

Farmers' strategies threatened What happens to sweet potatoes?

Sweet potato production is part of many smallholders' strategies to gain a secure food supply. Emmanuel Manzungu examines the role of sweet potato in rural homes in Zimbabwe, particularly in the activities of women, and asks how projects "improving" sweet potato production will affect the local economy.

Emmanuel Manzungu

Sweet potato is nowhere but everywhere. It does not feature in Zimbabwe's national statistics, as do the staple maize, the small grains such as sorghum, the big foreign-currency earners such as tobacco and cotton, or the crops that "oil" the country such as groundnuts and sunflower. Yet sweet potato is in the mandate of two institutes in Zimbabwe's Department of Research and Specialist Services (R&SS) - both Agronomy and Horticultural Research. And it is certainly found in the informal "crop statistics" of many people in rural areas, where about 80% of the total population lives.

Low-input crop

Sweet potatoes are seldom grown as a major crop. When the rains begin in late October, the farmers rush to plant their maize, groundnuts, cotton and sorghum. Only when the field crops are already growing

do they find time to plant sweet potato vines on ridges and mounds around the home. In most cases, this is done by women, helped by their children. Virtually no mineral fertiliser is used. Nor is manure used, as it was all applied in the fields. No pest or disease control is practised, unlike in cash crops. Indeed, next to no external inputs are used in growing and storing sweet potatoes.

The actual cooking of the tubers is easy work. However, more fuel energy is needed than to prepare *sadza*, the local cereal dish made of ground maize meal. This means that the women have to collect more firewood and must sometimes walk great distances to get it.

When the tubers are plentiful, they are eaten on their own but, as reserves dwindle, they are used as a bread substitute with tea. As a rule, selling is limited and very local. But a few farmers do grow sweet potatoes for commercial purposes.

More than just harvesting

Harvesting is never done at a single stroke. The procedure involves striking a balance between meeting daily needs for home or for sale, and allowing continued growth of the crop. The woman does the harvesting herself, while her children do the less skilful work of collecting the tubers. She selects tubers that are not too immature or too mature, and takes care not to bruise them. This is done without the aid of a tool. After harvesting the selected tuber, she refills the hole with soil, to allow the other tubers to keep growing. After the larger tubers have been removed, the rest can receive the full benefits from the nutrients (mainly from the leaves) and water. The tubers are left in the ground long after growth has ceased.

Multiple harvesting thus gives the family a long supply of tubers and permits inexpensive field storage. Tubers generally do not store well after harvest. In-ground storage reflects farmers' rational economics. By the end of the wet season, the opportunity cost of land is low, so a plot can be left for some time under sweet potato. Harvesting is more than just harvesting; it is a growth stimulus as well as a storage operation.

At some point, however, the tubers have

to be harvested so that they do not become too mature and lose eating quality. They must also be protected from domestic animals let loose after the main harvest and from naughty children who do not mind at all the "hard work" of digging. This is why the woman eventually removes the remaining tubers and puts them in an well-hidden hole, known as *fimbi* in the Shona language. Tubers can be kept there as long as three months.

Saves money and time

The contribution of sweet potatoes to both household and local economy remains invisible to most economists. Sweet potato is a source of carbohydrate. It occasionally replaces *sadza*, offering a relatively cheap alternative and breaking the monotony.

