

Carambola



Carambola (*Averrhoa carambola*) is originally from Ceylon and the Molucca Islands (also known as the Spice Islands in Indonesia) and is grown in various countries throughout Southeast Asia and to a lesser extent in the United States. The unusually shaped fruit, with its distinctive ridges or wings, has become better known by its more descriptive name—star fruit, an obvious choice once sliced in half vertically—but it is also known by many other names such as *balimbing*, *five-finger*, *kamaranga*, *kamruk*, *khe*, *nak fuang*, *ma fueang*, *yang-táo*, and *zibline*.

Although star fruit was introduced to Florida in 1887, the fruit was very tart and used for mostly ornamental purposes until more recent, sweeter cultivars arrived from Asia. Domestically, carambola is grown commercially in Florida and Hawaii, along with smaller producers in California. International growing regions include Australia, Guyana, India, Israel, Malaysia, the Philippines, Sri Lanka, and Taiwan.

Star fruit is usually consumed fresh but can also be used as seasoning or processed into sauces, relishes, jellies, and wines. Due to high oxalic acid content, those with kidney disease should not consume carambola without consulting a medical professional. Alternatively, in India, carambola is lauded and sought out for its many medicinal purposes.

References: California Rare Fruit Growers, Inc., Purdue University Center for New Crops and Plant Products, University of California Cooperative Extension, University of Florida Extension.

SEASONAL AVAILABILITY

LOCATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FLORIDA	●	●	●	●	●	●	●	●	●	●	●	●
HAWAII	●	●	●	●					●	●	●	●
INDIA	●								●	●		●
MALAYSIA	●	●	●	●	●	●	●	●	●	●	●	●
PHILIPPINES	●	●	●	●	●	●	●	●	●	●	●	●
SRI LANKA							●	●				●
THAILAND										●	●	●

References: Purdue University Center for New Crops and Plant Products, University of California Cooperative Extension, University of Florida Extension, University of Hawaii College of Tropical Agriculture and Human Resources.

TYPES, VARIETIES & CUTS

Star fruit gets its name from its unique shape when cut, producing five or sometimes six longitudinal ribs or ridges that resemble a star. Carambola flowers are pinkish or lavender with five petals and can be either long or short.

There are two primary types of star fruit, one that is smaller and sour and its larger and sweeter sibling. The fruit can vary in color from a golden or light yellow to brighter yellows and oranges.

Some varieties, B-10 and B-17, require cross pollination for desirable yields. Arkin, Fwang Tung, and Golden Star do not need cross pollination and are often planted in blocks. Other popular varieties include Hew-1, Hoku, Kajang, Kary, Kwang Tung, Lara, Maha, Newcombe, Sri Kembangan, Thayer, and Wheeler.

References: Purdue University Center for New Crops and Plant Products, University of California Cooperative Extension, University of Florida Extension.

PESTS & DISEASE

Common Diseases:

Pythium splendens is a fungus associated with general tree decline and root rot. Other common symptoms of decline can include leaf drop, shoot and root dieback, and reduced fruit production and size. Other diseases such as *Phomopsis*, *Phyllosticta*, or *Cercospora averrhoae* can cause leaf spot.

The fruit is most commonly affected by *anthracnose*, which often leaves thin, light brown patches on the ridges of the fruit. *Sooty mold* or *blotch*, a blackish discoloration of the fruit, is caused by *Gloeodes pomigena*.

Common Pests:

The star fruit tree's leaves and twigs may fall prey to scale such as *plumose* and *philephedra*, often leading to defoliation and stem dieback. Root and shoot damage is typically caused by *weevils*.

Fruit can be damaged by numerous pests including *stink bugs* and *squash bugs*, which puncture the skin and dry out the underlying flesh, potentially causing infection by opportunistic fungi. Other fruit-eating pests include the *fruit blotch miner*, *brown scale*, and *red-banded thrips*, as well as birds, raccoons, and opossums.

Star fruit can also be a fruit fly host, leading to a recommendation of irradiation and cold treatment as prevention measures. In some parts of the world, such as Malaysia, fruit flies are so disruptive that farmers will wrap the fruit in paper to protect them.

References: Purdue University, University of California Cooperative Extension, University of Florida Extension, University of Hawaii.

CULTIVATION, STORAGE & PACKAGING

Preharvest:

Star fruit trees are well adapted to subtropical and tropical climates and grow slowly, generally reaching 20 to 30 feet in height with a short broad trunk and a bushy rounded canopy. Though mature trees can withstand occasional cold snaps with little damage, temperatures below 27°F will most likely kill younger specimens.

Carambola trees thrive in rich loam but also grow in sand, clay, and limestone—but do require access to water to maintain moist, well-drained soil. Direct sunlight is another prerequisite, though protection may be needed against drying winds.

Fruit will ripen within 60 to 75 days depending on conditions and cultivar. The fruit will generally fade from a bright green to yellow. A mature tree, at least 7 years old, can be expected to produce between 250 to 350 pounds of star fruit per year.

CULTIVATION, STORAGE & PACKAGING

Postharvest:

Fruit is easily damaged and should be handled with care. As such, star fruit is usually harvested by hand as the exterior color lightens from green to yellow but is not overly ripe. Browning on the wings of the fruit can be a sign of injury and will intensify with moisture loss.

Fruit should be cooled after harvest, then stored between 39 and 41°F with 90 to 95% relative humidity. Carambola can be stored for 21 to 35 days depending on harvest time and quality.

Due to the fruit's sensitivity, fruit is packed carefully in plastic or foam sleeves to prevent damage to star points during shipping.

References: *Purdue University, University of California Cooperative Extension, University of Florida Extension, University of Hawaii.*

GOOD ARRIVAL GUIDELINES/TOLERANCES

Currently, there are no good arrival guidelines published for this commodity.

CARAMBOLA: WEEKLY MOVEMENTS & PRICES

