

'COGSHALL', A MANGO FOR THE HOME GARDEN

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Abstract. The 'Cogshall' mango (*Mangifera indica* L.) was introduced to the Homestead area in 1950 from Pine Island, Lee County, Florida. The features that first attracted attention were its regular fruit production and the outstanding red and yellow color of the fruit. In trials at the University of Florida's Tropical Research and Education Center (TREC), the tree proved to be of relatively small size. These features, plus the excellent flavor of the fruit, make the 'Cogshall' a good mango for home gardens in Florida. The fruit is oblong and varies in weight from 280-500 g, averaging about 350 g. The 'Cogshall' mango is not recommended for commercial production because the fruit is susceptible to anthracnose disease and is difficult to handle after harvest because of its thin skin and soft texture.

The mango selection program in Florida has produced many cultivars that are known throughout the world. The emphasis of the program has been mainly on cultivars suitable for commercial production, although many of them are equally suitable for home gardens. Certain Florida cultivars, however, are not suitable for commercial production, but are quite acceptable for home garden production. The 'Cogshall' is a good example. The purpose of this paper is to give a detailed description of this little-known cultivar.

History

The 'Cogshall' originated as a seedling of unknown parentage on Pine Island, Lee County, Florida. It was introduced to the TREC in 1950, when a grafted tree was planted in the mango cultivar collection. Later, additional trees were planted at the TREC and data were taken on their vegetative and fruiting characteristics. In 1956 the fruit was submitted to the Variety Committee of the Florida Mango Forum for evaluation. The group agreed that the flavor and color were especially good, but that the fruit was too soft and thin-skinned to be considered for planting as a commercial cultivar in Florida.

Subsequently, additional trees were grafted by staff members at TREC and by other persons in the local community for their gardens, but no trees were produced in commercial nurseries. Graftwood from the trees at TREC was taken to a few other countries for testing. C. W. Campbell (1979) and R. J. Campbell (1992) published short descriptions of the 'Cogshall', but otherwise the cultivar has received little attention in Florida or elsewhere.

Description

'Cogshall' trees are relatively small, forming a rounded canopy. Mature trees in Florida reach a height of 7-9 m and a

spread of 6-8 m but often are kept smaller by pruning and consistent fruiting. The tree is similar to other cultivars in the number of vegetative flushes it makes during the year, but tree size is small because the internodes of the stems are considerably shorter than those of most cultivars. The leaf blades are cupped upward and twisted longitudinally in a characteristic manner.

Trees in Florida begin to bloom and produce fruit in 3 to 4 years after planting in the field. Thereafter they produce medium to large crops regularly if they receive adequate care, including fungicidal applications for control of anthracnose disease. Even without fungicidal applications, consistent crops can be obtained in locations with less severity of anthracnose.

The fruit is oblong (Fig. 1), with length of 11-14 cm, breadth of 7.5-8.5 cm, and thickness of 6.2-8 cm. Fruit weight ranges from 280 to 500 g, with an average of about 350 g. The base of the fruit is irregular, with the slender stem attached squarely in a dorso-ventral groove. The fruit is laterally asymmetrical, with an undulating surface. The tip is broadly pointed to rounded, with an obvious nak, which corresponds to the point of attachment of the style to the ovary.

The skin is thin and tender, with a heavy purplish, waxy bloom. The ground color of the skin at ripeness is bright yellow, with a bright crimson blush which covers 30% to 50% of the fruit surface. The skin has numerous small, white dots at the sites of the lenticels.

The flesh is soft, tender, melting, juicy, and lemon yellow in color. The flavor is rich and sweet, and classified as excellent by most evaluators. There is no fiber in the flesh. The fruit has a very faint pleasant aroma. The stone is woody and the seed is monoembryonic. Stone and seed together weigh 30-40 g. The fruit matures from about the second week of June through the third week of July. This cultivar has a relatively long fruiting season, about 4 weeks, in comparison to some other cultivars.

Young leaves, flowers, and fruit are susceptible to infection by the fungus, *Colletotrichum gloeosporioides*, the causal

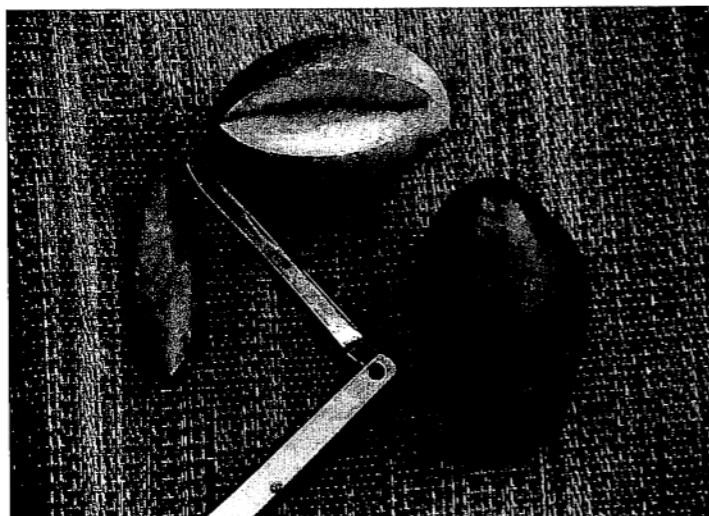


Figure 1. Fruit of 'Cogshall' mango.

