

observations that those on West Indian rootstock were no more vigorous than any of the others.

The lack of rootstock influence on cold tolerance of hardy avocado cultivars is probably due in part to the lack of pronounced dormancy in the winter. Mexican race cultivars begin blooming in late December and continue through February and even into March in some years. Blossoms and occasional new shoots formed in the winter are killed by relatively mild freezes but new ones arise which may in turn be killed by a later freeze. Mature vegetative portions of the trees remain quite hardy, however, throughout the winter. Hardiness to cold does not appear to be related to whether trees are in or out of bloom, nor does cold tolerance of avocados appear to rise and fall following periods of cold and warm weather, respectively, as reported for citrus. Research with cold-hardy

avocados in Texas support these observations (3). West Indian cultivars bloom later than those of the Mexican race, suggesting more pronounced dormancy in the former, and yet they are more tender to cold. Thus, any slight influence which rootstocks might have on dormancy or vigor of growth, factors commonly related to cold hardiness in many other fruit crops, was unimportant.

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## THE 'TOMMY ATKINS' MANGO

CARL W. CAMPBELL

*IFAS Agricultural Research and Education Center  
Homestead*

**Abstract.** The 'Tommy Atkins' mango developed from a seed planted in the early 1920's near Ft. Lauderdale, Florida. The heavy fruit production and outstanding red color of the fruit attracted favorable attention of local people and additional trees were grafted about 1945. As more trees came into bearing it became evident that the fruit had good shipping quality and considerable resistance to anthracnose disease. Commercial mango growers recognized the potential of the 'Tommy Atkins' and began to plant orchards of grafted trees in the late 1950's. Recently this variety has been planted more than any other in Florida. Internal breakdown of the fruit is a serious problem in some years.

Many interesting and valuable mango varieties have originated in Florida. These have become well known in other areas of the world where mangos are grown. One variety which has received much attention recently is the 'Tommy Atkins'. Brief descriptions of this variety have

been published by Popenoe (3), Ledin (2) and Campbell and Malo (1).

The present account contains a detailed description, based on field and laboratory observations, and a history compiled from the records of the Florida Mango Forum and the University of Florida Agricultural Research and Education Center, Homestead, and from information supplied by Florida mango growers<sup>1</sup>.

#### History

The original Tommy Atkins tree grew from seed of unknown parentage planted about 1922 in an orchard in Broward County, Florida, north of Ft. Lauderdale. The exact year it first bore fruit is not known, but apparently it was in the early 1940's. The outstanding color of the fruit attracted the attention of Mr. T. H. Atkins, who believed that it had potential as a commercial variety.

About 1945 Mr. Atkins decided to graft additional trees and offer them for sale in containers. Trees were first sold in 1948.

Fruits were submitted several times to the Variety Committee of the Florida Mango Forum for evaluation. Existing records indicate that fruits were submitted in 1947, 1949, 1950 and 1951, but there is reason to believe that the first evaluation was earlier than 1947. The fruit attracted favorable attention particularly because of its color.

<sup>1</sup>Mr. Ed Mitchell was particularly helpful as a source of information.

Some members of the Florida Mango Forum Variety Committee did not consider the 'Tommy Atkins' mango worthy of acceptance as a variety because it received some poor ratings for flesh texture and flavor. Others, notably the commercial mango growers, saw in it a potentially successful variety for commercial production, because the fruit had excellent color and the tree appeared to be heavy bearing and resistant to anthracnose disease.

W. W. Carmichael bought a tree from T. H. Atkins in 1950 and planted it near his residence at Perrine, Florida. He grafted other trees from this one. Later the Mitchell family of Perrine, Florida, purchased Carmichael's original tree and moved it to their orchard. They began to graft additional trees and to establish orchards in the late 1950's and early 1960's.

As it became evident that the trees were heavy and regular bearers and that the fruit was achieving market acceptance other growers began to make plantings of the 'Tommy Atkins' mango. In recent years more trees of this variety have been planted in Florida than of any other.

### Description

'Tommy Atkins' trees are vigorous in growth, with a dense, rounded canopy. They begin to bear in 3 to 4 years after planting and bear regular, heavy crops thereafter provided they receive good care and are not injured by cold or hurricanes. Trees can be expected to bear 3 to 6 bushels (75 to 150 kg) of fruit at 6 to 8 years of age, and older trees up to a maximum of about 12 bushels (300 kg) per tree.

The fruit is medium to large in size, weighing 16 to 25 oz (450 to 700 g). It is oval to oblong in shape with a broadly rounded tip and an inconspicuous nak (Fig. 1). The stem insertion is straight and slightly raised.

The fruit surface is smooth, and the skin is thick and resistant to mechanical injury. The fruit is resistant to infection by the fungus which causes anthracnose disease. A good fungicidal spray program will produce fruit free of anthracnose lesions.

