

THE 'FAIRCHILD' MANGO

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Abstract. The 'Fairchild' mango (*Mangifera indica* L.) was selected in the early 1900s in Panama. The name was given in honor of David Fairchild's family. It was introduced to Hawaii in the 1920s and developed into a local favorite for the home garden and local marketing due to its superior flavor and heavy production under rainy, humid conditions. In Panama, 'Fairchild' is grown on a small commercial scale for local sale. The fruit are small, ranging in weight from 180 to 240 g, with an average of 200 g. They are oblong with a flattened base and a bluntly-pointed apex. The surface of the skin is often undulating, but the fruit shape is consistent. The fruit are greenish to lemon yellow with no blush. The skin is thin and tender. The orange flesh is juicy, with a sweet, rich, aromatic and spicy flavor. 'Fairchild' has ranked among the top five in public cultivar taste evaluations (> 3000 people) in the past 3 years at the Fairchild International Mango Festival. The fruit ripen in June and July in South Florida, and the tree often produces multiple blooms and crops. The tree and fruit are tolerant of anthracnose [*Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc.], but can be severely infected by powdery mildew (*Oidium mangiferae* Berthet). The production potential in humid, rainy conditions is excellent, making it well suited for home garden and local commercial production in South Florida. The tree itself is compact and attractive and can be maintained at a height and spread of 3 m or less, while bearing heavy, excellent-quality crops.

The mango continues to increase in importance as a commodity in world-wide trade. However, even as consumption increases in the markets of Asia, North and South America, and Europe, the supply exceeds demand during much of the year. As a result of the over-supply of mango during peak marketing windows, profits have declined for mango producers in recent years. Mango producers throughout the world are seeking alternative cultivars to create new production windows within existing markets, and to create niche markets by providing selections which are distinct from the major export cultivars 'Tommy Atkins', 'Haden', 'Keitt' and 'Kent'. These actions should provide an increase in economic returns to the producer and help to expand the mango market.

Florida is recognized as a secondary center of diversity for the mango as a result of the importation and establishment of a wide diversity of mango germplasm, and an on-going program of selection and testing of superior new cultivars. As the world mango industry continues to evolve, the introduction, testing and description of mango germplasm remains important. For the past 7 years, Fairchild Tropical Garden has been introducing, evaluating and describing new mango cultivars in an attempt to provide baseline information for the development of alternative cultivars. The introduction of the 'Ataulfo' mango from Mexico and commercial success in the North American market for the past two seasons has strength-

ened the possibility of introducing new cultivars distinct from those presently grown on a large scale for the export market in the Western Hemisphere. The 'Fairchild' mango has characteristics that make it a possible candidate for entry into niche markets. Although the tree has been grown in selected locations throughout Tropical America and Asia for several decades, it has not been described in detail in the international literature. The objective of this work is to describe the tree and fruit characteristics of the 'Fairchild' mango.

General Description

Origin and History. There is almost no written record available on the history of 'Fairchild' mango. 'Fairchild' was apparently selected in the early 1900s in the Canal Zone of Panama. The name was given in honor of David Fairchild's family, who were reported to have an appreciation for the fruit. It was introduced to Hawaii in 1926 from Summit Botanical Garden in Panama by Allan Bush of the Univ. of Hawaii (Yee, 1958). In Hawaii it developed into a local favorite for the home garden and local marketing. 'Fairchild' is grown on a small commercial scale in Panama and has had local market success, but has not been exported to any extent to the markets of North America or Europe. Beyond these 2 locations, 'Fairchild' is found only as an occasional accession in regional genetic collections throughout Tropical America. It was first introduced to Miami, Florida in 1936 from Summit Botanical Garden, Panama by David Fairchild. It was subsequently lost from collections in Florida and re-introduced by Carl Campbell in 1992 to Fairchild Tropical Garden, Miami, FL, USA from the Panamerican School of Agriculture, Honduras. The appearance, aroma and flavor of 'Fairchild' indicate this cultivar to be of Indochinese origin; however, it has a monoembryonic seed, suggesting that it is a hybrid with germplasm from northern India. In unpublished notes (Special collections, Fairchild Tropical Garden), David Fairchild reports that in 1921 'Saigon' mango trees were taken to the Canal Zone from Miami, and in an undated account he reports the existence of a high-quality "East Indian" mango selection from a local Panamanian residence. However, there are no direct references to 'Fairchild'. Further genetic analysis will be required to elucidate the parentage of this cultivar.

Tree. The tree is moderately vigorous, with dark green foliage in comparison with other mango cultivars within the germplasm bank at Fairchild Tropical Garden in Miami, FL, USA. The leaves are elliptic-lanceolate, with an average length of 22 cm and an average width of 5.5 cm. The canopy is dense and compact even without pruning. The tree can be maintained with a mature height and spread of 3 m, with consistent, heavy yields if properly managed with annual pruning.

