

## Harvest Maturity Indices

One of the best signs of maturity for yams are the plant leaves. The leaves begin to wilt and age when the tubers mature. Harvest should take place after a large amount of the leaves have naturally turned yellow or dried up. Harvest should be completed within 1 or 2 months of wilting.

In some types of yams the vines do not wilt or noticeably age. In these types, the tubers should be harvested based on the time from planting. Yams reach maturity 8 to 10 months after planting, depending on the cultivar. Several randomly selected plants should be harvested beginning 8 months after planting to determine average tuber size in the field.

## Harvest Methods

For best results, harvest carefully using tools suited to the soil type and paying attention to how deep the tubers are in the soil. Harvesting is easier when the soil is moist. In light soils, the tuber(s) can be slowly lifted out of the ground by pulling the main stem. In heavier soils or during the dry season, harvesting usually requires digging around the tubers to free them before lifting the plant or further digging. While digging and lifting, care should be taken not to injure or throw the tubers, which are delicate and easily bruised. Put harvested yams in small piles in the field or place directly into field crates for removal from the field. Avoid leaving the yams exposed to direct sun for longer than 30 minutes.

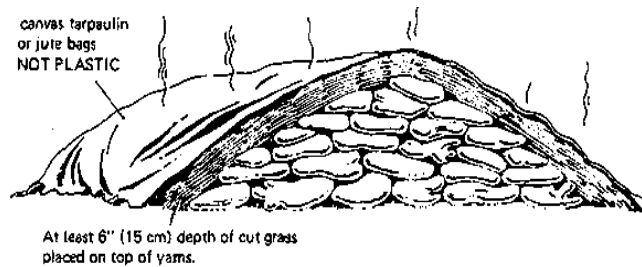
Yams should be graded in the field and damaged or diseased tubers should be thrown out. Choose only healthy and undamaged tubers for curing and storage. Healthy tubers should be gently dry brushed with cotton gloves to remove excess soil prior to curing. The yams should be gently placed in smooth or padded well-ventilated field containers for transport out of the field. Transport in mesh or polypropylene sacks will increase the level of skin damage due to abrasion.

## Curing

Proper curing of yams immediately following harvest is one of the simplest and most effective ways to extend storage life, reduce water loss, and minimize decay during storage. Curing is a process in which the skin thickens and new tissue forms beneath the surface

of injured areas in the tuber. The best conditions for curing yams are 29°C to 32°C (85°F to 90°F) and high relative humidity (RH) (90% to 95%) for 4 to 5 days immediately following harvest. The temperature should not be greater than 35°C (95°F) nor should the RH be so high (i.e. 100%) where moisture condensation occurs on the surface of the yam. Uncured yams will decay faster and lose more weight than correctly cured yams and should be marketed quickly.

Yams can be cured outdoors if piled in a partially shaded area. Cut and dried grasses or straw can be used as insulating materials and the pile should be covered with canvas, burlap or woven grass mats. The covered pile should be left alone for about a week to complete the curing process.



Yams can also be cured inside a protected structure at ambient temperature, provided the RH is high. The tubers can be left in their field crates during curing, as long as they are strong and well-ventilated.

Yams should never be washed prior to curing and/or storage, as this will promote decay. However, any injured or decayed portions of the tuber can be cut clean and rubbed with alkaline material (lime, chalk or wood ashes) to discourage re-infection.

## Storage Temperature

The best storage temperature for yams is 13°C (55°F). At this temperature, most yam cultivars can be stored for up to 6 months. However, at temperatures of 27°C to 30°C (81°F to 86°F), yams will usually keep in storage for only 3 to 5 weeks in a marketable condition. Bacterial and fungal decay, insect and rodent attack, and sprouting are all common problems associated with average temperature storage.

## Relative Humidity

Moisture loss is undesirable since it results in tuber shriveling and in some cases the formation of small internal cavities. Ideally, yams should be stored at 90% to 95% relative humidity (RH).

## Preparation for Market

### Cleaning

The outer surface of the tuber should be cleaned with a soft brush or cloth to remove large pieces of dirt. Relatively clean tubers sold in the domestic market may not require any further cleaning. Yams planned for export should be washed by hand in clean water (pH 6.5) with 150 ppm hypochlorous acid to remove any remaining dirt and to sanitize the tuber surface. This is equal to 2 oz of household bleach (such as Marvex) per 5 gallons of water, or 0.3 liters of bleach per 100 liters of water. The cleaning water needs to be changed regularly to prevent the build-up of soil particles and contaminants. A fungicide treatment (thiabendazole or 2,6-dichloro-4-nitroaniline) is also recommended.

