

# Factsheet

## A FARMER'S GUIDE TO GROWING WHITE YAM IN THE EASTERN CARIBBEAN

### SOME QUESTIONS AND ANSWERS

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#### Why Grow Yams?

There is a good market for yams, both for home consumption and for export. A farmer can expect to make money by growing the right variety of White yam.

#### What are the best varieties of White Yam to grow?

The recommended varieties of White yam are:

- \* Belep
- \* Kinabayo
- \* Plimbite

#### What is the best type of yam tuber for export?

The best tubers are those which:

- \* weigh about 5lb
- \* are free of any kind of damage
- \* do not have toes.

#### What weight of tubers can I expect to harvest?

This depends on several things which include your soil type and how well you manage the crop. You should be able to produce between 150 and 200 bags per acre each weighing 100 lb.

#### What price can I expect to receive?

Anything from about EC\$0.45 per lb for fair to good quality yams. The price can vary a lot depending on the

country and the season.

#### How much money can I make?

Again this will depend on several things:

- \* your yield of yams
- \* the price you receive
- \* the amount you are able to sell
- \* your costs of production.

Costs of producing yams have been found to vary between EC\$0.25 and EC\$0.35 per lb. This is for planting material, stakes and labour, fertilizers and chemicals for killing weeds and pests. Taking these figures, you should be able to make a profit of between EC\$1,500 and EC\$4,000 per acre, and still have some yams left over from which to choose planting material for next year, and/or for eating at home.

### PLANTING THE CROP

#### Which part of the plant is used for planting?

Any part of the swollen underground stem known as the "tuber".

#### Should I plant the whole tuber?

It is not necessary to plant the whole tuber. In fact it is wasteful to do so. Instead the tubers should be cut into pieces known as "minisetts".

### Where can I obtain good tubers for preparing minisettts?

You may save tubers from your own previous crop or buy them from one of your neighbours. Alternatively you can enquire from your local Ministry of Agriculture or CARDI office who may be able to supply your needs. Good tubers for preparing minisettts are those which are healthy and undamaged and weigh about 2 - 3 lb. Never select very small tubers for planting as your yield is likely to be reduced.

### When should I start preparing the minisettts?

As soon as the yams have started to sprout - usually from the end of March through April. They will then be ready for planting out in the field from the end of April until July, depending on the rains.

### How can I prepare the minisettts for planting?

1. Using a long, sharp, clean knife, cut the tubers into pieces as shown in Fig. 1. Each piece is called a "minisett" and should have an outer layer of skin. Each minisett should weigh about 2oz.



Fig. 1. Good Quality Minisettts.



Fig. 2. Dipping freshly cut Minisettts in a Benlate® solution.

2. Dust the freshly cut surfaces with wood-ash or dip in a solution of Benlate® (1-2 teaspoons Benlate® per gal of water). Fig. 2.
3. Spread the minisettts out thinly under light shade for 1 or 2 days in order to allow the cuts to heal.

### Can the minisettts be planted directly in the field?

Yes, if the field is wet, although pre-sprouting the minisettts in a nursery bed is recommended because this practice has been found to result in better establishment of the crop.

### How can I pre-sprout the minisettts?

Prepare a raised nursery bed 2ft wide under light shade. The length will depend on the number of minisettts to be sprouted. The bed is built up in layers with gravel at the bottom and moist sawdust or river sand between the layers of minisettts (Fig. 3). If sawdust is used there can be up to four layers, but only two in the case of river sand. Apply small amounts of water regularly. The minisettts should sprout in 2-3 weeks, depending on the variety.



Fig. 3. A typical raised nursery bed for sprouting Minisettts.

### How should I prepare the soil for planting?

The area selected should not have been used for growing a root crop the previous season. If any organic material is available, such as pen or poultry manure, it should be worked into the soil 4-6 weeks before planting. The soil must be well prepared by cultivating thoroughly so that all the large lumps are broken down. This can be done by digging and forking, or by ploughing and harrowing. The plot or field should then be drawn into continuous ridges, or small mounds can be made instead. Ridges or mounds should be at least 15in high and 2 - 2.5ft apart. (Fig. 4).



Fig. 4. A well prepared plot showing ridges of the proper height.

#### How should I plant the minisettts?

Start transplanting as soon as the first sprouts appear. The sprouts should be short at the time of transplanting - not more than about  $\frac{1}{4}$  -  $\frac{1}{2}$  in (Fig. 5). Plant them about 1 in deep at 2 - 2.5ft apart in the tops of the ridges, or one in the top of each mound. Any unsprouted minisettts should be planted later.



Fig. 5. A Minisett ready for transplanting.

#### Can I intercrop the yams?

Yes, and this practice is recommended depending upon soil management practices and rainfall. Suitable crops to

grow with yams are cabbage, cowpea, snap bean, maize, dasheen, tannia and pigeon pea - either one or several of these. Alternate the yams with the intercrop within the row or in separate rows.

