

## THE 'VALLENATO' MANGO

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**Abstract.** The 'Vallenato mango (*Mangifera indica* L.) originated in Colombia and was introduced to Florida in 1991. The tree is large, with an open, spreading canopy. It is precocious, producing flowers and fruit well in both tropical and subtropical latitudes. The fruit is oval in shape, with a small beak. Fruit weight varies from 175 to 350g, with an average of 250g. The fruit is predominantly bright red, with a yellow ground color. The skin is smooth and resistant to abrasion. Fruit texture is very firm. The pulp is orange-yellow in color, with a sweet, excellent flavor. The fruit is quite resistant to infection by anthracnose disease. The 'Vallenato' has outstanding preharvest and postharvest characteristics, its main defect being its relatively small fruit size. Trials are needed in other environments to further evaluate this cultivar.

In 1991, while working in the lowland region around the city of Valledupar in northern Colombia, C. W. Campbell encountered a mango cultivar which local growers considered to have high quality and were evaluating for commercial cultivation. The cultivar had been grown there for a long time under the name of 'Manzano'.

About 1990, in preparation for the annual Vallenato Festival in Valledupar, a group of mango growers and city officials decided to change the name of the 'Manzano' mango to 'Vallenato' and feature it at the festival, which attracts musicians and music lovers from many different countries. The name 'Vallenato' is derived from the name of the city and from the style of music characteristic of that region.

Graftwood of the 'Vallenato' mango was brought to Florida in 1991 and propagated at the Fairchild Tropical Garden. This paper describes the cultivar for the first time and discusses its value as a potential commercial cultivar and as a source of valuable genetic characteristics for future mango cultivar development.

### Description

Observations are based on performance of grafted trees in Colombia and at the Fairchild Tropical Garden Research Center, Miami, Florida. The 'Vallenato' tree grows to a large size, reaching a height and width of 15 m or more. In commercial orchards the trees are kept smaller by periodic pruning. The canopy is open and spreading. The twigs are slender and bear dark green, narrow, sharply-pointed leaves.

Grafted trees are vigorous and precocious, flowering and fruiting in the second or third year after planting in the field.

The tree flowers and fruits well in both tropical and frost-free subtropical climates. Trees receiving good care produce good crops of fruit regularly. Under some conditions the tree will bloom more than once in a year, but this tendency has not been well defined experimentally. In South Florida the trees have bloomed only once per year.

The fruit is oval (Fig. 1), with a length of 8 to 10 cm, breadth of 7.5 to 8.5 cm, and thickness of 6.5 to 7.5 cm. Fruit weight ranges from 175 to 350 g, with an average of 250 g. The base of the fruit is flattened, with a slender stem inserted squarely in a shallow cavity. The apex is rounded, with a small beak of variable size. The fruit surface is smooth and symmetrical.

The skin is of medium thickness and relatively tough, separating easily from the flesh when the fruit ripens. The skin has a slight, greyish, waxy bloom. The ground color of the skin is bright yellow. Fruit which develop in the sun have a bright red blush which covers 25% to 75% of the surface. The skin has sparse, small, white lenticular dots.

The flesh of the fruit is quite firm, but nearly free of fiber. There is a small amount of fine fiber on the stone. The orange-yellow flesh has a melting, juicy texture. The flavor is rich, aromatic, spicy, and sweet. The ripe fruit has a pleasant aroma.

The stone (endocarp) is of medium thickness and woody. Stone and seed together weigh 16 to 24 g. Seeds examined in Florida had one to four embryos, with about half of them having only one. In Colombia this cultivar has a reputation of coming true to seed, which indicates that a substantial number of the embryos are of nucellar origin. In Florida the fruit matures in June and July.

Leaves, flowers and fruit show little evidence of infection by anthracnose disease (*Colletotrichum gloeosporioides*) in Florida. Fruit observed in Florida and Colombia has shown no tendency to develop internal breakdown as it matures and

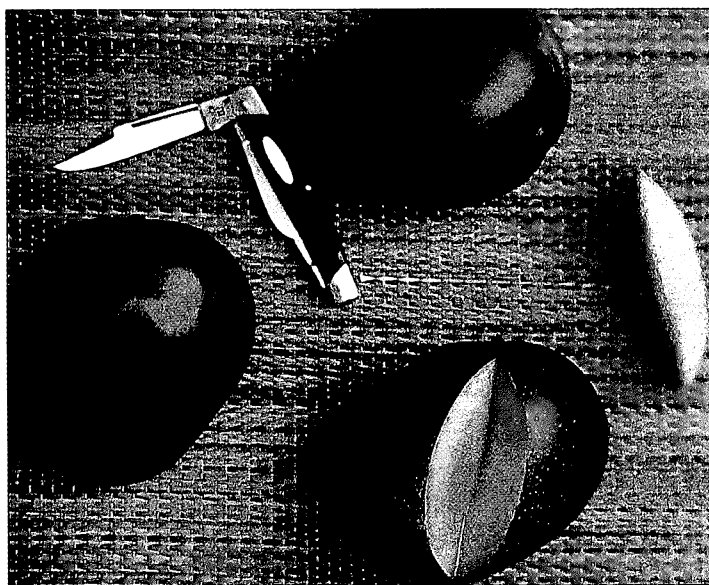


Figure 1. Fruit of 'Vallenato' mango.

ripens. Ripe fruit held at room temperature stay firm and edible for an unusually long time after harvest. Limited trials indicate a relatively long life in refrigerated storage as well.

