not limited to Nigeria; improved cassava varieties are now used in most cassava-growing countries in Africa.

Our biological control program has for a number of years been working to solve pest problems in cassava using natural and environmentally friendly methods. The program has been a major player in the successful biocontrol of the cassava mealybug and cassava green mite. Through the introduction of natural enemies, there has been a 95% reduction in cassava mealybug damage and a 50% reduction in damage caused by the cassava green mite.

To overcome cassava's low multiplication rate, our scientists have developed a technique to make 2-node cuttings or ministakes that can make 50 plants from each parent cassava instead of 10 stakes as before. These ministakes are easily moved and protected in plastic sacks until they can be grown on and hardened in individual plastic bags or nursery beds before being planted in the field.

In the area of postharvest, our scientists have been developing effective and simple machines and tools which reduce processing time and labor, as well as production losses. With these machines, losses can be reduced by 50% and labor by 75%.

During the past three decades, we have trained more than 9000 researchers and technicians in Africa. For example, we have carried out training in processing and utilization of quality cassava flour in 10 African countries. As a result, the private sectors in Madagascar, Nigeria, Tanzania, and Uganda have begun using quality cassava flour as a raw material for processing into secondary products such as biscuits and noodles.

Our partners

In order to improve cassava production and increase food security in Africa, our institute plays a leading role in the East African Root Crop Research Network (EARRNET) and the South African Root Crops Research Network (SARRNET).

Related website

[Integrated Cassava Project](#)

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