

Baldwin of Haiku Tells What Avocado Varieties Appear Best For Hawaii

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Haiku Farm, Maui.

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NOTE: Lovers of the smooth and seductive avocado will find the following report of the committee on varieties of the Avocado Association of Hawaii well worth reading, and probably worth preserving for reference. Although Dr. Baldwin insists that his findings are conditional, and that a further time-test is necessary, his report gives a clearer idea than most laymen have of what is desirable in avocado fruit and trees, and why.

Haiku Farm

Haiku Farm is at an elevation of 200 to 300 feet. Acreage—65 acres. 3600 budded and grafted trees. Rainfall, about 50 inches. The Farm is under irrigation. Exposed to the trade-wind.

The committee on varieties will submit from time to time, to the secretary of the association, written reports on varieties that they are more or less personally familiar with: Mr. A. V. Gear will report for Oahu; Mr. D. S. Bowman for Hawaii and Kauai; and the writer for Maui—more especially the varieties grown at Haiku Farm. Each member of the committee will report independently of the other members, but the form of the reports will be fairly uniform, and with the same object in mind, namely, the commercial viewpoint. Each committee member may secure "written subsidiary reports from anyone else who can give useful information about varieties concerning which the committee member is not familiar.

Buyers Set Standard

What standard, if any, should we adopt as to the Ideal Commercial Avocado? The full answer to this question depends on the future demand of the public, and at present we can only have opinions and guesses on certain aspects of this subject. It is the buyers who will settle this question—just as they will settle the question as to the retail price. We can educate and influence the public, but there our power ends. In regard to the size, the wealthy generally prefer large fruit—the larger the better. Also, the hotels often prefer large size for salad and cocktail purposes, but to serve "on the half shell" they prefer medium-sized fruit.

The poorer classes generally wish small or medium fruit. In regard to color, I think there is no decided preference here in the islands, except that always a handsome color is preferable. But on the mainland—East and West —green is generally preferred. The

matter of color really has no relation to quality, but just as Bostonians prefer brown eggs to white so the eastern markets prefer green avocados to colored ones.

Thick Skin Preferable

In regard to the skin, a fairly thick skin is considered best, on account of its better protection in shipment and handling, although the "Fuerte" variety has quite a thin skin and yet it is considered a first-class commercial variety. The Guatemalans and the Guatemalan-West Indian hybrids generally have ideal skins—quite thick and granular.

As regards the flesh, a clear, stringless, bright yellow or bright yellowish-green flesh, that has an oily surface on cutting, and a rich high-flavored taste, is the sort most in demand. Many people say they do not like a very rich pear—"not too rich" is a common recommendation for some pet variety, yet I think these people are often mistaken and if they are given really fine rich pears they often like them and even prefer them.

Richest Varieties Safest

Generally speaking, it is safest, I think, for the grower to choose the richest varieties. When the public is better educated as to avocados they generally condemn the "watery pears" and demand the "butter pears," and also when a so-called "butter pear" is picked before full maturity it is good, whereas a mild pear is worthless unless picked at full maturity. There is a quality of flesh mid-way between the mild pear and the true "butter pear" that I call a "custard pear" and these "custard pears" include some of our finest varieties. I would put Mr. W. R. Haley's "Perfection" in this class, and it is a very high-class variety.

Generally speaking, the higher the oil-content the more delicious the fruit, but there are exceptions: those having a high oil-content may be bitter, and there are some varieties of very low-content that have a nutty and pleasing taste. As regards the seed, a medium or small seed is not only desirable but should be considered almost essential, and the seed should be tight-fitting, with the seed coats adhering to the seed rather than to the flesh.

