

Harvest Maturity Indices

Cucumbers should be harvested at an immature stage, near full size but before the seeds fully enlarge. The time from planting until the beginning of harvest generally ranges between 55 to 60 days.

The main method used to measure harvest maturity is fruit size. Fresh market slicing cucumbers should be at least 15 cm (6 in) long and firm to the touch.

Skin colour should be an even dark green with a noticeable wax deposit on the fruit surface. However, some varieties of cucumbers may naturally produce a lighter green fruit and environmental conditions may also affect skin colour. The fruit should not be allowed to turn yellow, as this is an obvious sign of over-maturity. Fruit that are too mature have a tough leathery skin and are bitter in flavour.



A cross sectional slice from the center of the fruit is used to check internal fruit maturity. A jelly-like material will be formed in the seed cavity at proper harvest maturity and the seeds should be immature and uniform white in colour. Large, slightly yellow, or hard seeds show over-maturity and low fruit quality. Fruit texture should be firm and crisp.



Cucumbers should be harvested during the coolest time of the day, if possible in the morning when fruits have their highest water content. Harvest should not begin until the leaves and fruit have completely dried to avoid the spread of diseases. Cucumbers should be harvested every other day and the fruit should be handled carefully to prevent bruising and surface injury.

Harvest Methods

The best method to harvest cucumber fruit is using a small knife to cut the fruit stem from the vine at a point just above the shoulder of the fruit. The fruit should never be pulled off the vine, as this will result in damage to the vine and/or fruit. Pulled fruit are often “plugged”, in which the tissue at the very end of the fruit remains attached to the stem, leaving an exposed crater of internal pulp tissue. The plugged area is an open wound which is highly prone to decay.

Cucumbers should be carefully put in a strong, well-ventilated field container lined with paper or padding to prevent surface scarring. The container should not be filled with more than about 25 kg (55 lb) of fruit. Never put cucumbers in plastic bags or containers where air will not be allowed to circulate. The fruit will lose skin colour and firmness due to a buildup of heat. Once the field container is full, it should be taken to a shaded holding area away from direct sun.

Preparation for Market

Cleaning

Any soil or surface stains should be removed at the time of harvest by rubbing the fruit surface with a soft damp cloth or cotton gloves. Washing the fruit may be necessary if the cucumbers are particularly dirty, or if there is a large quantity of fruit. In this case, the fruit are submerged in a wash tank and the surface is rubbed clean by hand or with a soft brush. The wash water should be clean and properly sanitized with 150 ppm hypochlorous acid (household bleach) to reduce the potential for the spread of postharvest disease organisms. 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 water in the tank should be maintained at a pH of 6.5 and changed as it becomes dirty with soil. After cleaning, the fruit should be placed on a soft mesh or wire table to dry before sorting and grading.

Grading

Grading cucumber quality is primarily based on size, evenness of shape, firmness, and skin colour. Additional quality indicators are the amount of surface damage and peel injury, and rate of

decay. High quality cucumber fruit should be straight, evenly green in colour, with a diameter greater than 5.7 cm (2.25 in) and a length greater than 15 cm (6 in). Over-mature fruit with white or yellowish colours should not be marketed, as they usually have a bitter flavour and tough texture.

Waxing

Use of a food-grade liquid wax to the cucumber surface after grading will replace some of the natural wax removed during washing and cleaning, slow water loss, and improve appearance.

Packing

Cucumbers should be packed in strong, well-ventilated containers. Wooden or durable plastic containers that can be stacked without collapsing are appropriate for the domestic market. Mesh sacks are not a good container as they provide little protection to the fruit. Use of synthetic sacks filled with more than 25 kg (55 lb) of fruit should also be avoided. Cucumbers for export should be packed in strong well-ventilated fiberboard cartons typically containing 25 kg of fruit. If cucumbers are packed in smaller cartons they are sold by count, with 24-count being a popular size.

Temperature Management

Holding cucumbers without refrigeration at ambient temperature will result in noticeable withering and decay after one week. The best temperature for storage of cucumbers is 10°C (50°F). At this temperature, cucumbers can be expected to have a 2 week market life. Storage of cucumbers below 10°C should be avoided, as this will result in chilling injury(CI). Signs of CI include tissue collapse, water-soaked spots, pitting, and decay.

Relative Humidity

Although cucumbers have a waxy skin, they are at risk to postharvest moisture loss. Small sunken spots may appear on the fruit surface within several days at a low relative humidity (RH). The ideal RH for holding cucumbers is 95%.



Principal Postharvest Diseases

Fungal and bacterial diseases are important sources of postharvest loss of cucumbers. Proper pre-harvest disease control practices along with careful harvesting and handling to avoid damage, proper wash water sanitation (150 ppm hypochlorous acid at a pH of 6.5), and appropriate temperature control (10°C or 50° F) will minimize the occurrence of postharvest diseases.

Alternaria Rot

Symptoms begin as circular type spots on the cucumber surface that are tan or light brown in colour. The spots soon become sunken and under most conditions are rapidly covered by a dark mould.

Belly Rot

Belly rot is one of the most common fruit rots of cucumbers, especially during the rainy season. Typical symptoms include a dark brown water-soaked decay on the side of the fruit in contact with the soil, followed by a yellowish-brown discolouration of the fruit surface.

Cottony Leak

The first symptoms of cottony leak are soft, dark green, water soaked spots on the fruit surface. A white, cottony fungal growth completely covers the fruit. Decay spreads rapidly during transit and storage, with the formation of nests of mouldy fruit exuding watery juices.



Rhizopus Soft Rot

At first, yellowish-brown water-soaked spots form with a fairly distinct outline. The spots are irregular in shape and develop into sunken spots which rot. Grayish-white masses of mould develop over the wounded area, which eventually turn black. Diseased tissue is soft and very wet.



Anthracnose

Anthracnose is characterized by the formation of numerous dark circular spots on the fruit surface. The spots rapidly enlarge, and become sunken and sometimes cracked. Anthracnose is usually confined to the skin, but secondary bacteria causing a soft rot may invade the flesh.



Gray Mould

The fungus causing gray mould usually enters the fruit through the blossom end. The infected area is soft, water-soaked, and yellowish; later becoming covered with a gray furry mould.

Blue Mould

Blue mould symptoms include multiple small circular to oval water-soaked spots covered with blue-green spores. The infected fruit have a characteristic musty odour. Some strains of the fungus form restricted spots, while others spread over much of the cucumber surface and cause a wet collapse.

Bacterial Soft Rot

Bacterial soft rot enters the fruit via cracks or wounds in the skin and often develops in areas infected with fungal disease. Soft rot rapidly disintegrates the flesh, turning it into a soft mass of leaky tissue with a foul odour.



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CUCUMBERS

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 cucumbers. A more technical and detailed bulletin is available from the New Guyana Marketing Corporation (NGMC) and the National Agricultural Research Institute (NARI).