

Guatemalan and Mexican Avocados Fruiting in Florida

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The avocado trees which have been commonly grown in Florida for the past fifty or seventy-five years belong to the tropical or West Indian type, which is found growing generally at or near sea level in tropical America. Its season of maturity comes in summer or early autumn, while the Guatemalan type, which is found at altitudes of 3,000 to 5,000 feet in Guatemala and other parts of tropical America, ripens six months later; moreover the lower temperature common to these altitudes render it hardier. On account of these desirable features the government began the introduction into Florida of seedlings of this type fifteen or twenty years ago. About the same time private individuals in California planted seedlings of this type, as well as the still hardier Mexican type, from the adjacent table lands of Mexico. Of these early introductions we have many more that have reached us by way of California, than of those introduced direct by Washington, but in 1916 and 1917 an expedition into Guatemala, headed by F. W. Popenoe, under the auspices of the Bureau of Plant Industry secured budwood and seed embracing the most desirable to be found in that country.

Mr. Popenoe's father, Mr. F. O. Popenoe, is one of the most prominent avocado growers in California, and is responsible for a large portion of the promising varieties now fruiting in both states.

Scores of different varieties which have been brought from California, in the past ten or twelve years, have been generally introduced into our groves by cleft grafting them upon old bearing trees of the tropical type. This method generally produces fruit in two or three years, though the first crop or two is not always normal in every respect and cannot always be relied upon as an exact criterion of what the variety will do ultimately. Out of the scores of different kinds thus tried, probably at least fifty per cent have been discarded because of the development of some objectionable feature. Out of the other fifty per cent I will only mention a few of the best tested and most promising varieties at the present time. However, it must be borne in mind that it takes years to make a fair test of a new variety. Two years ago the California Avocado Association gave official endorsement to some eight different varieties, as being the best suited for commercial planting under California conditions. Of these, six are pure Guatemalan—Taft, Spinks, Blakeman, Sharpless, Lyon, and Dickinson; one Mexican, the Puebla; and the eighth, Fuerte, a hybrid of the two types.

The **Taft** has been quite generally tried in Florida, with generally pleasing results. While it seems to give better satisfaction in some localities than others, it may be classed as a standard sort for the February market. Its fruit is medium in size, pear shaped and green in color; quality excellent and trees, productive, but not precocious, as is the case with some. It seldom bears under four years, and this is a good feature as it then has

attained sufficient size not to be injured by over production, and at the same time, can hold a crop of respectable proportions.

The **Lyon**, on the other hand, tries to bear itself to death during the first year, stunting itself by over production of fruit, and the fruit generally cracks before it reaches maturity.

The **Spinks** is a splendid, vigorous grower, and seems to hold a happy medium between precocity and tardiness. It begins to bear at two years, but has not been fruiting here long enough to establish either its exact season, or its productiveness. For two seasons it has ripened in November, making a round purple fruit of excellent quality that is over a pound in weight. This year it promises to give a more reliable test, as my trees are loaded with fruit.

The **Sharpless** has not as yet fruited, but promises well as it is a good grower. We have no reason to doubt that it will develop the same as in California, where it seems to be the most general favorite of all pure Guatemalans.

The **Blakeman** has fruited at the Miami Experimental Station for two years, producing fruit of excellent quality, green, pear shaped and weighing 1½ pounds, that ripens in January. It seems a good grower, and promises well.

The **Dickinson** has not fruited, but is a good grower, and is promising, though the small size of the fruit is against it as a general market favorite. It has set well this season.

The other two California favorites will be considered under the general heading of the Mexican type. "In the spring of 1914," writes Mr. E. E. Knight, of Yorba Linda, California, "I left Los Angeles for the Republic of Guatemala, to bring back, if possible, buds of the famous hard shelled avocados grown in that country." He spent the year there, and returned with specimens taken from the best trees he could find. Out of these he selected four which he deems of special merit, and all of them are now growing here. Here I will mention that in California seed of Mexican type are easily obtained from across the border, and for this reason if for none other, are generally employed for stock. All the trees that I have bought in that State and planted here have turned out poorly, being, without exception, weak and sickly growers, owing, I have no doubt, to the Mexican roots which do not thrive on southern sand hills.

All my successful trees are grafted on native roots, grafted after arrival here. All four of Mr. Knight's trees are good, sturdy growers, and the Linda fruited this winter. Its fruit weighed thirty-six ounces. Mr. Knight describes it as follows: "Round; 4½ inches in diameter; weight 2 lbs. color, purple; seed, fifteen per cent of weight of fruit." It has set a good crop for 1921. The **Queen** set fruit last year, but all dropped in June and July. It is trying again this season, and we hope for better luck. Its description is: "Pyriform; 5 inches long; weight, 1½ lbs.; color, purple; seed, seven per cent weight of fruit."