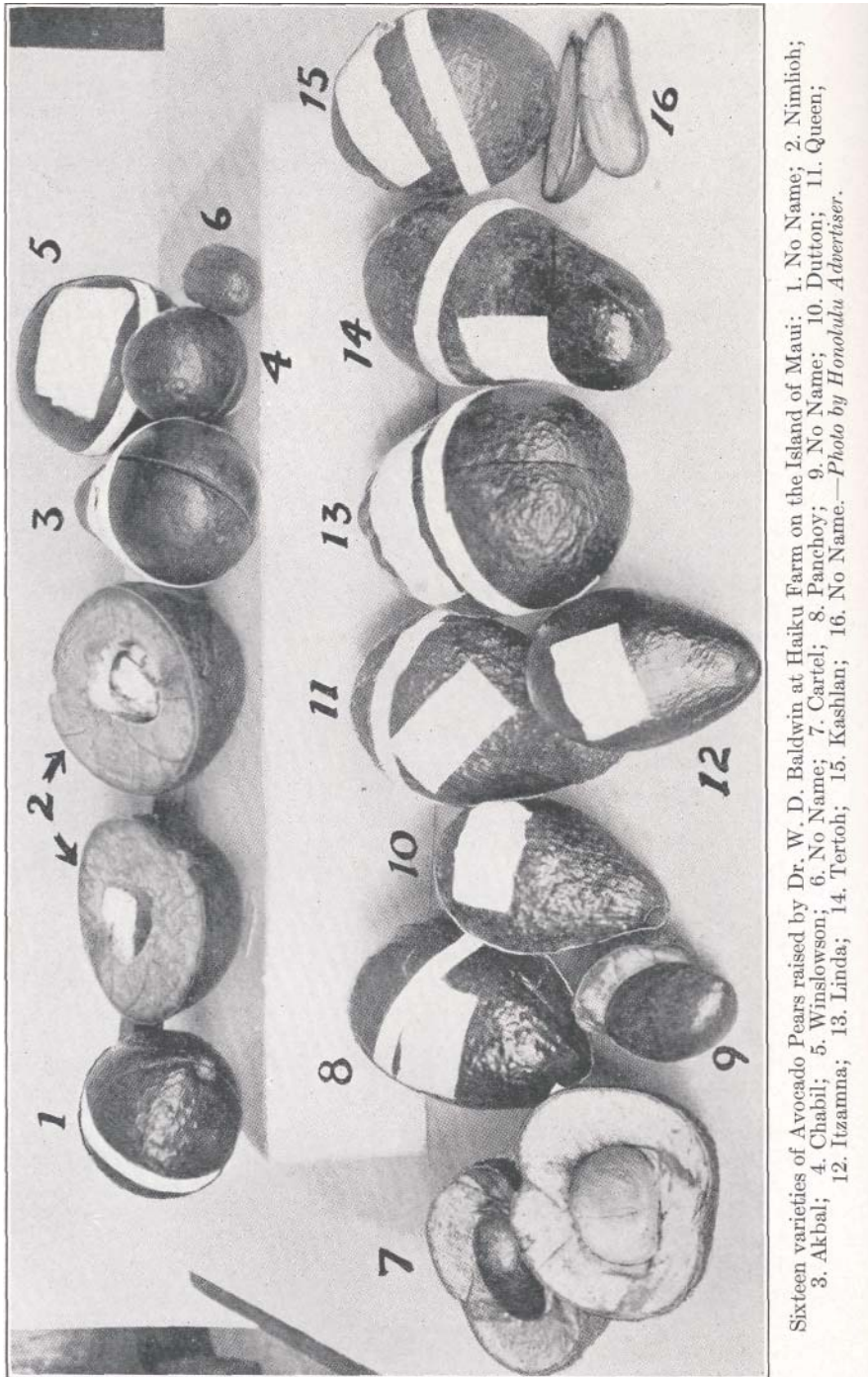
It is quite common here in the islands to hear people laugh at the Californians for "not knowing what a good pear is," but in my opinion, there are many men in Southern California who know vastly more about the avocado than any of us know, and who are growing as fine avocados as we can produce in the islands. Their standards are very high. In Florida the standards are rather low—they are willing to sacrifice quality to quantity— to them a large seed and somewhat watery flesh is not prohibitive, providing the variety is prolific.

