

Harvest Maturity

Bunching onions are typically ready for harvest 50 to 60 days after seeding, depending on environmental conditions, planting density, and cultivar. Shallots are generally ready for harvest 60 to 70 days after seeding.

The most commonly used measure of harvest maturity are size of the plant and bulb diameter. The plant should have fully grown crisp green leaves with a minimum length of 30 cm (12 in). In some cultivars the leaf length may extend up to 60 cm (24 in). Green onions should be harvested when they reach the proper bulb diameter for the particular market. Bunching onions should be harvested prior to bulb formation, with at least 5 cm (2 in) of white shank. The stem thickness should be slightly larger than the diameter of a pencil. Shallots should be harvested when the bulb at the base of the plant is 0.6 cm to 1.3 cm (¼ in to ½ in) in diameter.

Harvest Methods

Green onions should be carefully harvested by hand pulling the plant from the soil with the thumb, forefinger, and index finger clasped around the base of the plant. They should not be pulled by the leaves, as tearing and tissue damage will occur. The onions should be put directly into the field container and transported to a nearby packing area for market preparation. Ideal harvest containers are well-ventilated plastic crates. Reed baskets or wooden crates can be used if they are lined with newspaper to protect against abrasion damage to the delicate leaves. Field sacks should not be used for collection of green onions as tissue damage and over-heating may occur. Green onions that are injured, diseased, or unmarketable should be culled and not mixed with the marketable ones.

Preparation for Market

Green onions are highly perishable and should be prepared for market within several hours after harvest.

Cleaning/Washing

Damaged, broken, or partially yellow leaves should be removed from the green onion bunch prior to washing. For some export market destinations, the green tops are trimmed to a length of 30 cm (12 in). Trimming should be done gently to avoid crushing of the leaf tissue.



Green onions should be washed in clean, properly sanitized water to remove soil particles, dirt, and surface stains. The water should be chilled. It is very important to sanitize the water with 150 ppm hypochlorous acid. This is equal to 2 oz of household bleach (such as Marvex) per 5 gallons of water, or .3 liters of bleach per 100 liters of water. The water pH should be maintained at 6.5. This will help to minimize the spread of bacterial soft rot.

Small-scale operations usually choose to clean the individual green onions by dipping them in a tank of water. Larger operations may use an overhead spray wash system for cleaning.

Sorting

There are no grade standards for green onions in the domestic market. However, the plants should be sorted into different quality classes. Green onion quality is best based on size, thickness of the stem or bulb, straightness, leaf colour, amount of surface blemishes, and uniformity of plants within the bunch. Additional quality indices are the amount of insect damage, tissue injury, and incidence of decay. High quality green onions should be fresh and turgid, and have an appropriate leaf length.

Green bunching onions should have a thin, white shank or neck at least 5 cm to 7.5 cm (2 ins to 3 ins) in length. Bunching onions should be well-formed, straight, uniform in shape, thin-necked, turgid, bright in colour, well cleaned, and free from excessive roots, decay, insect injury, mechanical damage, broken or

crushed leaves, or dehydrated, clipped ends. Bunching onions destined for export should be separated into 3 size categories, based on thickness of the lower stem. Small sized bunching onions have a lower stem thickness of 0.6 cm to 1 cm (¼ in to ⅜ in), medium sized ones have a 1 cm to 2 cm (⅜ in to ¾ in) thickness, and large sized bunching onions have a stem thickness greater than 2 cm. Small and medium sized bunching onions are preferred for export.

Shallots destined for the export market are typically sized based on bulb diameter. Shallots with bulbs less than 1.3 cm (½ in) are classified as small; between 1.3 cm to 2.5 cm (½ in) as medium; and greater than 2.5 cm (1 inch) as large. For the North American export market, the total length of the shallot should not exceed 55 cm (22 in).

Bunching

Green onions are usually bunched prior to packing. The number of individual plants per bunch depends on the market destination and type of green onion (bunching or scallion). For domestic markets, green onions are usually wrapped into large bunches of 25 to 30 plants per bunch. For export markets, green onions are wrapped into small bunches of 6 to 9 plants, weighing about 110 gm to 120 gm (about ¼ lb). Either soft textured string or rubber bands can be used as wrapping material, and there are usually two wraps per bunch.



Packing

Green onions marketed domestically are typically laid flat on a canvas sack that has been opened up and tied in the center around the green onions. This type of pack provides little or no protection to the delicate green onion plants. A preferred pack for domestic marketing is a well-ventilated durable plastic container. This type of pack has smooth inner walls to protect against tissue damage and leaf tearing and allows for the bunches to be stacked.

Green onions for export to North America are packed 24 or 48 bunches per carton, depending on size. Each bunch should weigh about 113 gm (¼ lb) and the net carton weight is approximately 2.5 kg or 5 kg (5.5 lb or 11 lb). The cartons are typically waxed, with easy opening tops for icing. Adding crushed ice to the carton will help maintain the cold chain during transport for domestic marketing.

To reduce shipping weight for export, a semi-permeable plastic film can be wrapped around the green onions instead of ice, provided the cold chain is maintained during transit. The film will minimize moisture loss during transit and help maintain freshness.



Temperature Control

Being immature, green onions have a very high respiration rate and deteriorate quickly at average temperatures. Green onions should be cooled to 0°C (32°F) within several hours after harvest in order to minimize wilting and decay. Crushed ice spread over the onions is a good cooling agent and supplies moisture to minimize wilting. About 1 kg (2.2 lb) of ice is required for every 2 kg (4.4 lb) of green onions for this rapid and effective cooling.

A 10 day market life of bunching onions may be achieved at 0°C and high relative humidity (RH). Scallions have a slightly longer potential market life and may be held for up to 3 weeks at 0°C and high RH. Potential market life decreases rapidly with increasing temperature; at 5°C (41°F) the market life is less than half that at 0°C. Higher temperatures greatly increase the rate of yellowing and decay of the leaves.

Relative Humidity

Green onion plants are very prone to wilting. Without extra moisture, green onions will rapidly lose their crispness and show signs of yellowing. They should be stored at 95% to 98% relative

humidity (RH). Green onions benefit from light misting, especially while on display in stores.

Principal Postharvest Diseases

Postharvest diseases are an important source of market loss of green onions. Decay may become severe within several days due to poor cooling, leaf and bulb injury or unsanitary wash water. The best method of minimizing decay is to cool the green onions immediately after harvest and maintain a storage temperature of 0°C (32°F).

Bacterial Soft Rot

Bacterial soft rot is typically the worst postharvest disease of green onions. Symptoms begin as water-soaked spots and develop into a soft, discoloured slimy rot. The decaying tissue gives off a bad odour.

White Rot

White rot is a serious postharvest disease of green onions produced in poorly drained soils or during the rainy season. Signs of the disease include a soft decay and development of a fluffy white mould at the base of the bulb. Small hard black dots develop on the surface and within the fleshy scales. Eventually the bulb rots completely.

Gray Mould

Symptoms of gray mould begin as pale brown water-soaked spots on the inside of the leaves. Eventually the entire green onion bunch may rot with the leaves shriveling and turning brown.

For additional information contact:

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



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GREEN ONIONS

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

Green onions are immature forms of white onion cultivars and can be classified into two types, based on bulb diameter. The first type, commonly called a bunching onion, is harvested prior to bulb enlargement. The second type, known as a shallot or spring onion, has a small partially enlarged bulb. The postharvest care recommendations are identical for both types of green onions.