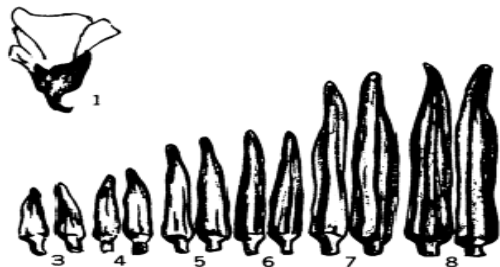


Harvest Maturity

Each plant commonly produces numerous fruiting pods borne in the angle between a branch or leaf along the side shoots. Under normal growing conditions, the first pods are ready for harvest within 2 months after seeding. Okra pods usually require 4 to 6 days after flowering to enlarge into a marketable size product.



The most widely used measure of harvest maturity is pod length and diameter. Typically, okra should be harvested when the pods are 7.5 cm to 12.5 cm long (3 in to 5 in). However, there may be a strong market demand for smaller sized okra and harvest stage should be adjusted accordingly. Due to the rapid rate of growth and development, okra should be harvested every other day to ensure pods remain within the marketable size range.

Regular harvesting increases yield, prevents pods from becoming over-mature and slows the plant's grow. If left to grow, the pods will grow to lengths of 20 cm (8 inches) and up to 2.5 cm (1 inch) or more in diameter. After that period, the pod becomes tough, and has less gel-like content.

Pod texture can also be used as a harvest maturity indicator. The texture should be crisp, moist, and fleshy inside. Over-mature pods are tough, dry, and pithy (hollow) inside. Pods with tips that bend between the fingers without breakings are over-mature and tough. Okra pods should be harvested while still tender and before the seeds are half grown.

External pod colour is another commonly used measure of harvest maturity. The pods should be picked when they are bright green in colour. The pod colour will lighten as they become over-mature.



Seed size is also a sign of pod maturity. The seeds should be small and juicy. Okra pods should be harvested before the seeds are half grown. Over-mature pods have large dry seeds.

Harvest Methods

Pods should be cut from the plant with clippers or sharp knife. A small length of the stem, about 1 cm (0.4 in) long, should remain attached to the pod with a smooth neat cut at the end. Pods may also be snapped off by hand, but the stem end will need to be re-cut to remove the torn tissue at the edge.



Pods should be harvested and handled with care, since they discolour and darken quickly when bruised or when the skin is damaged. Plastic pails or small baskets with a smooth internal lining are ideal harvest containers.

Pickers should wear gloves and long sleeved shirts to protect the skin against allergens released from the pod. It is recommended that harvesting be conducted during the coolest time of the day, typically in the early morning. However, okra should not be harvested when the pods are wet.

Pickers should separate defective, damaged, or otherwise unmarketable pods from the marketable ones. Oversized and partially decayed pods should also be removed from the plant and discarded. The pods should be moved to a shady, cool area as soon as possible after harvest to maintain product quality and minimize moisture loss. Sacks or bags should not be used for transporting okra. Sacks cause heat build-up inside and can result in scrapes on the pod surface and discolouration.

Preparation for Market

Cleaning

Okra should not be washed, since this generally leads to a greater incidence of postharvest decay. Cleaning requires removing leaves,



stem sections, broken pods, and other debris from the harvested pods.

Grading

The okra pods should be graded a second time after arriving from the field. The pods should be sorted according to size, shape, appearance, and amount of surface defects. The pods intended for market must be fresh, tender, mostly straight, and free from injury, decay, surface blemishes, and dehydration. The stems should be cut cleanly and not have the appearance of being torn off the plant.



Okra for export is usually graded as follows:

- Fancy; pods up to 9 cm (3.5 inches) long
- Choice; pods 9-11.5 cm (3.5-4.5 inches) long
- Jumbo; pods greater than 11.5 cm, (4.5 inches) long, but tender.