Stick to High Standards

I am strongly of the opinion that we must stick to high standards of excellency both of the fruit and of the tree. We should play no favorites as some have done in Southern California, but should ruthlessly discard any variety that in time proves to be not up to the mark. Sentiment should have no place in the choice of varieties.

To recapitulate and to sum up my own personal ideas as to what will be the ideal commercial avocado fruit, I would say I think the main size should be about a pound or less, for I think the great bulk of the fruit will be sold to people of moderate or small

means, and, therefore, the chief demand will be for the medium-sized fruit—even when prices are very much lower, as they are bound to be. But there will always be a fair demand for large fruit, for reasons already given. There are two points in favor of large fruit —aside from their attractive appearance: one, is that large fruit require less labor for the cook in preparing salads and cocktails, and the other is that on the farm it takes about one-half the labor to pick a given weight of say, two-pound fruit, as compared with the same weight of one-pound fruit, and as the harvesting is very expensive, this latter point should be borne in mind.



Sixteen varieties of Avocado Pears raised by Dr. W. D. Baldwin at Haiku Farm on the Island of Maui: 1. No Name; 2. Nimloh; 3. Akbal; 4. Chabil; 5. Winslowson; 6. No Name; 7. Cartel; 8. Panchoy; 9. No Name; 10. Dutton; 11. Queen; 12. Itzamna; 13. Linda; 14. Tertoh; 15. Kashlan; 16. No Name.—*Photo by Honolulu Advertiser.*

My judgment as to color would be a green, a maroon, or a bright red (this latter color being very rare). In regard to shape, I would choose a longish-shape—a pear-shape (pyriform), oval, or obovoid (egg-shape). I prefer a longish shape, because in salads the long slices are very attractive, and if eaten "on the half-shell," the long fruit are easier held in the hand than round fruit, and these are the two most common ways of serving the avocado.

Eben Low's Toothpick Test

The skin should be thick, but not so thick as to make it difficult to determine when the fruit is ripe. (However, for the very thick-skinned varieties, such as the "Panchoy," there is a valuable test for ripeness—the "Eben Low toothpick test." First remove the stem from the fruit, and if it removes easily that in itself is an indication of ripeness; then run a tooth pick through the stem-opening to the seed, and if it penetrates easily, as into butter, the fruit is ripe—although, of course, it may be over-ripe).

On cutting the fruit the flesh should show bright and clear, with almost no sign of fiber, and preferably of a beautiful yellow color (although it is always green next to the skin). Any color, between green and yellow, will do, providing it is bright and clear, not muddy.

The texture should be fine-grained, and it should cut like soft cheese; and it should have that high, rich flavor and aroma, so agreeable to the taste and smell, which we all understand, but which we cannot describe. The fruit should be at least partially immune to diseases and defects—especially to "black-spot," which is a term used in Florida for a fungous disease (or diseases) that causes areas of the skin to turn black, with decay of the flesh underneath. "Blackspot" and "anthracnose" may be synonymous terms— I do not know. Most of our pure Guatemalans, and, to a certain extent our hybrids, are more or less subject to the "blackspot." Also, in judging a variety, experience must prove the fruit to be a good shipper.

The Ideal Tree

From the grower's standpoint no variety is of any account unless the tree is a good one. What is an ideal tree? My answer would be a variety that can be easily propagated; has a rapid, vigorous growth; an upright habit of growth of the main branches as distinguished from a drooping or sprawling habit; has numerous branchlets for plenty of fruiting wood, and abundance of leaves, which are not easily shed, so that the fruit is well protected from sun and wind at all times of the year.

The tree should not be too tall, but rather bushy in shape. It should be wind-resistant, with branches that bend rather than break. There is a type of tree with long, willowy and numerous branchlets, that is particularly resistant to wind. Examples of this type are seen in the "Ishkal" and the "Wagner." The ideal tree should be hardy, resistant to root and branch diseases, and to pests—such as "red spider." Many varieties suffer from "die back" of the branches—which often ruins the tree or even causes its death—which comes on especially after heavy blossoming or fruiting.

