

### *Carambola (Starfruit)*

*Averrhoa carambola*

The yellow fruit of the carambola is shaped just like a star when sliced, hence the common name, Starfruit. It is one of the most productive of all fruit trees and fruit from the hybrid varieties are of excellent quality, very sweet, and are becoming one of the fastest growing new exports from Florida. Carambola is believed to have originated in Ceylon and the Moluccas and it has been cultivated in southeast Asia and Malaysia for many centuries.

This attractive, symmetrical tree prefers full to partial sun (at least 5 hours a day) and loves moisture. It grows quickly to about 20 feet, although sometimes as high as 30 feet. It tolerates most soil types as long as they are well-drained and slightly acidic. Regular irrigation is essential. Avoid planting this tree in a windy area.

Carambola is more or less deciduous depending on winter temperatures; the colder the winter, the more bare the tree. Temperatures of 29°F can kill young trees, but older trees become considerably more cold hardy. Trees at a large research nursery in southwest Florida produced fruit during the summer of 1997 after suffering extensive damage from the January freeze when temperatures stayed between 24- 26°F for over 8 hours.

Carambola has no salt tolerance.

Carambola trees produce fruit within one to two years. Flowers are small, pink to lavender, showy and attract a lot of bees. The fruit has a thin skin and crisp, juicy, non-fibrous waxy flesh. Fruit is sweetest when allowed to ripen on the tree. It takes about 60 to 75 days from fruit set to maturity depending upon variety, cultural practices, and weather. Usually there are two major blooms—one in April-May and another in September-October, with harvests June through February with peaks during August-October and December-February. Under good conditions, mature trees can yield 200-300 lbs. of fruit per year.

### Varieties

- 'Arkin' is a standard commercial variety in Florida bearing orange-colored, moderately sweet fruit that are uniform in size and crunchy. For excellent sweet taste, allow fruit to fully ripen. This is the dominant cultivar in south Florida carambola orchards. Though lacking a deep orange color, yields are high, flavor is good and it handles shipping better than most other selections.

- 'B-10' is a rapidly growing small tree which produces a fruit valued for its appearance and sweet flesh. This cultivar requires a pollinator for large yields.

- 'Fwang Tung' is a non-acid, though not very sweet-tasting cultivar that bears short, stout, arrowhead-shaped fruit that are somewhat asymmetrical. The skin is light yellow when ripe, but Fwang Tung is mild enough to be eaten when green, as is the preference in some cultures.

- 'Golden Star' is mildly subacid to sweet if allowed to ripen on the tree and is large, deeply winged and decorative. If picked early, the fruit is tart. This cultivar shows the least minor-element deficiency in alkaline soil, and even isolated trees bear well and regularly without cross-pollination.

- 'Kari' is sweeter than 'Arkin' and has more color and better flavor. Fruit is long and very juicy, but it is less crunchy than Arkin and Sri Kambangum. It was selected at the University of Hawaii from a Malaysian clone and is highly recommended

- 'Sri Kambangum' looks similar to 'Arkin' with gold-coloring and uniform shape. The fruit is crunchy and very sweet. It may become the new leading commercial variety. Florida nursery owners rate this variety as number one.

- 'Maher Dwarf' is a small 4-6ft tree great for container gardening. The firm, crunchy fruit is not very sweet, but has been called refreshing. Skin and flesh ripen to a yellow-orange color.

**Rockledge Gardens**

## Planting Instructions

Prepare the soil by adding 1 part organic matter—such as our **Rockledge Gardens Planting Mix**—to 1 to 2 parts existing soil (use more Planting Mix in sandy soil). Use this mix to backfill the hole. Add a few cups of **Espoma Citrus-Tone** and some **Bio-Tone Starter Plus** (see directions) when planting. Work these into the soil alongside the rootball while planting and sprinkle some on the surface. Reapply Citrus-Tone around the tree surface every 2 months. These organic products will serve to stimulate root growth for quicker establishment.

The planting hole should be wider—but no deeper—than the rootball. When planted, the tree should be no lower in the ground than it was in the pot. If higher (recommended for poor draining areas), it should be bermed up gradually.

When removing the tree from the container, use care: do this right next to the hole you have just prepared. Examine the tree roots closely for injury. If any of the roots are crushed or broken, cut them at a point just inside of the injury. If there are roots encircling more than one-third of the root ball, cut these by making 3 vertical cuts spaced equally around the rootball. This will not harm the tree if it is properly watered. Prune any broken branches just beyond the branch collar. Before planting, scrape a small amount of soil and root hairs away from the sides of the tree. If some of the dirt should fall off of the rootball, don't panic! Carefully place the tree into the hole and backfill with your mixture.

Gently place the tree into the hole, again checking that the soil at the top of the root ball is level with the soil in your yard. Fill in the sides of the hole around the rootball and gently firm the soil mixture around the base of the tree.

Eliminate air pockets by using a gentle stream of water from a hose. Form a ridge or berm of soil 2 to 3 inches high around the margin of the hole to

serve as a reservoir when watering. This berm should have a diameter a little wider than the pot the tree was growing in.

## Watering

When temperatures are hot, water your tree daily for the first two weeks by filling the water reservoir (or use two gallons of water per inch of trunk diameter). In cooler weather, water every other day. Weeks 3 and 4, water every other day (twice a week in cooler weather). Continue reducing in two-week stages until you're applying water only once per week.

During the dry season and periods of drought, you should supply even mature trees with an inch of water weekly in warm weather (every two weeks in cooler weather).

## Maintenance

Carambola is easy to grow, and requires little maintenance to become a healthy, happy tree. Fruit size and quality depends to a large extent on proper nourishment and an adequate water supply at the time of fruit development. A month after planting, begin feeding with **Sunniland Citrus Fertilizer**. Start with no more than 1/4 pound at monthly or bimonthly intervals, increasing the rates in line with plant growth (see bag instructions). To supply necessary minor elements, **Citrus Nutritional Spray** should also be applied as needed. We also strongly recommend spraying citrus trees often with **Maxicrop Liquid Seaweed**, especially in February and November, to boost the immune system of the tree. Liquid Seaweed and Citrus Nutritional Spray can be applied together. There are no serious pest or disease problems with these fruits other than the Caribbean fruit fly.

## Uses

Carambola may be eaten fresh or be made into jams, jellies, juices, sorbets, ice cream, liqueurs or

wines. The tree itself is an attractive ornamental, especially when flowering or fruiting, so it makes a great specimen planting.

**Warning**

People who have been diagnosed with kidney disease should not eat carambola (starfruit) unless their doctor says that it is safe for them to eat. This fruit may contain enough oxalic acid to cause a rapid decline in renal function. The ridges of the fruit have concentrated levels of oxalic acid and should be cut off when serving the fruit.