Fruit. The shape is oblong-ovoid to oblong-reniform with an average weight of 200 g, and a range of 180 to 240 g (Fig. 1). The average length is 9.2 cm; breadth 6.6 cm; and thickness of 5.7 cm. The surface of the fruit is undulating. The fruit base is flattened, with a slender stem and a slightly oblique attachment. There is no cavity at the base of the fruit. The apex is bluntly pointed with no beak. The skin is thin and tender and generally adhesive. There is a slight to no bloom on the

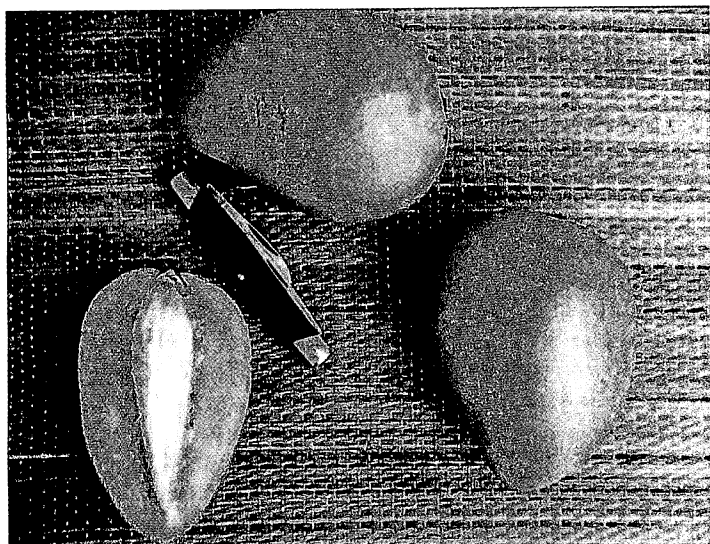


Figure 1. The 'Fairchild' mango. Fruit pictured here range from 185 to 210 g.

fruit surface. The ground color is greenish- to bright-yellow with no blush. There are a few large, white and russet lenticels on the fruit surface. The flesh is deep yellow, firm, melting and juicy. The flavor is sweet, rich and aromatic with significant acidity and spiciness. The aroma is strong and pleasant. There is no fiber in the flesh. The overall quality rating is good to excellent. The stone is oblong and weighs 23 g, with a length of 6.5 cm, breadth of 3 cm and a thickness of 2 cm. The stone texture is thick and woody with a monoembryonic seed that nearly fills the entire stone cavity.

Discussion

As noted, 'Fairchild' is grown in Hawaii and Panama on a home garden and limited commercial basis. Its principal appeal has been its productivity and fruit quality in a humid, rainy environment, which is conducive to poor flowering, increased disease incidence and poor fruit quality among most mango cultivars. However, 'Fairchild' consistently bears under these conditions with excellent quality, both in terms of its disease resistance and internal fruit quality. Another contributing factor to its acceptance in these 2 locations is its excellent flavor. In public taste evaluations conducted at the Fairchild International Mango Festival, 'Fairchild' has consistently ranked among the top 5 cultivars for overall taste. This public taste evaluation is conducted annually among the 3000 or more attendees to the festival and includes many of the world's finest-flavored cultivars. Taste, of course, is a subjective measure, but its consistent standing among the top 5 cultivars in these evaluations of superb quality mango cultivars does indicate its general acceptance. However, it should be noted that this is not an unbiased sampling of the general North American mango market, as the majority of the evaluators are originally from mango-growing regions or have considerable experience with mango.

'Fairchild' has several outstanding commercial characteristics. The trees have a natural tendency to form small, compact canopies. If left to develop without size management, they will eventually form a large tree of 15 m or more. However, with proper size management, they can be easily fit within a modern production system. Annual pruning treatments for size management are successful in maintaining a productive tree of 3 m in height and spread. The consistent production of the tree reduces the carbohydrate reserves and aids in controlling vigor, making the tree more manageable. A single annual pruning to remove the vertical and the most vigorous shoots is applied following harvest. In addition, at least 1 major scaffold limb is removed within the canopy per year to allow for canopy renewal and to avoid excessive wood development. Canopy thinning also increase air circulation within the dense canopy.

Reliable commercial yield data are not available. Within the genetic collection at Fairchild Tropical Garden, the 'Fairchild' has born consistent, heavy yields for each of the last 7 years of observation. Production has been comparable to the heavier-yielding cultivars within the genetic bank, but less than the yields of 'Tommy Atkins' or 'Keitt'. 'Fairchild' has shown the ability to fruit reliably under severe anthracnose pressure, while many cultivars have suffered complete crop loss. Powdery mildew has been problematic in some years, although a significant crop has still been retained without strict chemical control of the disease within the genetic bank. The trees have routinely produced additional blooms in response to the loss of an initial bloom due to sub-optimal conditions, thus assuring the production of significant crop.

One of the major obstacles to the adoption of potential new mango cultivars for diversification is the acceptance of the fruit in a marketplace dominated by 'Tommy Atkins', 'Haden', 'Keitt' and 'Kent'. The 'Fairchild' is completely yellow, without any blush, regardless of the conditions. It is also small, and could routinely result in pack counts of 18 to 20 fruit in a 5 kg container. Yet, in the past 2 mango seasons, the North American market has accepted significant volumes of 'Ataulfo', also called the 'Champagne'. This mango is of a similar size or even smaller than 'Fairchild'. It has been marketed with great success in ethnic markets within North America due to its superior flavor and distinction from the red-skinned cultivars. 'Fairchild' could fill a similar niche within the North American markets if proper protocols could be developed for quarantine treatments and storage characteristics. As is the problem with most potential new cultivars, data are lacking for these essential aspects of long distance transport. However, the 'Fairchild' does offer potential as a home garden and possible commercial mango for Tropical America.

Literature Cited

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