The ideal tree should be prolific and a regular, yearly, bearer. It should not exhaust itself in too heavy blossoming; nor should it exhaust itself in a too heavy setting of fruit, most of which soon drops off—as is the case with the Mayapan. The fruit should be evenly distributed over the tree, on the inside where it is protected from sun-burn and the

weather, and above all, it should stick and not drop off. A common fault of trees is a scarcity of branches, and the long slender branches, under heavy weight of fruit, will sag toward the ground, pulling the tree all out of shape, and causing sun burn of the branches. The Kashlan variety is a case in point.

"Itzamna" Near Ideal

The variety that comes nearest to my ideal—as expressed for a rather small fruit—both in respect to the fruit and to the tree, is the "Itzamna", a detailed description of which will be given later. I would give "first prize" to the "Nabal", which seems to be more prolific than the Itzamna and has a handsomer fruit, except for the reason that the Nabal seems to be quite subject to the "black spot", the tree is not quite as strong a grower as the Itzamna, and the leaf-protection to the fruit is not quite as complete.

Seasons: Roughly speaking, the West Indians and Mexicans mature in the summer; the Guatemalans in the winter and spring; and the Guatemalan-West Indian hybrids are half-way between, namely, in the fall.

Five Seasons at Haiku

At Haiku Farm we have divided the year into five seasons: (1) The Summer and September Season (July, August and September), which is covered by the West Indians and two Mexican varieties (the "Gottfried" and the "Puebla"—one tree of each). (2) Our Fall and December Season, which is covered by our Guatemalan-West Indian hybrids and two early-fruiting Guatemalans (the "Dutton" and "Kanola"). (3) Next is what I call our Intermediate Season, a season of natural scarcity (late December and January), which is covered by two Mexican-Guatemalan hybrids (the "Fuerte" and the "Lula") and two early-fruiting Guatemalans ("Akbal" and "Ishim"). (4) Then comes the Late Winter and Early Spring Season (February and March), which is covered by nearly all the Guatemalans. (5) And last of all, we have the Late Spring and June Season, which is represented by three late-fruiting Guatemalans (the "Itzamna", "Wagner", and "Macdonald"). These five seasons overlap each other, with varieties maturing at least a part of their crops a month or two earlier, or a month or two later, than their supposed schedules. Warm weather hastens maturity and cold weather retards. Also please note that our Haiku Seasons do not apply to Kona or to many other localities in the Islands.

Summer and Fall Varieties

I will touch only briefly on the subject of our summer and fall varieties, for the reason that each grower has his pet varieties for these seasons and they are probably as good or better than my own.

Although the West Indians are strictly tropical yet I would say they average less hardy with us than the Guatemalans and certainly much weaker than most of our Guatemalan-West Indian hybrids. Therefore great care must be taken to select only the hardiest and most robust West Indians. Another unfortunate characteristic is that their fruit is more variable in quality, depending on weather conditions, than the other types. Often a West Indian that is about perfect in quality if its fruit matures in fairly dry weather, will be watery and insipid if the fruit matures in very wet weather— just as the "Common Hawaiian" mango becomes watery and tasteless in wet weather as compared with the Indian "Pirie" mango which is always fine under any weather conditions. There are

exceptions to this rule, and those exceptions are generally amongst the very rich "butter pears", and some of the "custard pears" are sufficiently stable to be safe.

Also, the West Indians ripen too quickly, which characteristic is only partly due to the warmer weather. I have picked fully mature fruit that have ripened in twenty-four hours. This puts the West Indians in the "very perishable" class even for near-by markets. There are varieties, however, that can be picked before full maturity and will ripen sufficiently slowly for safe shipment to Honolulu.

Summer and September

I have 28 "Summer and September" varieties, and some of the best of them are as follows: The "Perfection" of W. R. Haley, is a grand avocado if planted under favorable conditions. My experience with it is that the mortality of the young trees was too great. It is a heavy bearer of large, pyriform, green, fruit that are about "perfect" as the name implies.