Packing

Pods of the same size and grade should be put in the same package. Care should be taken to avoid injury to the pods during the grading process as the delicate skin is easily damaged during handling, especially along the ribs. Damages leads to ugly brown and black discolouration.

Okra is packed in various sized containers, differing in volume and weight, depending on the market destination. Domestic markets usually receive okra in sacks or baskets, although these packages provide the least protection to the contents. Fiberboard cartons are the most common type of package for export markets. Typical sizes used are 4.5 kg (10 lb), 7 kg (15 lb), and 14 kg (30 lb). The cartons should be strong and well ventilated.

Temperature Control

Okra should be cooled within a few hours after harvest to prevent pod darkening and deterioration. The best storage temperature is 10°C (50°F). Pod quality can be maintained for up to 10 days at this temperature. When held at higher temperatures, pod quality quickly decreases due to water loss, fading of the green colour, and decay. Okra held at 25°C (77°F) can become soft and unmarketable within 2 to 3 days. Okra held at temperatures below 10°C (50°F) can develop chilling injury (CI). Typical symptoms of

CI include pod and seed discolouration, water-soaked spots, and decay. Keeping okra for 3 days at 0°C (32°F) and returning it to room temperatures will also result in pitting and discolouration of the pod.

Okra is vulnerable to postharvest moisture loss and pod shriveling. In order to minimize dehydration and pod toughening, it is important to keep okra in a high relative humidity (RH) environment. Okra should be held at 95% RH.

Principal Postharvest Diseases

Okra is prone to a number of fungal and bacterial diseases. Decay can be minimized through good field sanitation, careful harvesting and handling practices, and cooling to 10°C as soon as possible after harvest.

Gray Mould

Gray mould symptoms begin as small discoloured spots on damaged areas of the pod surface. They enlarge into circular water-soaked spots covered with a gray mould growth.

Rhizopus Soft Rot

Rhizopus Soft Rot begins as small water-soaked spots in the area of damaged tissue. The lesions enlarge at room temperatures. The entire pod may become covered with a grayish-white mass of mould, which eventually turns black. Decayed tissue is brown, soft, and sticky. Nests of mould and decaying okra pods form within packed cartons.

Rhizoctonia Pod Rot

Rhizoctonia pod rot usually occurs during the rainy season. Injury to the pod encourages the development of pod rot. This disease can also spread through infected seed and can be treated with a fungicide before planting. Pod rot symptoms include the presence of small brown to black spots closely pressed to the pod surface, which eventually cause decay.

Sour Rot

Sour rot symptoms begin as soft, watery, surface spots and soon cover the pod with whitish spores. Complete pod decay can occur

within a few days at room temperature. The pods have a distinct sour odour, similar to vinegar.

Bacterial Blight

Bacterial blight attacks the leaves of the plant, but the pods may also become infected. Symptoms include numerous small holes and reddish-brown spots on the pod surface.

Storage Disorders

Ethylene Discolouration

Ethylene is commonly produced by fruits and vegetables as they ripen. It is also produced by fungi and bacteria during postharvest decay. Ethylene quickens the ripening process of okra and shortens the market life of the pods. Exposure to ethylene causes fading of the bright green colour of the pod surface. High concentrations of ethylene in storage may cause the pods to yellow. It is important to avoid exposing okra to ethylene. This can be done through good ventilation in the storage environment. It is also important to not store okra in the same location as other ripening fruit. In addition, decaying okra pods should be removed from the storage area.



New Guyana Marketing Corporation

OKRA (OCHRO)

Postharvest Handling and Market Preparation Information Sheet



More information is available at:

New Guyana Marketing Corporation (NGMC)
87 Robb & Alexander Sts., Georgetown, Guyana
Tel: 226-8255, 226-2219

National Agricultural Research Institute (NARI)
Mon Repos, East Coast Demerara, Guyana, Tel: 220 2950



With the assistance of
The United States Agency for International Development

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

