One of the policies of the Krome Memorial Institute has been to bring to the attention of its members, every few years, the promising new varieties of avocados which have originated in the state or which have been introduced from other avocado producing regions. The most recent report was made to you by Dr. H. S. Wolfe in 1938 in which he described six new varieties. Five years previous to this, in 1933, Mr. L. R. Toy described nineteen varieties as promising.

A brief reference should be made to the varieties described as promising in 1933 and in 1938 with regard to their status at the present time in commercial plantings of the state. Of those described in 1933, Booth 7 and 8 and Fuchsia are being generally propagated. Tonnage, Ajax and Booth 3 are receiving some attention from the growers and may become more generally grown as their qualities become better known. Tonnage and Booth 3, both heavy bearing varieties, mature their fruit during the fall and early winter months at which time markets are offering good price for avocados. Ajax, a large fruited variety, matures in February and March at which time we have few desirable varieties of this type for local markets.

The other varieties mentioned in 1933 are not being propagated commercially. Of the varieties described as promising in 1938, Monroe has been propagated in largest numbers but only on the properties of its owner, Mr. J. J. L. Phillips. Simpson and Hall are being propagated for sale by nurseries in South Florida and a small number of trees have been topworked to each. Hall, a large handsome fruit maturing in February and March, should increase in popularity as a fruit for local markets. The trees are bearing heavily in alternate years. Steffani and Avon are not being propagated commercially. Booth 1 is being propagated in considerable numbers but due to its very large seed may prove an unhappy choice in the future. However, it bears heavy crops of attractive fruit which mature from November through January.

Since the report in 1938 several new varieties of avocados which show promise have come to light and have been named. There are also a hundred or more promising seedlings which are fruiting for the first, second or third time. These require further study of their fruit quality, bearing habits and reaction when grown under grove conditions before they can be considered as commercial varieties.

The Hickson within the last three years has shown the most promise of becoming an accepted commercial variety. It originated as a seedling of unknown parentage in the grove of J. R. Hickson, Naranja, Florida, and was first singled out for its heavy bearing ability in 1934. Several hundred trees topworked to Hickson display a tall upright growth, somewhat like the Lula, and are bearing
thick, pliable skin. The light yellow, good flavored flesh has a fat content of 9 to 11 percent. The seed is medium large and tight. The good marketing size, 12 to 18 ounces, and desirable season of maturity make this avocado of more than passing interest as a possible commercial variety. It is being propagated on a small scale in Dade County. The flower is in class A for pollination.

The Herman variety originated as a seedling of unknown parentage in the Herman grove near South Miami and bore fruit for the first time in 1937. Trees topworked with grafts from the parent tree are low headed, have light green, West Indian type foliage, and bear very heavy crops. The tree has about the same resistance to cold injury as the Collinson. The medium size fruit (Fig. 3), weighing from 14 to 20 ounces, are elliptical, a dull medium green in color with a smooth, medium thick, pliable skin. The attractive yellow flesh of good flavor and the small tight seed are desirable features. The fat content of the flesh is 10 to 14 percent. The quality of the fruit, the precocious and heavy bearing habits of the trees and the November through January season of maturity are features which will tend to popularize this avocado as a commercial variety. It is being propagated on a small scale in Dade County and in the Lake Placid region. The flower behavior is Class A for pollination.

The Bonita variety originated as a seedling of unknown parentage in the grove of C. Sartini near Homestead about 1930. This is another heavy bearing avocado which matures its fruit from November through January. The medium to large, obovate fruit (Figure 4), weighing 16 to 24 ounces, has a dull dark green, pebbled, medium thick, pliable skin and a medium to large loose seed. The pale yellow flesh has a fat content of 8 to 12 percent, but the flavor is only mediocre. About one hundred trees have been topworked to this variety in Dade County and, although it does not hold much promise as a fruit for the northern markets, it has sold well locally. It is in Class A for pollination.