Another fine fruit—large, long, green—is the "Wishard", obtained from Mr. H. D. Wishard of Lihue, Kauai; but the quality is not so good under wet weather conditions. The "Huluamanu" is a wonderfully robust grower and produces a long green fruit of good quality, but in my opinion is not rich enough.

Our "Number Twenty" (true name lost) is one of our very best summer varieties. The tree is a strong grower and produces purplish fruit of about a pound, broadly pyriform, with a medium or slightly large seed, and fine buttery quality of flesh. It is a good bearer, but not as prolific as one would wish. We have one young "Gottfried" tree (Mexican), obtained from Florida, which has borne two crops coming in the summer and September. It appears to be a good grower, although one of my two original trees died without apparent cause. It seems also to be prolific, with handsome pear-shaped, colored fruit that are much larger than most Mexicans—up to about a pound. The seed is medium and the quality of the flesh is super-fine, possibly the most delicious of all my 90-odd varieties. This "Gottfried" may prove to be of great value within its season.

Fall and December

II. We have about 23 "Fall and December" varieties, consisting mainly of our Hawaiian Guatemalan—West Indian hybrids. The best of them are as follows: "Haley Late" or "Haley," one of the best of the hybrids, is probably familiar to you all. There seems to be several other Hawaiian hybrids that are closely similar to the Haley Late—such as the "Abies."

The "Crawford" I obtained from Frank Crawford of Lihue. It has a colored, broadly obovoid, fruit of from one to two pounds; moderately thick skin; slightly large, tight-fitting seed; and flesh of rich, buttery character. The tree is strong-growing, very wind-resistant, and is prolific; but it has one defect in that it is very subject to the red spider, and the fruit are not particularly attractive except when very large.

The "Kanola" is worthy of mention on account of the superior character of its fruit and handsome appearance. It is a Guatemalan—one of the Wilson Popenoe collection from the Guatemalan highlands. It has an odd shape like a grape-fruit (oblate). The skin is colored; the seed is very small, and the flesh is of fine, rich quality. But the tree is not easy to detect between scion and stock, and it is not prolific.

The "Cockett," obtained from Mrs. Pia Cockett of Waikapu, Maui, would be one of our best varieties for this season if it were more wind-resistant. The present tree is one of the many natural hybrids from the well-known "Case" Guatemalan of Wailuku. It has a colored fruit, broadly pyriform, with a slight crook to the neck; medium seed, that is not always tight-fitting; and fine, yellowish, buttery flesh. The tree is prolific and a good grower where there is little wind.

Wilcox and Dutton

The "Daisy Wilcox," from Mrs. Daisy Wilcox of Lihue, has a fine, medium-sized, green, obvoid fruit, but I think it is not very productive and the branches are too sparse. The "Dutton," of California origin, has attracted much attention from the growers in California. I have not had much experience with this variety, having only two rather young trees in bearing, but the tree appears to be strong-growing and prolific. The fruit is handsome externally and internally; about a pound in weight; a rough, pebbly, maroon skin; small seed, and flesh of fine quality. My impression, however, is that the quality and appearance of the flesh are not always up to par and cannot be depended on. But the variety is well worth watching, and it may prove to be a formidable rival to our many wonderful fall hybrids. Its season seems to be November and December.

Intermediate Season

III. Now we come to the "Intermediate Season" (late December and January.) We have five varieties fruiting in this season: the Fuerte, Lula, Ishim, Akbal, and Collinson. The last mentioned, the "Collinson" has not yet fruited with us, being under a year old, but its season in Florida is January and February, and I feel quite certain that its season with us will be December and January. In Florida it seems to have the highest reputation of any of their Guatemalan-West Indian hybrids. It is a strong grower, wind-resistant, and the fruit are said to be pear-shaped, about a pound, and quite rich in quality, and the tree to be prolific. I have great hopes that this will prove to be a very valuable variety for this Intermediate Season.

