

Post-Harvest Management Protocols

GUAVA

Guava (*Psidium guajava*) is one of the important commercial fruits in India. It is one of the most delicious and nutritious fruits, liked by the consumers for its refreshing taste and pleasant flavour. The fruit bears pleasant aroma and taste besides high nutritional qualities. Fruits ripen rapidly after harvest within 2-3 days at ambient temperature and hence are highly perishable. The delicate nature of fruit due to thin skin further aggravates the problem of physical injuries during harvesting and postharvest operations.



Guava varieties in India

Apple Guava

This is the most common guava that is eaten fresh. It has a white fruit that turns light yellow.

Strawberry Guava

A tasty guava that has a distinct strawberry flavor. This is an excellent option for eating straight out of the tree.

Tropical Guava

This fruit has yellow skin with tender, white flesh.

Red Malaysian

This is a beautiful tree with slightly red leaves and red fruit. The flowers are bright pink.

Mexican Cream

Sometimes called 'Tropical Yellow,' this variety has incredibly sweet, tender flesh perfectly suited to desserts. This tree has a more upright form than some other guava trees.

Lemon Guava

This variety has both yellow skin and yellow flesh with a distinct lemon flavor. It's a slightly smaller tree

Pineapple Guava

This type has larger fruit that ripens in late fall.

Thai Guava

Thai guavas have a white flesh with pale yellow seeds and tend to be drier than the pink guavas. Thai guavas are only mildly sweet and have very little fragrance.

HARVESTING

Guava trees are usually ready for harvest within 3-8 years after planting. It is desirable to harvest guava with stalk along with one or two leaves. Harvesting is carried out using hand picking or through notched stick with a pouch. Guava is usually ready to pick once it changes color. Red guava will turn from green to yellow. White guava turns from deep green to light green. Timing is key because if we pick guava early, it won't taste good, and if we wait too long, they become a target for fruit flies.

Guava should be placed on a counter or in a paper bag to ripen further after picking. We can speed things up by putting guava in a bag with a banana or an apple.

Once ripe, we can store guava for a week in the refrigerator. Un-ripened fruit can be stored* in a cool area for a few weeks.

MATURITY INDICES

Guava fruits are harvested at mature-green stage (colour change from dark- to light green), half – ripe or fully-ripe (yellow and soft) stage depending upon consumer preference and purpose, i.e., local or distant marketing or processing. The change in fruit skin colour from dark green to light green together with fruit size is the best harvest maturity indices for guava. Other maturity indices such as specific gravity and fruit detachment force have been reported to be beneficial for determining the optimum harvesting stage. Specific gravity of guava fruit

decreases during fruit development and reaches ↓1.0 at mature stage. Harvesting at optimum stage is a key to providing consumer with a flavour-some and nutritious fruit. Fruit flavour is improved with the advancement of fruit maturity.

POST-HARVEST HANDLING

GRADING

Fruits are graded based on their weight, size and colour. Fully ripened fruits, which are yellow in colour are immediately sent to the market. Firm and mature and shall have colour and shape characteristics of variety with more than 60mm in India. Industry prefers not to procure fully ripe guavas due to their handling damages.

WASHING

Fruits can be washed with clean water or chlorinated water. But proper surface drying after washing is highly essential and see that water is dried properly from blossom ends. In guava fruit, especially which are harvested in the rainy season, Hot Water treatment/Vapour Heat treatment (VHT) is required for disinfections.

PACKAGING

For near markets fruits are packed in baskets made from locally available plant material. For distant markets, wooden or corrugated fibre board boxes are used along with cushioning materials viz. paddy straw, dry grass, guava leaves or butter paper. Good ventilation is necessary to check build-up of heat. Guava is a delicate fruit requiring careful handling during harvesting and transportation. Slotted type (RSC) corrugated Fibre Board boxes of 40×30×10 cm size, 5ply thickness B-flute with kraft paper 150 Gsm thick with recycled paper sheet as cushioning material with 20 BF bursting strength for single layer and 40×30×15 cm size with 22BF bursting strength for double layer was found suitable for road transportation of guava fruits.

Guavas being perishable in nature are immediately sent after harvesting in the local market and only a small quantity is being sent to the distant markets.

STORAGE

The fresh fruit has a short shelf life and distant marketing can be done only if it is properly stored.

The shelf life can be extended up to 20 days by keeping them at low temperature of 5°C and 75-85% relative humidity. Mature-green and partially ripe guavas are stored at 8-10°C for 2-3 weeks while fully ripe guavas are stored at 5-8°C for 1 week at 90-95% optimum relative humidity. It can be stored for about 10 days at room temperature (18°-23°C) in polybags providing a ventilation of 0.25%. Storage for shorter duration (2-3 days) is done at ambient temperature.

MARKETING

Majority of the cultivation sell their produce either through trade agents at village level or commission agents at the market. The remaining procurement is done directly from farmers.

Freshness Facts

Optimum carrying Temperature
(Partially Ripe), (Fully Ripe)

8°C to 10°C, 5°C-8°C



Optimum
Humidity (in %)

90-95



Storage Life

2 to 3 Weeks



Highest freezing point	-
Acceptable product temp. at loading into containers	Max. 2°C above carrying temperature
Ventilation setting for containers	10 m³/hr
Climacteric / non-climacteric	Climacteric
Ethylene production	Low
Ethylene sensitivity	Medium
Modified / controlled atmosphere	10% to 30% CO₂; 2% to 5% O₂
Potential benefits	Some benefit is exhibited but in most instances CA probably not worthwhile