

## **Sweetpotato production in Sub-Saharan Africa: Patterns and key issues**

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### **Sweetpotato in Africa**

Sub-Saharan Africa produces more than 7 million tonnes of sweetpotato annually, about 5% of global production. Since the early 1960s, production in East and Central Africa has increased one-and-a-half times (to 250% of 1960 production). Recent projections by IFPRI indicate that sweetpotato production in Africa will more than double by 2020, whereas production in other regions of the world is expected to remain stable or decrease.

Sweetpotato is a co-staple in East Africa's densely populated, intensively cultivated mid-elevation farming areas. In many other countries it is an important secondary crop grown for an expanding fresh market. Africa's top producers are Uganda (1.7 million tons), Rwanda (980,000 t), Malawi (960,000 t) and Kenya (725,000 t). The largest producers on a per capita basis are Rwanda, Burundi and Uganda (90–100+ kg per capita per year).

Sweetpotato is regarded as a food security crop, mainly because of its reliable yields. It is easily propagated and grows with no inputs on degraded soils under a range of rainfall patterns. As a rustic crop, it has frequently proven its value as a disaster recovery crop. It is also a forgiving crop that, once established, will reliably produce adequate yields under marginal conditions with no inputs and minimum or intermittent care. This is a tremendous advantage for poor households whose members depend on diverse livelihood strategies, especially those affected by HIV/AIDS.

The International Potato Center (CIP) began work on sweetpotato in the mid-1980s, building on previous work by national agricultural research systems, the International Institute of Tropical Agriculture (IITA) and the Asian Vegetable Research and Development Center. There are now several regional organizations working in the field, including PRAPACE (Programme régional d'amélioration de la pomme de terre et de la patate douce en Afrique Central et de l'Est), a network of the sub-regional organization ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa) and CIP. SARRNET (the Southern Africa Root Crops Research Network) supports cassava and sweetpotato development in the SADC (Southern African Development Community) countries, and is implemented jointly by IITA and CIP. Other important players include the Natural Resources Institute in the UK, as well as numerous non-governmental and community-based organizations.

Interest in sweetpotato is widespread, primarily because it is an excellent food security crop. It can be found growing in widely scattered plots, in backyards, and along roadsides. One of its most important characteristics is its flexible growing season, which allows piecemeal harvesting over a 3–10-month period. It is produced virtually year-round in the Lake Victoria zone. It is widely marketed on a small-scale in rural areas. It is eaten primarily in fresh form, either broiled or roasted. Demand for fresh roots is growing in urban areas, where it is used mainly as a low-cost substitute for bread with breakfast or tea.

## **Strategy for crop improvement**

Most of the sweetpotato varieties grown in Africa are diverse landraces, selected by farmers for adaptation and taste. White, cream or yellow-fleshed varieties are the norm, and orange-fleshed varieties are still relatively rare. Local standards call for a dry-matter content ranging from 28 to 35%. Maturity is variable (3–8 months) and there is a strong preference for varieties that produce vigorous vines that can survive the dry season, to have planting material available when the rains begin.

The first component of CIP's crop improvement strategy for sweetpotato is founded on the collection, characterization and conservation of farmers' varieties, followed by regional distribution of those that perform best. The second component involves the introduction of the best cultivars from other parts of the world, adaptation and breeding by national programmes, and systematic screening with partners using participatory methods based on the study of genotype by environment interactions.

## **Germplasm exchange**

Crop improvement efforts by CIP and our partners are supported by a regional germplasm exchange programme that begins with international introduction of germplasm in tissue culture form. This material is subsequently distributed within the region, from Kenya, through the Kenya Plant Health Inspectorate Service (KEPHIS), as pathogen-tested cuttings. Exchange is also facilitated through a programme of open quarantine among neighbouring countries, internal in-country distribution and, ultimately, farmer-to-farmer exchange.

## Multiplication and distribution

The nurseries established at national agricultural research institutes around the region are the farmers' primary sources of improved genetic materials. Farmers who have access to these nurseries can make good use of these improved materials because sweetpotato is easily propagated from vines and passed on to neighbours. Most experts agree, however, that increasing the availability of improved planting materials will require decentralization, greater collaboration with community-based organizations, and a substantial increase in training. Most likely this will need to be accomplished against a backdrop of a decrease in support from international donors.

## Pest and disease management

Among the barriers to the introduction of improved varieties, including orange-fleshed varieties, are virus diseases, especially sweet potato virus disease (SPVD) which occurs when a plant is simultaneously infected by sweet potato feathery mottle virus (which is spread by aphids) and sweet potato chlorotic stunt virus (which is spread by whiteflies). Many landraces are resistant, but they are often low-yielding and late-maturing, and few are orange-fleshed. The improvement of sweetpotatoes for Africa must therefore start from breeding for virus resistance.

The most important insect pests are sweetpotato weevils (*Cylas* spp), against which no reliable source of resistance has been found. Several other pests and diseases, including moles and rats, cause severe losses under certain conditions. Integrated pest and crop management practices can

considerably increase yields, and will be adopted by farmers where new uses and new markets are available.

High-yielding orange-fleshed varieties are an entry point for developing new uses for the crop, for transforming sweetpotato from a low-input, low-yielding food security crop into a nutritious food with diverse uses and expanding markets. The VITAA partnership has very important roles to play.