

What Constitutes a Good Commercial Variety of Avocado

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The question most frequently asked nurserymen handling avocado stock undoubtedly is, "What variety shall I plant?" Unless the one to whom such a query is put already knows the location at which it is expected to plant the trees, the class of land upon which they are to be planted, the disposition which it is intended to make of the fruit when the trees come into bearing, and something of the experience and ability of the planter as a fruit-grower, this question is about as easy to answer intelligently as that other one, "How long is a piece of string?"

There are varieties of avocados which may be grown with a fair degree of safety as far north as one would plant citrus, and there are other varieties which are too tender to withstand the cold on any part of the mainland of Florida. There are varieties which do well in the interior and are failures along the coast, and there are varieties which are adapted for highland planting but do not thrive on low, wet soil. And as in each instance cited there are also varieties of which the exact reverse is true, it is evident that location and class of land must be given consideration in the selection of an avocado variety.

There are a number of avocado varieties which have qualities that entitle them to places in what is usually called a "home-planting," where it may be expected that the fruit will be mainly for the personal use of the grower and his family, but which have faults that lower their value from a market standpoint. And there are likewise varieties the fruits from which rank high when considered on a general commercial basis, but which are not particularly attractive for home use. There are avocados adapted for a fancy mail-order trade, avocados which best suit hotel and restaurant requirements, avocados which may be safely shipped to Europe and avocados which must be disposed of on a local market. Very certainly the intentions or expectations of the grower as to the disposal of his fruit play an important part in determining the variety he should plant.

Finally the personal equation of the prospective planter must be considered, for there are avocados which should be set out by no one but an expert or an enthusiast willing to profit by his failures, and on the other hand there are "fool proof" avocados which will grow nearly anywhere or for any body. Also we have avocados which make fine vigorous trees bearing regular, full crops of first-class fruit, which are the despair of the nurseryman on account of the difficulties attending their propagation.

The future of the avocado industry in Florida, from a commercial standpoint, however, depends upon the planting of groves throughout those portions of the State generally designated as South Florida, the Middle and Lower East Coast and the Lower West Coast, and it is with reference to plantings in these sections, on well-drained land, which would be considered adapted for citrus, that I will try to outline the characteristics which I believe are essential for an avocado variety suited for growing and marketing in a general commercial

way.

With avocados, as with other fruits, in selecting varieties for a profitable planting, careful attention should be given the character of the tree itself as well as that of the fruit which it produces. The ideal tree for orchard purposes is one which with fair treatment will make a healthy, vigorous growth, neither sprawling nor too rangey in form, producing full crops year after year. It is seldom that this perfection is attained in any tree, and when coupled with these characteristics we must consider the quality of the fruit which it bears, and the season for maturing its crop, we are indeed fortunate when we even approximately approach this ideal. Contrary to the rather general opinion, avocado trees when once well established are usually not difficult to grow. It is true that the young plants are rather susceptible to damage by drought, sunburn and frost, but if supplied with plenty of water, shaded from the direct rays of the sun and given reasonable protection against cold during their earlier period of growth, most avocados become sturdy, vigorous trees, free from many of the ailments which tend to make life miserable for the grower of other fruits. But in habit of growth there is great variation and the prospective avocado planter before laying out his orchard, should take pains to acquaint himself with such facts as are available regarding the form of the mature tree of the variety he selects.

Personally, I strongly favor the tree of comparatively low height and wide spread of branches, providing the growth is not inclined to be drooping or willowy, but quite a number of the best varieties of avocados which have so far been developed are produced upon trees which tend toward a tall, very upright growth and somewhat narrow spread. This is particularly true of some of the Guatemalans, including Wagner, Taylor, Atlixco and Lyon, all varieties of commercial value. If one decides in favor of planting trees of this type a much closer setting may be made than with those of wider spread, but careful consideration should be given to the matter of wind exposure. Of some fifty varieties of Guatemalans which I have grown, the Taft most nearly approaches my ideal in tree form, vigor of growth, and character of foliage, yet this variety is reported as not doing well in close proximity to the coast, where it is said to be subject to damage by salt winds. Some of the varieties introduced from much higher altitudes than any to be found in Florida, give evidence of not being at home under our conditions, by severe blighting of the young growth and scorching of the mature foliage during our periods of greatest heat. Others have shown themselves particularly susceptible to Scab and kindred fungus disorders and should not be planted where such diseases have proven unusually troublesome on citrus. No matter how attractive the fruit may be, the planter is laying up trouble ahead for himself when he sets a tree which is not climatically adapted to his locality.

When it comes to fruiting qualities there are several points to consider besides the one of being prolific. To be profitable a fruit tree must not only put on good crops but must hold them to full maturity and must be sufficiently vigorous to withstand the drain, which heavy production makes, with out being brought to a debilitated condition which precludes a good following crop. This point is of greater importance in the selection of an avocado variety than with any other of our orchard trees, for the reason that from the nature of its fruit, the crop draws more heavily upon the resources of the tree. No other known fruit contains so low a percentage of water nor so high a proportion of those constituents which are derived from the plant foods upon which the tree itself must rely for its growth and vigor. As a result of this drain, avocado trees of some varieties, unless very carefully handled, come to the end of their

fruiting season so badly run down that there is no chance for a crop the ensuing year.

