# Giving seed-yams the **credit they deserve**

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A small injection of much-needed credit and marketing support can help farmers in West Africa take advantage of vital solutions to the growing risks and high costs of yam production.

Above: More than 90 percent of the yams produced in the world are grown in the 'yam belt' of West and Central Africa. Here, effective seed-yam production strategies are critical to ensure that people can depend on this crop for food and income. At the same time, micro-credit is fundamental to give farmers the margin they need to be able to make the strategies available work for them. Photo: B. Siderman-Wolter

Yam is a popular staple crop in West Africa, providing vital food and income. Even more important, it is a key element in the local culture. There is great demand for yams at all income levels, and this demand is expected to grow as populations rise.

Yet planting and harvesting this crop involves a lot of work, making it relatively expensive to produce. Furthermore, yams need fertile soil, something that is often lacking in the marginal lands that are farmed by many smallholders. Pests and diseases are also a major problem: they push the costs of yam production up, seriously reduce yields and make good-quality planting material increasingly costly and hard to come by.

## Why is yam important?

**Once harvested, yams can be stored for long periods of time, providing important food between cropping seasons.** People in rural areas get many more of their calories from yams than they do from other crops—such as cassava, rice, wheat and grains—as much as two to five times as much. At the same time, yams provide important cash, particularly to the many women who sell and process them.

Above and beyond its importance as a staple food, however, yam plays an important role in cultural traditions throughout the so-called African 'yam belt'. From celebrations of births to rituals to ensure better harvests, yam is at the heart of numerous local belief systems. Many varieties of yam (*Dioscorea* species) are grown and eaten in West and Central Africa, and each variety has special qualities and uses associated with it.

## Yam prices (and problems) on the rise

**Yam prices are high, and they are increasing.** Land preparation, planting, staking, weeding, harvesting and transportation to markets all have their cost. Planting material accounts for 50 to 70 percent of yam production costs, and good materials are more expensive—and hard to come by—every day.

### Problems on the ground

**In recent years, yam producers have tried to keep up with demand by planting more often.** This means that they can't afford to let their land rest between crops. Also, as good land becomes scarce, farmers move to marginal areas with poor soils. All of this leads to a drop in soil fertility, a build-up of diseases and pests, and, as a result, lower yields.

### Problems after the harvest

**Once diseases and pests have made their way into tubers, they attack them in storage.** Rodents, rotting and theft cause additional losses. In total, as much as 5 to 30 percent of the harvest can be lost in storage. Damage during transport, and climate factors such as heat and humidity, also take their toll. When disease-damaged material is used to plant the next crop, the vicious circle continues, resulting in lower yields and smaller tubers.

### A negative balance

**The biggest problem is that many farmers cannot afford to buy good-quality planting material.** This means that they have to save as

Above: On-farm trials have led to practical ways of producing more seed-yams. Photo: L. Kenyon

much as 10 to 30 percent of the tubers they harvest to plant the next season. This, in turn, reduces the amount of tubers available to eat, sell or process and drives prices even higher. Today there are many people who can no longer afford to eat yams for several months of the year, when they are scarce—and expensive.

Even so, many farmers are reluctant to get involved in the production of good-quality yam planting material, which they consider to be a risky business with no immediate returns. This Pocket Guide shows how farmers can lower costs and boost quality, making yam available to everyone year-round.

## A simple solution

**Yams are planted using either tuber pieces or small tubers that are stored from one season to the next.** A technique is available that combines the best of these two methods with the use of small amounts of pesticides and fungicides. Using this system, farmers can produce 'seed-yams'—small tubers that they can then use to plant their crops—that are free of pests and diseases.

Farmers and researchers worked together to develop and test this simple system. They found that when small tuber pieces (known as 'minisetts') were dipped in a pesticide solution (a combination of proven fungicides and insecticides), they survived better and produced more and bigger seed-yams than ones prepared using traditional methods, for instance dusting with wood ash.

Photo: D. Coyne

**The biggest problem** is that many farmers cannot afford to buy good-quality planting material

## A simple solution *continued*

The production of yam crops using this technique is a two-season process. In the first season, the minisetts yield a crop of healthy seed-tubers. These can then either be planted to produce a crop in the second season or marketed to provide a much-needed income.

Because farmers use smaller tuber pieces to produce the small seed-yams, they need to save fewer tubers for planting material, which means more yams to use as needed. Also, because the minisetts are planted close together, they make good use of scarce land. Finally, the use of this treatment reduces the presence of pests and diseases in crops and soils, which further improves future crops.

## Frequently asked questions

**Are the pesticides and fungicides expensive?**

The cost of the fungicides and pesticides is insignificant when compared to the other costs involved in producing seed-yams. The most important thing is to ensure that the right pesticides are used, and that the mixture is properly prepared.

**Are the pesticides and fungicides damaging to consumers or the environment?**

Because these chemicals are used carefully and in very small quantities, very little is carried over into the consumer crop. The threat to the environment is also much lower than if the chemicals were to be applied directly to crops.

