

for orchard planting. Thus, '13-1' and 'Sabre' under south Florida conditions are more dependable sources of uniform rootstocks than 'Turpentine', and much more dependable than 'Madoe' or 'Golek'. Neither '13-1' nor 'Sabre', however, has yet been evaluated for rootstock potential in south Florida. The only mango of the group that has been used commercially here to date is 'Turpentine'; the test currently in progress is expected to indicate whether any of the other four has commercial rootstock potential for Florida.

Significant differences were observed between polyembryonic cultivars for the number of zygotic seedlings produced for rootstocks under our conditions. Isozymes are useful in mother tree identification when phenotypes are known, as has been demonstrated here. The zygotic seedlings identified in this study will be evaluated as rootstocks to see if they affect growth habit and productivity of the scion cultivar.

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## THE 'PARVIN' MANGO

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**Abstract.** The 'Parvin' mango originated in the 1940's at Bradenton, Florida as a seedling of 'Haden'. It first attracted attention because of its attractive color, firm flesh, and relative freedom from anthracnose disease. The fruit is ovoid with a smooth, regular surface. Fruit weight is 450 to 690 g, with an average weight of about 560 g. The pulp is dark yellow and firm, with a mild, sweet, and pleasant flavor. The fruit is resistant to handling damage, with an unusually long post-harvest life. A few commercial growers planted 'Parvin' in the 1950's, but the cultivar never became popular in this state. An important defect of 'Parvin' is the tendency to produce seedless fruits, or "nubbins". The fruit also has internal breakdown at maturity in some years. 'Parvin' was introduced to Puerto Rico long ago and is well regarded there. This cultivar appears to respond well to the initiation of off-season bloom by chemical treatment in tropical climates, suggesting possibilities for production of fruit outside of the normal season.

Florida has been a center of origin for many mango cultivars over the last 60 years (Lynch and Mustard, 1955; Young and Sauls, 1979). The diverse group of mango cultivars originating in Florida is the result of the importation and mixing of genetic material from many different regions

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of the world, combined with a vigorous effort of evaluation and testing conducted by both professionals and amateurs within the state. Florida mango cultivars have had a significant impact on world mango production; namely, 'Haden', 'Keitt', 'Tommy Atkins', and 'Van Dyke' which have become commercially successful in Florida and throughout the world. However, there are many other cultivars originating in Florida that have not been commercially successful on a large scale, but may hold commercial promise for the future. The success or failure of Florida mango cultivars in commercial production is largely dependent upon the environmental conditions of a particular region, and the demands of production for an intended market.

The objective of this paper is to describe the 'Parvin' mango, which is not grown extensively in Florida, but has promise as an important cultivar in tropical America.

#### History

'Parvin' originated from a 'Haden' seed planted in the 1940's at the residence of Mr. Clint Parvin, Bradenton, Florida. The pollinating parent is not known. The fruit first attracted attention because of its attractive color and its relative resistance to anthracnose infection. 'Parvin' received a positive recommendation from the Variety Committee of the Florida Mango Forum in the 1940's. 'Parvin' trees were propagated in the 1950's and some commercial growers in Florida planted this cultivar, but it never became popular in Florida. Trees were taken to Puerto Rico and have met with greater commercial success there.

#### Description

'Parvin' trees are vigorous and form a rounded, dense canopy. Trees generally begin to produce in 3 to 4 years after planting in the field and are consistent bearers pro-

vided the trees are well cared for and are not damaged by freezes or other environmental stresses.

The fruit is ovoid to oblong with a length of 11.5 to 14 cm, a breadth of 9 to 10.5 cm, and a thickness of 8 to 9 cm. Fruit weight ranges from 450 to 690 g, with an average of 560 g. The base of the fruit is rounded with a stout stem inserted squarely in a slight cavity (Fig. 1). There is no beak and the nak is inconspicuous. The surface of the fruit is smooth, but there are often some irregularities near the base of the fruit. The skin is thick, tough, and easily separating with a heavy, purplish bloom. Ripe fruit have a "waxy" feel due to the heavy bloom, but hot-water treatment will remove much of the bloom. Ground color is usually greenish-yellow with a bright red blush covering two-thirds of the fruit. Numerous small yellow dots are present on the fruit surface.