The "Fuerte" may be called the Grand Champion of the California avocados. At Haiku it seems to have all the fine characteristics that it has in California, except that it is very subject to "black spot," Unless we can effectually control this disease with Bordeaux or other fungicide—which is probable, although expensive—I would advise against planting any Fuertes. Its season with us begins in November and continues for several months. If we can control the "black spot" it may prove of value to help fill in this lean Intermediate Season.

Guatemalans and Floridans

The "Akbal", one of the Wilson Popenoe collection of Guatemalans, appears to be a stronger grower and a prolific bearer of most excellent fruit, but it is very susceptible to the "black spot". The "Ishim" is a good tree, and it has a good, small fruit, but it is not prolific. The "Lulu" is a wonderful grower and very prolific, but the fruits are decidedly below par (big seed and insipid flesh). I ate this fruit in Florida and it was no better there than here. At one time Mr. George B. Cellon, of Miami—the originator of this variety—considered it the most delicious avocado he had ever eaten. I consider it worthless except for its unusual season. The "Nabal", "Panchoy", "Kashlan", "Linda", and

"Nimliah" are rather early Guatemalans, and an unknown and variable proportion of their crops are sufficiently mature to harvest during this Intermediate Season, especially in the month of January.

Late Winter, Early Spring

IV. We have at Haiku 30 "Late Winter and Early Spring" (February and March) varieties—all pure Guatemalans—and of these I can speak highly of only two varieties, with possibly two or three others, such as the "Tumin" and the "Kashlan", that may come in for high rating when we know more about them. These two varieties are the "Panchoy" and the "Nabal". The most common fault of my many discarded varieties in this group is that they either do not bear, or they set heavy crops and then, sooner or later, all, or nearly all, the fruit drop. This latter weakness is especially true of the "Mayapan"—a heavy producer in the foot-hills of Southern California. I have recently cut to the ground about 600 trees of this worthless variety, and we are grafting them over to useful sorts. For the same reason we may have to treat likewise our 106 "Beniks" and our 79 "Cantels".

In Southern California they have their troubles with the Guatemalans, but I believe that their conditions are better suited to this fickle race than is ours at Haiku. However, the two varieties above mentioned—the Panchoy and the Nabal—with the Itzamna, which belongs to a later season (all three of the Wilson Popenoe collection), do fully as well with us, probably, as they do in California.

Panchoy has Merit

The "Panchoy" is a healthy, vigorous, hardy, bushy, tree; easily propagated; well-branched and well-leaved; wind-resistant; precocious and fairly prolific, bearing nearly every year; does not blossom too heavily. The fruit stick well and are well distributed on the tree. The fruit is large—from one to two pounds—in California it is considered too large—green, obovoid, on a very stout stem; the skin is exceptionally thick—probably too thick—and rough; seed is small; and the flesh is a clear yellow or greenish-yellow, and of excellent quality. The variety is particularly resistant—practically immune—to the "black spot". It may not prove to be sufficiently prolific, and its very thick skin may give trouble in the markets.

The "Nabal" is a strong-growing, hardy, upright, well-branched tree, with particularly handsome foliage, and is easily propagated. Its leaf-protection is not perfect, but I have not observed, as yet, sun-burned trees or fruit of this variety. It is very wind-resistant; very precocious; and exceedingly prolific. It does not blossom too heavily and the fruit stick well and are well distributed.

The fruit is green, about a pound in weight, almost round, and very handsome both externally and internally; the skin is fairly smooth and about the right thickness; the seed small; and the flesh a clear yellowish-green, of rich flavor. The only real defect that I know of is that the fruit is subject to the "black spot"—just how seriously we do not know. The Nabal is the handsomest tree we have on the place, and the fruit are of the best. We have not had much experience with this variety and therefore are a little hesitant about recommending it, but I think it will prove of great value. The "Kashlan" is a wonderful variety, but the fruit often crack badly, and its tremendous crops pull the

tree all out of shape.