#### LOOKING AFTER THE CROP

##### What should be done after planting?

Applying fertilizer, staking (if required) and keeping weeds under control are three important activities.

##### Which fertilizer, how much and when?

A mixed, or compound fertilizer (16:8:24) at 1-2 oz per plant, should be given about 1 month after planting. Sprinkle the fertilizer in a circle around the plant about 6 in away from it and work into the soil.

##### Do yams need staking?

Yams usually do better with staking because more of the crop receives sunlight. There is also less danger of an outbreak of the fungus disease, anthracnose or leaf burn (see page 4). Early staking (1 month after planting) is better than late staking (3-4 months after planting). Cut the stakes 6-8ft long and 1-2 in thick and put in one for each plant or one between two plants. Yams can be grown without staking provided both weed control and drainage are good (Fig. 6). The cost and the duration of staking should be taken into consideration to decide whether the crop should be staked or not.



Fig. 6. Yam vines growing vigorously on stakes.

### How can I control weeds?

Follow the recommended plant density for good weed management. Control methods may be cultural (the use of a hoe or other implement) or chemical. You can use a chemical if yams are the sole crop and this can save you time if your plot is large. Atrazine (Gesaprim® 50 W.P.) at the rate of 0.5 - 2.0 oz per gal of water can be applied by means of a watering can or sprayer immediately after planting. This will suppress all weeds for about 8 weeks. After this, if the field is covered with narrow-leaved (grassy) weeds, apply Fusilade® at the rate of 1 tsp per gal. This chemical will not damage the crop. If broad-leaved weeds are also present, apply Fusilade® at the same rate mixed with Gramoxone® at 4 tsp per gal. Direct the spray at the weeds and make sure it does not come into contact with the yam plants because Gramoxone® will kill the foliage. Always make sure you use chemicals SAFELY and follow the manufacturer's instructions.

### Can yams be attacked by any pests and diseases?

Nematodes and slugs can sometimes be a problem, and also the fungus disease known as anthracnose.

### How can I control slugs?

By using a poison bait. One way is to apply metaldehyde (50% W.P.) at the rate of 8.5lb per ac. For other methods, contact your extension officer.

### How can I control nematodes?

The cheapest and best methods are to select good planting material and to practise crop rotation in order to prevent the build up of a large nematode population in the tubers and in the soil. If the soil is known to contain large numbers of nematodes, sprinkle 1 tsp Mocap® or 1/2 tsp Furadan® or Vydate® around each plant just after emergence.

### How will I know whether nematodes are likely to be a problem?

Contact your nearest Plant Protection Officer in the Ministry of Agriculture who will advise you on this matter.

### How will I know if my yams have anthracnose?

Small black spots appear on the leaves at first (Fig. 7.). Later the young shoots may die back, and in very severe cases the whole plant may be killed.



Fig. 7. Black spots on the leaves are typical symptoms of Anthracnose.

### How can I control anthracnose?

Dipping the planting material in a fungicide, e.g. Benlate®, can reduce the incidence of anthracnose. If the spots appear after the crop has been growing for more than 6 months, the damage caused by the disease will hardly affect the yield. If the spots appear earlier than 6 months, spray the foliage with Benlate® or Trimiltox Forte® every two weeks. Prepare the spray at the rate of 3 tbsp per gal of water and use a mist blower in order to cover the entire foliage thoroughly. About 20 - 40 gal of spray liquid is required to cover one acre. If rain follows immediately after the application (within 24 hours) spray the crop again. Start spraying if 1% of the foliage is infected with anthracnose.



Fig. 8. Dipping planting material to control Anthracnose.

## HARVESTING, STORING AND MARKETING THE CROP

### When should harvesting take place?

When the leaves turn yellow soon after the rainy season which is usually from the end of October. Some varieties may mature even when the entire foliage is still green. Keep checking for maturity of tubers.

### Does the crop need special care at harvest time?

Yes, care should be taken to avoid damaging the tubers. If they are damaged they will not store well and this is very important in the case of yams produced for export. Damaged tubers should be stored separately and used for home consumption. Handle the tubers carefully in the field. Avoid tossing them about and exposing them to direct sunlight for long periods.

### What should I do after harvesting?

Clean the soil off the tubers and spread them out in a well-ventilated shed for 2-3 days in order to allow any wounds to heal. This is known as "curing".

### Can yams be stored on the farm?

Yes, yams can safely be stored in a well-ventilated shed until the end of March, after which they tend to sprout. Pile

the tubers in heaps less than 5ft in height on the floor of the shed or arrange them in layers on shelves. Do not store in bags as the tubers will not keep well. Take all precautions necessary to avoid damage by rodents.