It is the nature of the avocado, in its uncultivated state, to be a rather pronounced "in-and-out" bearer, a good crop year being followed by one, and often two, years of very light bearing. This is undoubtedly Nature's provision for recuperation after the fatigue of heavy effort, but it does not accord with the business of commercial fruit growing and by selective propagation and by cultural methods we seek to eliminate, as far as possible, these seasons of light production. As most of our avocado varieties are removed only one generation from their wild progenitors we have not as yet advanced as far along this road as in the case of fruits which have been under orchard culture for a long time. In consequence, if the avocado grower secures varieties which produce, with fair regularity, crops of high grade fruit, upon trees which maintain a thrifty condition, he must, in the present stage of the industry, be content if he occasionally has short-crop years. Of the fall maturing West Indian avocados the Trapp and Waldin are two of our best varieties. The Trapp has long been a standard avocado for market purposes and has many qualities which entitle it to a high place in the estimation of the grower, but it has the faults of over-bearing and inability to carry a full crop to maturity without a serious set-back. Largely on this account, many planters prefer the Waldin, which is not so prone to overdo in the way of fruiting, but carries its crops to maturity with much less detriment to the tree.

Viewed from the standpoint of the fruit produced, first consideration must be given the season of maturity. As matters now stand the marketing season for avocados opens during the latter part of July or first of August, when the earliest varieties of the West Indian type begin to mature their fruits. These early avocados usually bring very good prices but this is mainly due to the small quantity available and until the markets for the fruit have been considerably extended it is doubtful whether the demand will be sufficient to take care of heavy shipments without overloading. The avocado at this season on northern markets comes into competition with all sorts of other salad vegetables at a time when the prices for such food products are lowest.

Shortly after the earliest Florida avocados are mature enough to ship, the Cuban seedlings appear on the market in quantities such that prices range comparatively low throughout the latter part of August and until well along in September. Before the first of October the Cuban crop has usually been moved and Florida avocados control the markets. Prices then increase quite rapidly and hold at a high level as long as the fruit is obtainable. To within the last few years commercial avocado plantings in this state have been almost wholly confined to varieties of the West Indian type which mature, their fruit during the months of October, November and December, and it is probable that the bulk of the late fall avocados will be of the West Indian varieties for many years to come, though we now have fall-maturing Guatemalans, adaptable for growing farther north than it is safe to plant the West Indians, the fruit from which will find a ready market at good prices.

By the first of December West Indian avocados have become so scarce that prices regularly soar to very fancy figures, net returns to the grower of twenty-five dollars and more per forty-pound crate being quite the usual thing. So far no West Indian variety, has been propagated which will regularly carry its main crop of fruit later than about December first, though on some trees and during some seasons, avocados of this type will hang on in perfectly good condition until after Christmas.

For marketing after December 15th and throughout the remainder of the winter and spring, we must rely upon avocados of the Guatemalan type, and of these a sufficient number of varieties have already been introduced and given a trial so that the grower may make selections which will give him continually maturing fruit from the early part of December until the first of May, with the possibility of extending his shipping season through the summer months if he so desires. On the basis of best commercial returns, however, the selection narrows to West Indian varieties maturing their main crop between October 1st and December 15th and Guatemalans ripening between December 15th and April 1st.

Next after the season of maturity, the quality, color and form of the fruit itself is important. The flavor of an avocado depends mainly upon its percentage of oil content and while the northern markets do not now differentiate to any marked degree between fruit low in oil and that having a high oil content, the consuming public will soon become educated to demand avocados with a pronounced nut-like flavor and those of a watery or insipid character will be discounted by the best trade. This is more particularly true in regard to the West Indian varieties, some of which run very low in oil, with flesh of a watery consistency and flavor about on a par with a poor grade of toilet soap. The Guatemalan and Mexican avocados nearly all run high enough in oil to impart a flavor which will be satisfactory for general market purposes for a long while ahead. For strictly fancy trade, however, the matter of oil content, even among the Guatemalans, should be given careful attention by the prospective planter.

There is more difference of opinion among Florida growers as to the best color for a commercial avocado, than exists in any of the other countries where this fruit is produced. In California, where the markets were educated on the small thin-skinned Mexican avocados, which are nearly always very dark in color, the preference seems to be for a purple fruit and this also holds true in the markets of Cuba and other West Indian islands. The northern trade, which handles the output of our Florida avocado groves, has been largely "developed to look upon the Trapp variety as a standard, and as this is a green fruit, many dealers discriminate against avocados of other colors. The green avocado, which holds its color right up to the point of final decay, has the merit of presenting an attractive appearance to the customer as long as it is really fit to be, offered for sale, but otherwise I cannot see that it has any advantage over the purple or yellow varieties, many of which are of the very best flavor. The main trouble with avocados having a mature color other than green is that they do not hold their color for any length of time. Some of the purplefruited varieties, showing tints of color from bright red to dark maroon present a most attractive appearance just as they are approaching maturity, changing a few days later to a muddy brown which gives the fruit a look of decay while it is still perfectly fit to eat. The grower is entirely safe in selecting green-fruited varieties, as far as color is concerned, but personally I would not hesitate to plant a purple or bronze colored avocado, providing that I knew that the fruit would hold its shade for a reasonable time after removal from the tree. A color-line which would bar from commercial planting such fine varieties as Sharpless, Spinks, Queen, Linda, Atlixco and McDonald would have little to recommend it.