### Grading/Sorting

Remove all badly damaged, cut, crushed or punctured tubers. The marketable tubers should be graded according to size and shape. Export destined tubers should be between 15 cm to 30 cm (6 in to 12 in) long and 10 cm to 20 cm (4 in to 8 in) in diameter. Yams of uniform size and shape should be packed in each carton. The skin should be smooth and dark brown. The internal flesh should be firm and uniformly coloured, without any indication of darkening. Depending on the type and the cultivar, yam flesh colour should either be pale yellow or white.

### Packaging

After grading, the yams should be placed in a clean, strong, well-ventilated carton. The surface of the tubers should be thoroughly dried prior to packing to prevent surface mould from developing. Yams intended for export are usually loose packed inside the cartons. Additional protection may be provided by wrapping every other tubers with soft paper. Net carton weights are typically 13, 18, or 21 kg (30, 40, or 45 lbs) depending on importer requirements.

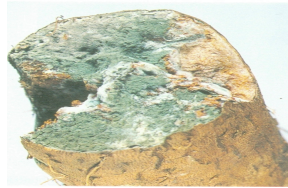


## Principal Postharvest Diseases

Yams are vulnerable to a number of postharvest diseases. Infection usually occurs through wounds received during harvest and handling. Decay is particularly fast at ambient temperatures. Control of postharvest decay can be done by careful handling to minimize skin injury and immediate curing of the tubers after harvest to promote rapid wound healing. Storage of yams at 13°C (55°F) will considerably reduce the amount of decay. Yams stored for long periods should be inspected every two weeks and partially decayed tubers should be discarded. Application of a fungicide during packing can also reduce the rate of decay.

### *Blue and Green Mould*

Typical symptoms include a blue or green mould growth associated with cut or damaged surfaces. In some cases, the inside of the yam may rot without any outer indication. The rotted tissue is pale to dark brown, and may be firm or soft.



### *Botryodiplodia Rot*

Affected tissue is either dark brown or black, with a distinct brown line between diseased and healthy tissue. The rotted tissue may be soft and water-soaked, or firm and dry, depending on the temperature and the presence of secondary decay organisms. After several months of storage the rotted tubers become shriveled mummies.



### *Fusarium Rot*

Symptoms are dry, off-coloured tissues bordered by a brown margin. The yam surface may become covered with thick white mould.



### *Watery (Rhizopus) Rot*

Symptoms include a soft, watery rot that progresses rapidly. Infected tissue is brownish and soft, and in a humid atmosphere the

infected area is soon covered with large amounts of white mould. The mould will eventually turn black.

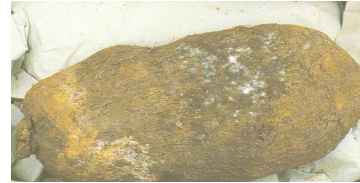
## Storage Disorders

### *Sprouting*

The storage life of yams is limited to their inactive or dormancy period, after which they begin to sprout and quickly lose their dietary value. Cultivars vary in their dormancy period, which is generally between 1 to 4 months. Following the dormancy period, sprouting will occur at temperatures above 13°C (about 55°F). Sprouting is more rapid at higher temperatures and results in a decrease in tuber quality. Storage life of the tubers can be extended by as much as a month by breaking off the budding sprouts when they reach 2 cm to 3 cm long (about 1 inch).

### *Chilling Injury*

Storage of yams at temperatures below 13° C (55°F) will result in a breakdown known as chilling injury (CI). Damage from CI is greater as the temperature decreases and the length of exposure increases. Slight injury may occur as soon as 2 days at 4°C (39°F) or 5 days at 8°C (46°F). Typical CI symptoms include sunken spots on the tuber surface followed by decay. Flesh darkening and spotting are internal symptoms.



**Technical bulletins are also available on waxing fruits and vegetables, curing and hot bath treatment.  
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New Guyana Marketing Corporation

# YAM

## Postharvest Care and Market Preparation Information Sheet



*This information sheet provides growers and agriculture extension personnel with a summary of the recommended harvest and postharvest handling practices for yam. A more technical and detailed bulletin is available from the New Guyana Marketing Corporation (NGMC) and the National Agricultural Research Institute (NARI).*