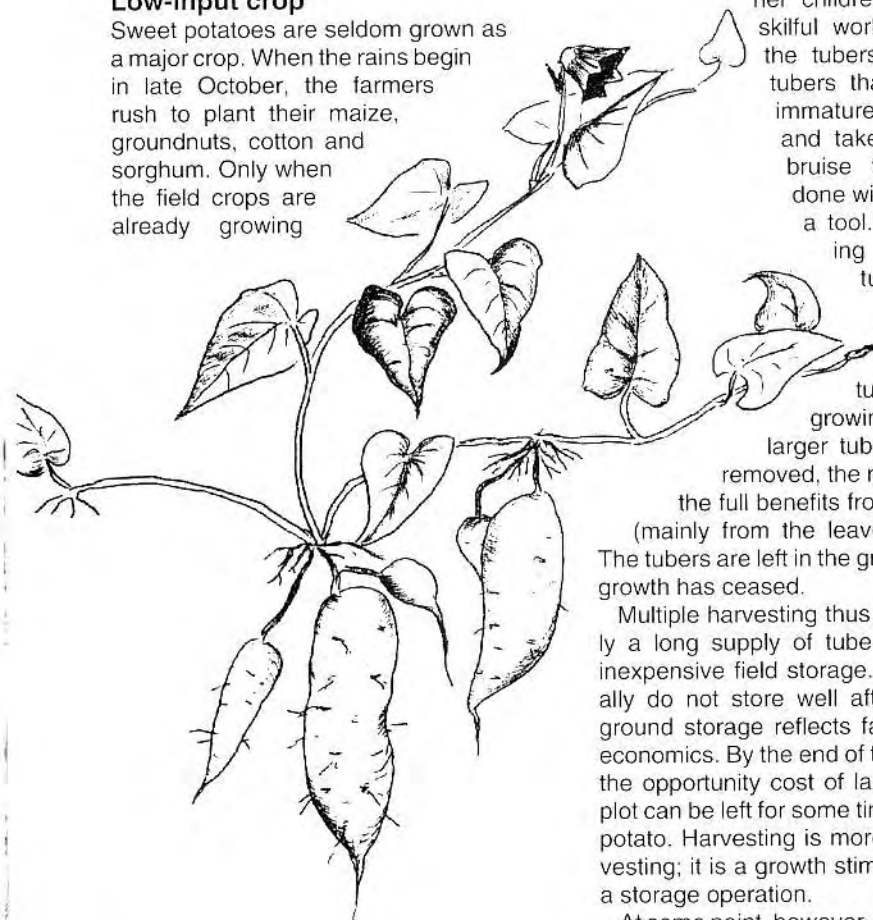
Many women save money by using sweet potato as a bread substitute. Not only the price of the bread itself is saved but also much time, which is also "calculated" by farmers. Most rural dwellers have to travel far, sometimes up to 5 km, to buy bread. But who has time to do this? The woman is often busy in the fields, the children are at school and the man may be tending cattle or doing off-farm work, possibly as a migrant laborer. The sweet potato is practically at the house door.

Need for improvement?

Commercialisation of sweet potato appears to be limited and the crop's potential seems unexploited - a potential defined by development agents. This is why a joint project has been proposed by R&SS, FAO and the Zimbabwean extension service Agritex. Project planners assume that farmers need access to "improved" varieties and exposure to "better" farming techniques.

In its present form, the project raises many questions:

- Promoting varieties that are virus-free through tissue culture could lead to unforeseen problems. Will the farmers pay the full cost of the planting material? If not, are the subsidies which the government is removing under the Economic Adjustment Programme coming in again through the backdoor?
- Are the new varieties as tasty as the local ones? Will they be accepted by the rural people and, if not, what happens to the project? Are the planners prepared to back down or will they bulldoze through in spite of everything?
- How well do the new varieties keep? Can they be harvested over a long time without significant loss of yield and quality?
- How suitable are the new varieties for the women, who are at the centre of activities right from the field to the pot?



Will the women need new knowledge to deal with the new varieties? What new labour demands will be made on them, and what will they gain?

- Do the new varieties need high external inputs, and will this compete with the need for inputs for the main food crops?
- Will "projectising" the crop create more sweet-potato farmers and increase the yields, leading to oversupply on local markets? What happens then?
- The introduced virus-free varieties will be reinfected if they are close to infected local ones. Will the latter be destroyed to safeguard the new ones? As new varieties often have low resistance to disease, what would a loss of local varieties mean for rural food security?