### Discussion

This mango has been held in high regard around Valledupar, Colombia, for a long time. Traditionally the trees were grown from seed and the fruit was consumed primarily in the local area. Gradually growers and handlers realized that the 'Vallenato' had many characteristics which could make it desirable in the rapidly-developing international commerce in mango fruit. Among these were good, consistent fruit production, excellent skin color, firm flesh texture, long storage and shelf life, disease resistance, freedom from internal breakdown, and excellent flavor. Other favorable characteristics were vigor and precocity of grafted trees and wide climatic adaption.

The obvious undesirable characteristic is the small size of the fruit. Most cultivars in international commerce have fruit of 400 to 600 g weight, while fruit of 'Vallenato' weigh about 250 g. This has caused many growers to become doubtful about the commercial possibilities of this cultivar. It is possible that fruit size could be increased substantially by thinning

of the fruit on the tree at early stages of development, but no research has been done to determine the effectiveness of this method or its economic viability.

The 'Vallenato' mango has not been grown on a commercial scale long enough to enable growers and researchers to evaluate many aspects of its production. In Colombia there are several hundred hectares of orchards of grafted trees, but most of them are less than 10 years of age. In Florida there are only a few trees in cultivar collections. A few trees exist in other countries, but they are young. The 'Vallenato' has a tendency to make multiple blooms during the year, suggesting that it would be amenable to treatments which would initiate off-season bloom, allowing growers to take advantage of lucrative market windows. The feasibility of this remains to be determined.

Whether it becomes an important commercial cultivar or not, the 'Vallenato' is a good addition to any mango collection, because of its outstanding genetic characteristics. As interest grows in the world toward breeding of better mango cultivars, such genetic resources will become more valuable. The 'Vallenato' will also be a good cultivar for cultivation in the home gardens of Florida and other places where mango cultivation is an interesting and productive hobby.

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## CARAMBOLA CULTIVARS IN FLORIDA

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**Abstract.** The carambola, *Averrhoa carambola* L., is grown in home gardens and commercial orchards in warm parts of southern Florida. There are currently about 650 acres of orchards in Florida. The main commercial cultivar is 'Arkin'. 'B-10' and 'Kary' are also grown commercially to a small extent. Brief descriptions are given for 'Dah Pon', 'Demak', 'Fwang Tung', 'Golden Star', 'Hart', 'Hew 1', 'Kajang', 'Lara', 'Maha', 'Sri Kembangan', 'Tea Ma', and 'Thai Knight', which are grown in home gardens and germplasm collections. Cultivars introduced recently for evaluation are 'B-2', 'B-6', 'B-8', 'B-11', 'B-16', 'B-17', 'Cheng Chui', 'Erilin', 'Kyra', 'Leng Bael', 'Miss', 'Pasi', 'Waiwei', and 'Wubentou'.

The carambola has been a popular home garden fruit in Florida for a long time, because of its good adaptation to the climate and the distinctive shape of the fruit. In recent years it has also been grown as a commercial crop (Campbell et al., 1985; Knight, 1989). There are presently about 650 acres of commercial orchards of grafted trees in the warmest regions of the state (J. H. Crane, personal communication). A few car-

ambola cultivars have originated in Florida, but the majority have been introduced from other countries. The purpose of this paper is to list the cultivars currently grown in the state and to describe their fruit characteristics.

### Descriptions

The cultivars for which information is available are listed in Table 1, with data on their fruit characteristics. The 'Newcomb' and 'Thayer' are not included in the table because they appear to be identical to the 'Golden Star'.

### Discussion

The 'Arkin' is the principal commercial cultivar in Florida. There is also some production of 'Kary'. A small amount of fruit of 'B-10' is sold, usually mixed with fruit of 'Arkin'.

Cultivars which are grown in home gardens or in germplasm collections include 'Dah Pon', 'Demak', 'Fwang Tung', 'Golden Star', 'Hart', 'Hew 1', 'Kajang', 'Lara', 'Maha', 'Newcomb', 'Sri Kembangan', 'Tea Ma' and 'Thayer'. Recent introductions which are being evaluated include 'B-2', 'B-6', 'B-8', 'B-11', 'B-16', 'B-17', 'Cheng Chui', 'Erilin', 'Kyra', 'Leng Bael', 'Miss', 'Pasi', 'Waiwei', and 'Wubentou'.

Carambola growers in Florida have a strong interest in selecting cultivars superior to the ones currently under cultivation. They should have success, considering the great diversity