Mainly on account of packing requirements, the round avocado is preferable to any other shape, but has no great advantage over the oblong or oblate kinds. Varieties having a pronounced neck are rather objectionable. Other qualities being equal, the fruit with a small seed is desirable, as the usual accompaniment of a small seed is thick flesh, but several of the best commercial varieties have seeds of more than average size.

As to the matter of size, opinions differ, but for general market purposes West Indian varieties averaging around a pound and a half and Guatemalans ranging from fourteen to twenty-two ounces in weight may be safely considered desirable. With a high class hotel or mail order trade larger sizes find ready sale but the tendency of the market demand is toward the smaller sizes and I believe that within a few years the Guatemalan varieties averaging about a pound in weight will net the grower the highest returns per crate. During the past two seasons Guatemalans ranging between ten and fourteen ounces, packing from four to six dozen to the crate, have sold readily during February and March at thirty dollars per crate f.o.b., I doubt whether a larger fruit would have brought better prices.

Briefly summarized I would enumerate the qualifications desirable in a commercial avocado variety as follows:

A tree, selected with careful regard as to the location of the planting, of such established bearing qualities as to insure fair crops each year or heavy crops on alternate years, and capable of carrying its crop through to maturity without serious set back.

A fruit maturing between October first and December fifteenth if of the West Indian type and between December first and May first if of the Guatemalan type. The fruit to be of medium weight, free from fiber, with good oil content and small to medium size seed. Color preferably green or a "fast" shade of purple or bronze. Shape round, oblate or slightly oblong, without pronounced neck. And of all these qualifications that of producing sufficient quantities of fruit to warrant the raising is most important. For commercial purposes beware of the "shy" bearer, no matter what its other merits may be.

Mr. Niles: The only avocado experience that I can give would be what we have had in Polk county and Lucerne Park. In April of 1912, Mr. Gillett received a shipment of avocado and mango trees with which we planted and developed, five acres all together. The trees were planted on high, sandy soil. Some told us at that time that they would not do well in that class of land. They said they would do better near Orlando. However, we were willing to try them and determine whether they would be valuable or not. I will say this, that the trees made a wonderful growth; in fact, a great many growers in the different parts of the State called to see them, and were all surprised at the growth of the trees, not only the vegetative growth but also the size of the fruit. The trees fruited so well, and we got such high prices for them, that people began to have more or less of an avocado fever, so to speak. After banking the trees two years, we decided that we wanted to find out whether or not they would stand the cold, so we did not bank or protect them in any way during 1916 and 1917. We found out right away in 1917 what they would stand. Some of these trees at that time were all of fifteen feet high, and fifteen feet in spread. While they were hit by the cold, it was not so bad as we thought at first; in fact, the trees have come back but are not as large as they were at the time of the cold, and are fruiting this year. A great many of those old stumps were budded and worked over to the different Guatemalan types, in fact, we have practically all of Popenoe's varieties which he brought from Guatemala and are testing them out there, and a great many have a very good setting of fruit this year. We have never ripened any fruit of the Guatemalan type that was important; I do not know of any being ripened in Polk county, but I think next year we will be able to tell you what results we have had with the fruits. Of course a fruit, having such excellent shipping qualities and also very delicious for use as a salad fruit, will command good prices on the market. Undoubtedly we are going to find trees that will stand, not quite so much cold as Mr. Beach mentioned in his paper, but will stand enough cold so that we can grow

them in our section farther north. I will say in regard to the Mexican tree at Earlton, the man mentioned in his paper that the fruit was the size of cherries. I will say that with us, we have a Mexican seedling which has been planted four years in the ground and it has fruit which are now larger than hen's eggs.

Mr. Rolfs: One point mentioned by Mr. Beach is that he thinks that fruit No. 133 has some Central American blood in it. I cannot agree with Mr. Beach on that. It is just an exact specimen of the one you have before you, the Winslow, a little smoother skin, and the odor and general looks of it are just like the Winslow. If it were of the same weight as the Winslow I think no one would think there was any Central or South American blood in it. Of course, the fact that it ripens early and is a very large fruit has no particular bearing on the subject, but may mislead someone into thinking that it has some of the South American blood in it. I just wanted to correct it as we are passing, as I don't think, from a close study of the fruit that we need to consider it as varying much from the Winslow.

Mr. ----- : Mr. Chairman I have two avocado trees among a large number that went through the freeze of 1917. These are the Fuerte and the Collins. The Trapp and four or five other varieties out of about six hundred trees we had, all froze to the ground. They were three-year-old trees at the time, anti they all froze to the ground, but it didn't do these two particular ones any damage. They were loaded again last year.