agent of mango anthracnose disease. The infection can be controlled by application of fungicides, but this is difficult in a rainy, humid climate like that of Florida. The 'Cogshall' does not produce seedless fruit under Florida conditions, as some cultivars do. If the fruit is left on the tree until it is ripe, it will sometimes develop premature softening of the flesh adjacent to the stone (jellyseed). Other forms of internal breakdown have not been observed in 'Cogshall' fruit in Florida.

Discussion

The 'Cogshall' mango probably should not be considered for commercial production because of the thin tender skin and soft pulp of the fruit, and susceptibility to anthracnose disease. The anthracnose would not be a problem in a dry cli-

mate, but the susceptibility of the fruit to damage from handling and transport would be a serious problem anywhere.

The best features of this cultivar are the excellent color and flavor of the fruit, regular fruit production, long fruiting season, and small tree size. These features make it a good cultivar for the home garden, where space often is limited, fruit is harvested carefully by hand, and superior eating quality is of great importance. The 'Cogshall' has real merit for the home garden, and deserves to be more widely planted.

Literature Cited

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IDENTIFICATION OF N, K, MG, MN, ZN AND FE DEFICIENCY SYMPTOMS OF CARAMBOLA, LYCHEE, AND PAPAYA GROWN IN SAND CULTURE

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Abstract. Symptoms of nutrient deficiency in carambola (*Averrhoa carambola* L.), lychee (*Litchi chinensis* Sonn.) and papaya (*Carica papaya* L.) trees have been observed periodically in south Florida, but have not been experimentally verified. Young 'Arkin' carambola, 'Mauritius' and 'Brewster' lychee and 'Cariflora' papaya were grown in 26-liter containers filled with coarse silica sand, irrigated with deionized water and fertilized with either a modified Hoagland solution or nutrient solutions minus N, K, Mg, Mn, Zn, or Fe. Treatments were arranged in a randomized complete block design with two to six single-tree replications per cultivar. Leaf symptoms were recorded and leaf or petiole tissues were sampled for nutrient analysis, especially with reference to tissue nutrient levels for these crops reported from their production areas.

Southern Florida has long been an area of tropical and subtropical fruit production. During the past fifteen years, there has been a major increase in the area planted with specialty tropical fruits, including carambola, lychee and papaya (J. H. Crane, University of Florida, personal communication). However, little research has been conducted to determine nutritional requirements and to identify, describe and verify nutritional deficiency symptoms of these crops in Florida.

The ability to identify and correct mineral nutrient deficiencies before they affect tree vigor and limit yields is crucial for the production of these crops.

Optimal leaf nutrient levels for carambola have been reported (Galan Sauco and Menini, 1993), but no visual descriptions of deficiencies or toxicity's have been reported and confirmed. Several studies have been conducted to determine the nutritional requirements of lychee in India (Mallik and Singh, 1965). Additionally some observations from controlled studies in Florida have been reported (Goldweber, 1959; Joiner, 1958; Young and Koo, 1964). Studies of leaf nutrient levels in papaya have been conducted in Hawaii (Awada, 1969, 1977; Awada and Long, 1969, 1971a, 1971b, 1978, 1980), Puerto Rico (Cibes and Gaxtambide, 1978; Perez-Lopez and Childers, 1982a, 1982b) and India (Nautiyal et al., 1986). However, these studies focused on Hawaiian 'Solo' types, and little information is available on the commercial 'Cariflora' cultivar grown in Florida.

The objectives of this investigation were to identify, describe and verify visual N, K, Mg, Mn, Zn and Fe deficiency symptoms of carambola, lychee and papaya grown in sand under controlled conditions in a glasshouse.

Materials and Methods

The study was performed in a glasshouse in Gainesville, Florida, using containerized carambola, lychee and papaya plants grown in sand. The mean greenhouse temperature was 30°C (28-40°C). Plants were chosen for uniformity of size and appearance. Carambola plants were obtained from Zill's High Performance Nursery (Boyton Beach, FL) and propagated by T-budding onto the industry standard rootstock seedlings of 'Golden Star'. Lychee plants were obtained from LNB groves, Homestead, FL and propagated by marcotting. 'Cariflora' papaya seeds were obtained from Lara Nursery & Farm, Homestead, FL and germinated in 24 cell polypropy-