Above: Good-quality seed-yam can often be stored for a longer time. Photo: L. Kenyon

The minisett system combines the findings of modern science with traditional farmer knowledge to produce a practical technique for boosting food availability and cash income among resource-poor farmers across West Africa.
Photo: D. Coyne

### Will the technology be acceptable to farmers?

Farmers were included in all stages of testing and the technique was based on their traditional knowledge and practices. For instance, the use of setts as planting material is customary in West Africa. It is also common for farmers to treat their setts.

### Why hasn't this technology been used more extensively?

Many farmers don't get involved in seed-yam production because they simply can't afford it: they don't have the money to buy the chemicals, and they can't wait two seasons to be able to market their seed-yams. Making micro-credit and pre-packaged doses of the pesticide/chemical mix available to producers would enable more farmers to adopt the minisett system. Helping them to market their product can also make a positive difference.

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The most important thing is to ensure that the **right pesticides are used**

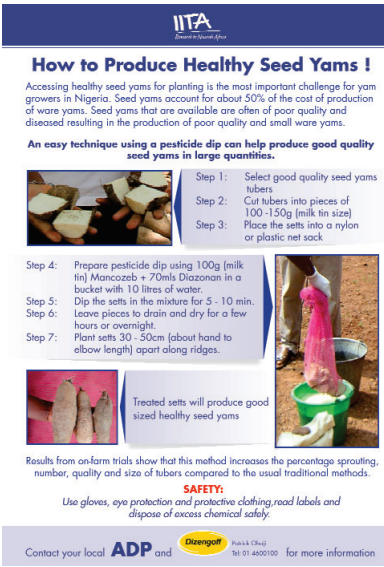
Above: Seed-yam for sale.
Photo: L. Kenyon

# How to produce healthy seed-yams

1. Select good-quality tubers.
2. Cut the tubers into pieces of 100-150 grams (milk-tin size). (Be sure not to make them too small or they may not germinate!)
3. Place the setts (pieces) in a nylon or plastic net sack.
4. Prepare the pesticide dip by mixing:
   - 100 grams of Mancozeb
   - 70 millilitres of Diazinon
   - 10 litres of water.
5. Dip the setts in the mixture for 5-10 minutes.
6. Leave the pieces to drain and dry for at least a few hours (preferably overnight).
7. Plant the setts along ridges separated by a distance of 30-50 cm (about hand-to-elbow length).
8. Use the harvested seed-yams the following season to plant a seed-yam crop.

**Precautions:** Be sure that the preparers wear gloves, eye protection and protective clothing; that they read labels carefully; and that they dispose of excess chemicals carefully. This is very important!

Above: Demand for yam is high in Ghana.
Photo: D. Coyne



IITA

**How to Produce Healthy Seed Yams !**

Accessing healthy seed yams for planting is the most important challenge for yam growers in Nigeria. Seed yams account for about 50% of the cost of production of ware yams. Seed yams that are available are often of poor quality and diseased resulting in the production of poor quality and small ware yams.

**An easy technique using a pesticide dip can help produce good quality seed yams in large quantities.**

Step 1: Select good quality seed yams tubers
Step 2: Cut tubers into pieces of 100 -150g (milk tin size)
Step 3: Place the setts into a nylon or plastic net sack

Step 4: Prepare pesticide dip using 100g (milk tin) Mancozeb + 70mls Diazonan in a bucket with 10 litres of water.
Step 5: Dip the setts in the mixture for 5 - 10 min.
Step 6: Leave pieces to drain and dry for a few hours or overnight.
Step 7: Plant setts 30 - 50cm (about hand to elbow length) apart along ridges.

Treated setts will produce good sized healthy seed yams

Results from on-farm trials show that this method increases the percentage sprouting, number, quality and size of tubers compared to the usual traditional methods.

**SAFETY:**
*Use gloves, eye protection and protective clothing,read labels and dispose of excess chemical safely.*

Contact your local ADP and Dizengoff Tel: 01 4600100 for more information

Above: The minisett technique is easy to communicate to farmers using simple leaflets like this one from the International Institute for Tropical Agriculture (IITA).

## How can I find out more?

**For more information on the minisett system, contact the RIU Programme,** NR International, Park House, Bradbourne Lane, Aylesford, Kent, UK, ME20 6SN, **riuinfo@nrint.co.uk,** or Dr Lawrence Kenyon, l.kenyon@gre.ac.uk.

**To learn about experiences with microcredit systems and markets,** contact Sr Nora McNamara, noramc2006@yahoo.co.uk.

In all cases, please copy emails to RIU Information **(riuinfo@nrint.co.uk)**.

Above and right: Many women sell yams at Techiman market, Ghana. Photo: D. Coyne

Because the minisetts are planted close together, **they make good use of scarce land**

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## About this series

Research into Use *Pocket Guides* showcase new technologies that have been tried and tested, and have proven successful in the field. They were produced to demonstrate the importance of high-quality scientific communication.

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