The flesh is firm and juicy with a deep-yellow color. Internal breakdown is sometimes a problem with this cultivar. The flavor is mild and sweet with a strong, pleasant aroma. There is scanty fiber in the flesh. Overall quality of the fruit is good to excellent. The stone is oblong, thick and woody with a monoembryonic seed filling up to 80% of the stone. Fruit usually ripen in July and August in Florida and are considered to be a midseason variety.

### Discussion

The bright yellow and red color, firm flesh and freedom from anthracnose first attracted attention to 'Parvin' in Florida. The interest was further strengthened by the exceptional handling and storage qualities of the fruit. 'Parvin' is relatively tolerant of rough handling due to its thick, tough skin, and firm flesh. The fruit also exhibits an exceptionally long postharvest life (Young and Sauls, 1979) suggesting possibilities of long-distance shipping. Yet, one outstanding fault of 'Parvin' is the tendency to produce

seedless or "nubbin" fruit, often more severely than 'Haden'. Nubbins are much smaller than normal fruit and are of no commercial value in Florida. Nubbin production was previously considered to be the result of exposure of the small fruit to cold winter temperatures which are common in Florida. However, 'Parvin' also produces nubbins in Puerto Rico (C. W. Campbell, unpublished), where there are no cold winter temperatures. The reason for nubbin production remains unclear.

The production of nubbins, internal breakdown, and the availability of other desirable cultivars limited planting of 'Parvin' in Florida in the 1950's. Some commercial orchards of 'Parvin' remain in the state, but the acreage is small, and additional planting of this cultivar in Florida is not likely. In Puerto Rico and the Caribbean, however, there is more interest in this cultivar. On the south coast of Puerto Rico the 'Parvin' has proven to be a consistent bearer, and was considered among a group of outstanding cultivars at the Fortuna agricultural experiment substation (Univ. of Puerto Rico) in terms of fruit size, market acceptability, and total yield (Pennock et al., 1972). Five-year-old 'Parvin' trees at the Fortuna station produced about 5.5 kg of fruit per tree, and for the next five years these trees averaged 40.5 kg of fruit per tree per year with a high of 90 kg in the tenth year (Pennock et al., 1972). 'Parvin' produces nubbins in Puerto Rico, but the trees produce enough normal fruit that it has been judged acceptable.

'Parvin' has been successfully exported from Puerto Rico to the United States in the past, but because it is a midseason cultivar it often received relatively low prices due to the presence of many other mangos on the market at this time (Mattern et al., 1972). However, 'Parvin' appears to respond well to the initiation of off-season bloom induction by chemical means. By initiating bloom at nontraditional times of the year, fruit can be produced when prices are higher due to the reduced supply of mangos. The production of off-season fruit also helps to create a constant supply of mangos in the market thus strengthening the mango market as a whole. The color, production, handling characteristics, and response to bloom initiation suggest that 'Parvin' may be successful as an export mango in the Caribbean and tropical America.

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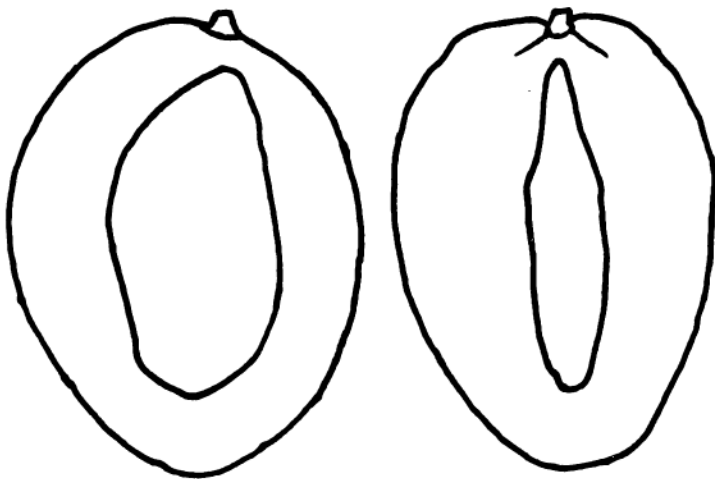


Fig. 1. Fruit and seed shape of a 500 g 'Parvin' mango.