The Lindgren variety originated as a seedling of unknown parentage in the Lindgren grove near Homestead, fruiting for the first time in 1935. The tree bears heavy crops maturing in November and December. The very attractive small fruit with bright green, slightly pebbled skin has a moderately large tight seed. The yellow flesh of good flavor has a fat content of 5 to 7 percent. Only a few trees of this variety have been propagated but the attractive appearance of the fruit may overcome the handicap of the medium large seed and induce growers to propagate the Lindgren commercially. It is in class A for pollination.

The Blair variety has been propagated on a small scale in Dade County. The handsome, medium sized, dark green, pyriform fruit, maturing from November to January, is handicapped by a very large seed. Although the trees bear heavily at a desirable season, the large seed will probably prevent extensive plantings. Two more of the Booth seedlings, Numbers 10 and 7b, with many of the qualities of the other Booths, are showing promise as late fall and winter maturing fruits. An interesting seedling has come to the writer's attention in the grove of Mrs. F. Schroeder, near South Miami. The fruit is similar to the Collinson in form, size and appearance, has a medium sized seed and matures its fruit from February to April. The tree appears scab resistant and is in class A for pollination. One avocado nursery has already propagated some trees from this seedling.

All of the new varieties discussed, except Harris, appear to be hybrids between the West Indian and Guatemalan races. Harris bears evidence of being the Guatemalan race.

The avocado growers of Florida are tending toward planting and topworking their groves to varieties which mature in the fall and early winter months. This is prompted by the competition of Cuban seedlings which usurp even the local markets during the summer and early fall, and by heavy shipments of California avocados during the late winter and spring to the eastern and midwestern markets. However, there is a demand on the local and southern markets for medium to large sized handsome fruits during the time
when California is shipping so heavily. We need some good varieties that bear heavy crops and mature their fruit in the late winter and spring months. We need also some very early varieties to replace Fuchsia and Pollock, both of which have many shortcomings. It will be by the constant search for new and better varieties, as well as improved cultural practices, that the avocado industry will grow and prosper in Florida.

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PLANT BREEDING POSSIBILITIES FOR SOUTHERN FLORIDA

H. S. WOLFE

University of Florida, Gainesville, Florida

Repeated and sometimes expensive introductions of tropical and sub-tropical fruits into Florida have served for the most part to emphasize the fact that introduced materials are less likely to prove satisfactory than varieties which have arisen locally. Mango varieties were imported from India as inarched trees several times between 1885 and 1900, with only one tree partially successful. But one seedling from that one tree has given us the commercial variety which has made Florida mangos known in northern markets. More than fifty mango varieties have been imported, but only the Haden variety has thus far been important commercially. Back in the period when avocados were a booming new crop for Florida, we planted several dozen imported varieties of all three races. Gradually we have eliminated from our groves nearly all of those importations, replacing them with seedlings which have been selected locally from hybrid origin.

There is nothing unique in this experience. The apple is not indigenous to America, but nearly every commercial variety grown in this country has arisen here as a seedling. The most satisfactory peach variety for the northern half of Florida is one which was selected as a seedling and the same is true for plums here. The commercial grape of Florida was developed by crossing a Texas species on a variety with European and Labrusca blood in a definite endeavor to create something adapted to the Climate of the Lower South. And many other illustrations could be cited.

In the realm of tropical and subtropical fruits, we have made little attempt at deliberate improvement of our varieties except in the case of avocados and mangos, and even the mango was hardly more than a fortunate accident. There is plenty of room for improvement still in mangos, for while the Haden has gorgeous coloring and good size, it is not the best in flavor and it is sadly deficient in productivity. Hand pollinations are not a promising means of improvement, owing to the great percentage of flowers which fail to set fruit. As in the case of the avocado, the best chance for advancement seems to lie in planting seeds from trees which have had an opportunity for cross-pollination by adjacent trees of different type, especially where Haden or some better quality Indian variety may be pollinated by a Saigon or Philippine type.

But it will not do to plant a single seed or a dozen seeds. The Jewel peach was selected from a planting of 500 seeds of hybrid origin. We have already a few varieties which seem to be hybrid mangos, and their seeds should be especially valuable as sources of variations — if they do not all prove polyembryonic.

Experience in California suggests that we are only beginning to develop avocado varieties which will be satisfactory. Last year the California growers decided that almost all of their standard varieties needed to be