Involving farmers

Such questions point to the narrowness of projects meant to bring development to the rural areas. These interventions, although well-intentioned, may bring ruin to the "beneficiaries".

Farmers should be active participants right from project conception. This calls for more imaginative ways of involving farmers than merely surveys to ask what they need. Projects are too often formulated on the basis of "realities" captured in weeks or even days! The rationality of what is happening in rural areas is the casualty in such development games. More time has to be invested together with farmers, especially women, in understanding the complexities and dynamics of existing low-input strategies of sweet potato production and use.

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Sweet potato

Originally from South America, sweet potato (*Ipomoea batatas*) is now one of the most widely distributed crops in the tropics. Optimal growing conditions are 800-1000 mm rainfall, high temperatures (25-30°C) and well-drained, slightly acid, sandy-loamy soils. Sweet potato can be grown to around 2500 m elevation, but will "freeze" if it gets colder than 10°C. Easily adaptable to a wide range of cropping systems, the plant is useful for diversifying food systems. The tubers, which mature in 4-5 months, contain mainly starch and water, but also important quantities of edible protein and micronutrients. Young leaves can be used as a vegetable and the vines can be fed to livestock.



Photo: Rosana Mula

Farmers' knowledge about sweet potatoes

To involve farmers in identifying needs and opportunities for research and development, Rosana Mula and her colleagues studied the food system linkages of sweet potatoes, looking at production, marketing, processing and consumption. This is extracted from the first working paper of UPWARD (User's Perspective with Agricultural Research and Development).

Rosana Mula

Our multidisciplinary team did week-long Rapid Rural Appraisals (RRAs) at four sites in the uplands of northern Philippines. We then verified the information in a dialogue forum involving farmers (equal numbers of men and women) from these sites, extensionists, researchers and policymakers. This was an avenue for the "outsiders" to consult the farmers and to give feedback about the findings.

Basic but beautiful

We found that sweet potato is grown mainly for subsistence and/or as feed for swine. It is an important substitute for rice, especially in times of food shortage. Many farmers still remember that sweet potato was the only survival crop during World War II, when the grain reserves were pilaged by the invading army. Such a tragic experience showed them the value of storing food.

Sweet potato has found numerous niches. It is grown not only in backyards, in swidden fields and on terrace areas, but even in the crevices of stone walls, where it produces planting material and forage. In the paddy terraces, *baliling* plots with raised beds in attractive patterns - triangles, circles, even initials of names - are made to hasten root formation and allow easier harvesting, among other things.

A woman's concern

Except for fencing the plot, which is commonly done by men, all farming operations are done by women: planting, weeding, harvesting, transporting and processing the harvest. In the villages, the women clearly knew more about the crop than the

men and, in the dialogue forum, the women took active part.

The most common way of preparing the tubers as food or feed is simply by boiling. The broth left after boiling, *sabeng*, is left to ferment for two or more weeks and is commonly used as an alcoholic drink, vinegar and a cure for stomach disorders.

If there is a surplus of harvested tubers, the women make *buku* or chips by sun-drying thin slices, for use as food during the wet season. The chips are pounded into flour and kept in clay jars tightly sealed with banana leaves. This stock can be kept for up to a year. When cooked, the flour is mixed with rice and sometimes also ground peanuts.

Research priorities

During the dialogue forum after completing the RRAs, all the people involved identified the most suitable areas for sweet-potato research. Ranking was done according to the following criteria: productivity, stability, sustainability, equitability, cost, time horizon for implementation, and feasibility (economic, social and technical). Top priority was given to:

- fertiliser trials using organic material;
- varietal trials with varieties considered best by farmers in other areas and by researchers;
- assessing the storability of buku;
- assessing the nutritional value of sabeng.

Most of this research can be done at the farmers' level.

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Note: Rosana Mula's booklet *Farmers' indigenous knowledge of sweet potato production and utilization in the Philippine Cordillera region* (1992) can be obtained from UPWARD, PO Box 933, Manila, Philippines.