The external color of the fruit is excellent. Ground color is orange-yellow and the blush is bright to dark red. On many fruits the blush cov-

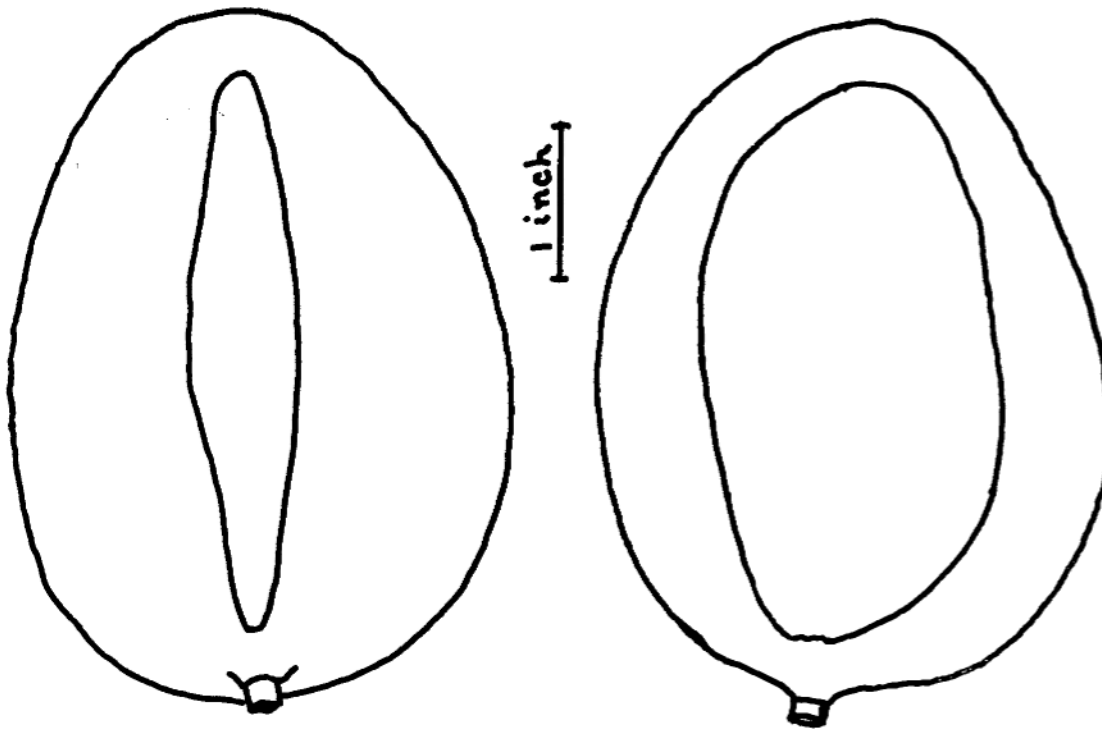


Fig. 1. Fruit and seed shape of 17 oz (480 g) 'Tommy Atkins' mango.

ers most of the surface, so that little of the ground color can be seen.

The flesh is medium to dark yellow in color. Flavor is fair to good. As with other mango varieties, fruits produced under conditions of excessive nitrogen fertilizer or rainfall have a flavor inferior to those produced under conditions of lower soil fertility and moisture. The texture of the flesh is quite firm because of the presence of fine-textured fibers. These are not objectionable to most consumers although, as noted earlier, they are objectionable to those who prefer a completely fiberless mango. The firm flesh renders the fruit quite resistant to handling damage and gives it a long storage and shelf life. The fruit has a tendency to develop an open cavity in the flesh at the stem end, and in some seasons to develop a premature softening of the flesh near the seed, particularly at the tip of the fruit. The seed weighs 1 to 1.5 oz (28 to 42g) and is monoembryonic.

Most of the fruit matures in June and July, although in some seasons fruit matures during part of August as well.

#### Discussion

Evaluation of new mango varieties by the Florida Mango Forum Variety Committee has sometimes been a controversial process because the people involved were not all using the same set of standards. Those who evaluated the 'Tommy Atkins' mango only for flavor and flesh texture

rejected it because it does not have excellent flavor and the flesh is not free from fiber.

Others, particularly people who made their living by growing and selling mangos, used a broader set of criteria. In addition to flavor and texture, they were interested in color, bearing ability, anthracnose resistance, shipping quality and shelf life. Although they agreed that the 'Tommy Atkins' was not a connoisseur's mango, they felt that it met the criteria for commercial production well enough to be accepted in the market, and they planted orchards of it accordingly. The commercial success of this variety indicates that their judgement was sound.

Internal breakdown of the fruit remains a serious problem. Some fruit has internal breakdown every year, and in some seasons a large part of the crop is affected. Other varieties have this breakdown as well, but the 'Tommy Atkins' is one of the most severely affected. The cause of the disorder is not known, but mineral nutrition apparently is an important factor. Hopefully research will provide information on the causes and correction of this condition. Internal breakdown should be considered an important factor in future evaluation of new mango varieties.

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