Bearers of Big Fruit

There are three varieties, belonging to this February and March division that I will describe together as a group, because all three have the common characteristic of having exceptionally large fruit. They are the "Queen," the "Linda" and the "Nimlioh." All three are rather delicate. The Linda and Nimlioh somewhat resemble each other in their foliage and in the shape of their fruit. They are both rather poor bearers, but under favorable conditions they bear fair crops—considering the immense size of their fruit. The Queen is a very poor bearer, is subject to "die-back" after its too heavy flowering. All three have the "black-spot" rather badly. The Queen is rightly named on account of the beauty of its fruit and its tiny seed, and the Nimlioh should be named the "King" on account of the size and beautiful oval shape of its fruit.

Mr. E. E. Knight, who introduced the Linda and Queen into California, told me that one of his Linda fruit weighed five pounds. The Linda and Queen are colored fruit; the Nimlioh is green. I would recommend planting a few Lindas and Nimliohs in favorable locations, and taking good care of them, but I cannot recommend the Queen. I should also mention the 'Tumin' variety, which belongs to this same February and March group. Our one bearing Tumin tree is now carrying a heavy crop of extremely handsome, good-sized, round (oblate), smooth-skinned fruit. The variety may prove to be one of the best.

Late Spring and June

V. For the "Late Spring and June Season" we have three varieties — namely: the "Itzamna," the "Wagner" and the "Macdonald." The Itzamna is a wonderful tree—easily propagated, strong growing and upright, remarkably well branched and well leaved. It is hardy and wind-resistant, although not quite as wind-resistant as a few others, such as the Ishkal. It is precocious and prolific, and seems to bear every year. It does not blossom too heavily, and the fruit stick well. The fruit is rather small (from three-fourths of a pound to a pound), pear-shaped, green, with rather a smooth skin which is of about the right thickness. The seed is small to medium. Flesh clear and yellowish, of rich, fine flavor. The internal appearance of the fruit is attractive, but externally it is not a particularly good looking fruit. It appears to be quite resistant to "black spot". I consider this an exceedingly valuable variety, and it comes in a season almost of its own—April, May and June.

The "Wagner," a California Guatemalan, would be a wonder, having every desirable quality except that the fruit is not up to proper quality in flesh and the seed is too large. It is very prolific and the fruit may hang on for months—in one instance to as late as October. The "Macdonald" is a Guatemalan of Honolulu origin. It is a good bearer, and the fruit is fair in quality, but the seed is altogether too large. I do not recommend it.

I have not a single variety that has been tested sufficiently long to warrant unqualified recommendation. The time-test is absolutely necessary, and our plantings are as yet too young.

Guatemalan Rating

But the following Guatemalan varieties I can recommend with certain reservations. I

have starred the first three as being the best:

*Panchoy	Nimlloh
*Nabal	Tumin
*Itzamna	Dutton
Kashlan	Akbal
Linda	Anaheim

The following Guatemalans I would condemn as being practically worthless:

Cabnal (tree too weak)

Knight (fruit drops and tree does not stand wind)

Lamat (fruit drops)

Lyon (weak tree)

Manik (fruit drops)

Mayapan (fruit drops)

Sharpless (tree can stand no wind; in a windless region it probably would be valuable)

Spinks (fruit drops)

Tertoh (very poor bearer, and the branches sprawl over the ground instead of growing erect)

Out of a total of 35 carefully selected Guatemalan varieties that we have at Haiku farm, only three—the Panchoy, Nabal and Itzamna—can at present be classed as excellent, and that with certain reservations. It is significant that these three varieties are also held in high estimation in California, and all three were obtained from the highlands of Guatemala by Wilson Popenoe.

In conclusion, I will say that fixed ideas have no place in the avocado business in its present stage of infancy. Even the best authorities are still in the unstable, pioneer stage of opinion. In another year I will doubtless reverse a good deal of what I have said in this report.