### Can yams be stored beyond March?

If it is possible to air condition the shed at 64-72°F (18 - 22°C), the crop could be stored for longer. The actual time varies according to the variety of yam. The lowered temperature has the effect of holding back sprouting. Start removing sprouts as they appear. Storage of yams on the farm gives you more choice of markets and allows you to wait until the price is right before selling. It also means that you can keep your own supply of tubers from which to prepare next season's planting material.

### What is the best time to market yams?

Since yams can be stored for at least 3 months after harvest, try to market them when the price is satisfactory. Contact your extension officer, marketing board or private exporting agency for further information.

**FOR FURTHER ADVICE, OR IF YOU HAVE ANY PROBLEMS, CONTACT YOUR LOCAL MINISTRY OF AGRICULTURE OR CARDI OFFICE THROUGH YOUR EXTENSION OFFICER.**

#### NOTE

*This Guide is based on work done in St. Vincent and the Grenadines and in St. Lucia. Some of the recommendations may not apply in other countries. If you have any doubts, consult your Extension Officer.*

#### DISCLAIMER

*Mention of specific products does not constitute recommendation or endorsement, nor does omission imply an adverse criticism. Names are cited solely as examples.*

# MEASUREMENTS

## USEFUL CONVERSIONS

1 IMPERIAL GALLON	=	4.5 LITRES (L)
1 LITRE (L)	=	0.22 IMPERIAL GALLON = 1.76 IMPERIAL PINTS
1 U.S. GALLON	=	3.8 LITRES (L)
1 LITRE (L)	=	0.26 U.S. GALLON = 2.1 U.S. PINTS
1 U.S. GALLON	=	0.83 IMPERIAL GALLON
1 IMPERIAL PINT	=	20 FLUID OUNCES (FL. OZ.)
1 U.S. PINT	=	16 FLUID OUNCES (FL. OZ.)
1 POUND (LB)	=	16 OUNCES (OZ) = 0.45 KILOGRAM (KG)
1 KILOGRAM	=	2.2 POUNDS (LB) = 35.3 OUNCES (OZ)
1 YARD (YD)	=	0.9 METRES (M)
1 METRE (M)	=	1.1 YARD (YD)
1 SQUARE YARD	=	0.84 SQUARE METRE
1 SQUARE METRE	=	1.2 SQUARE YARD
1 ACRE	=	4840 SQ. YD. = 0.4 HECTARE (HA) = 4050 SQ. M.
1 HA	=	10,000 SQ. M. = 2.47 ACRES = 11,955 SQ. YD.
1 IMP. GAL. PER ACRE	=	11.2 LITRES PER HECTARE
1 U.S. GALLON PER ACRE	=	9.3 LITRES PER HECTARE
10 LITRES PER HECTARE	=	0.9 IMP. GAL. PER ACRE
10 LITRES PER HECTARE	=	1.1 U.S. GALLONS PER ACRE
1 POUND PER ACRE	=	1.12 KILOGRAMS PER HECTARE
1 KILOGRAM PER HECTARE	=	0.9 POUNDS PER ACRE

Pesticide	Imperial (per U.S. Gallon)	Metric (per Litre)
Ambush	1/2 tsp	0.7 ml
Belmark	3/4 tsp	1.0 ml
Bravo	5 tsp	7 ml
Dacthal 75WP	4 oz	30 g
Decis	3/4 tsp	1.0 ml
Diazinon 60EC	2 tsp	2.6 ml
Dipel	2 tbs	7 g
Fusilade	1/2 fl oz	3.9 ml
Goal 1.6EC	1/3 fl oz	2.6 ml
Herbadox 330EC	8 tsp	10.6 ml
Karate 2.5EC	1 - 2 tsp	1.3 - 2.6 ml
Kocide 101	1/4 oz	2 g
Lannate 1.8L	5 tsp	7 ml
Malathion 57EC	1 tbs	4.0 ml
Manzate 200	1 oz	7.5 g
Orthene 755	1/3 oz	2.5 g
Perfekthion 40EC	1 tsp	1.3 ml
Ridomil 2E	5 tbs	19.8 ml
Roundup	5 tbs	19.8 ml

## Some appropriate measures

1 level teaspoon (tsp)	=	5 millilitres (ml)
1 level tablespoon (tbs)	=	15 ml
1 fluid oz = 30 ml = 2 tbs	=	6 tsp
1 Imperial pint = 20 fluid oz	=	570 ml
1 Imperial gallon	=	4.5 litres (L)
1 US gallon (gal)	=	3.8 litres (L)
1 oz	=	30 grams (g)
1 lb = 16 oz	=	450 g
1 matchbox holds 1/3 - 1/2 oz powder		
1 rum bottle = 2.5 fluid oz = 3/4 litre		
1 beer bottle = 10 fluid oz = 300 ml		