The **Rey** fruited this winter, but its fruit was below standard in size, too small for the market. The Knight has not as yet fruited, but is loaded for next winter.

Walter's Royal was fruited by Mr. Hendry at Fort Myers, but the fruit was very small and deemed by him as worthless. From this variety, strange as it may seem, have come two seedlings, which are now among our most popular sorts, and many acres are being planted in Dade county, this year to them. They are the **Taylor** and the Wagner. It seems that there were two seeds taken from specimens of the Royal sent to

Washington for examination, and one seedling was sent to California, while the other was planted at the Experiment Station in Florida and has become our Taylor.

The **Wagner** has been bearing for Mr. Krome at Homestead for two seasons, and he has had fruit as large as twenty-two ounces, though the average weight is considerably lower. Quality is good; color, green; oval in shape; and it seems a free bearer, beginning young. Its season is January.

The **Taylor** has been bearing five or six years and has proven a reliable cropper; of fair quality; medium size; color, green. It strongly resembles Wagner in foliage and habit of growth, but is more vigorous, and not quite equal in flavor. Its season is January. While newer introductions may prove superior, this variety has established a record which entitles it to recognition as a variety of commercial value.

The **Atlixco** has shown superior quality with Mr. Krome, averaging over twenty ounces and running up to twenty-six. Season, February; good grower; productive.

The **Solano** is a great favorite with Mr. Cellon at Buena Vista and ripens with him in December and January. In California they find it low in fat content, but Mr. Cellon finds it excellent with him. All agree that it has a small seed, is of beautiful appearance, a good grower, and productive, though at Homestead it generally drops in October. Avocados often blossom several times, and it may very well be that the October fruit is set by an early bloom, while the later ones at Buena Vista, may have been from a later bloom.

Of the recent Popenoe introductions three fruited here this winter.

The **Nimlioh** (44440.) ripened in March, while samples eaten earlier proved immature. It is a very vigorous grower and two-year-old grafts are generally setting fruit this year. The fruit ripened here closely follows out the official description: "Broadly oval in shape; weight 36 to 45 ounces; the surface is deep green in color, rather rough, the skin thick and woody. The flesh is yellow, free from discoloration, and of excellent texture and very good flavor. Seed medium size."

The **Panchoy** (44625.) ripened in December, and coincided closely with the official description which is as follows: "Very thick skinned, of unusually choice quality. In form it is broadly obovate; in weight, about a pound. The surface is rough, green in color; the flesh, deep yellow, smooth, of very rich flavor. The seed is small."

The **Lamat** (43476.) produced one fruit which was delayed in transportation to Washington and spoiled. It is not as vigorous a grower as the other two. Many others of this importation are setting fruit for next winter's crop.

Of the Guatemalan seedlings imported direct by the Bureau of Plant Industry early in the campaign, and planted in Florida, the **Winslow** has proven worthy of commercial planting. While the size is below medium, it is large enough to be served cut in half as two portions per fruit, placing it on a commercial basis. It seldom weighs under ten ounces. Its season is April, though it may be marketed in March and is then of good quality. This year the first natural dropped fruit was found April 25th, and it will hold a large portion of its fruit well into June. My tree held a maximum crop last year and a similar one this, and has a good crop set for 1921. Squirrels, protected by a city ordinance, have been exploiting the fruit so diligently that I have had difficulty in finding a dozen which had not been nibbled by them to send over to Ocala, and Mr. Niles will

see that those interested may have a chance to sample them. I offered some at the last meeting which was held in this place, but forgot to pick them long enough ahead so that none were good to eat until the close of the meeting, when most people had gone home. This year I picked them upon the first of May, and they should be mellow by the 4th and 5th.

A seedling from the above was line grafted by Prof. Rolfs at his place at Buena Vista upon an old stump, so that it bore two years from the seed, and it ripened last November. In shape and quality it very closely resembled the parent, but weighed 28 to 36 ounces. The skin was smooth and glossy, and this, taken with the early ripening season and size, makes it most probable that it is a natural hybrid with the tropical type. It has not yet received a name.

Collins and Colla, the other seedlings, have proved reliable bearers, but of too small size to be of commercial value.

The Guatemalan type is distinguished by tight seeds, and thick, woody rind, both valuable qualities for shipping. While the Mexican type, originating in the colder table lands of Mexico, are thin skinned; seeds often loose in cavity; and generally the fruit is very small, though very rich in fat. This type is distinguished by a characteristic anise odor belonging to the essential oil, present in sap and foliage, and sometimes in the fruit to the detriment of its market value. Coming from regions often visited by frost, and sometimes ice and snow, it is very frost resistant, which makes it of great interest to middle and northern portions of Florida.

To prove how far north this type may be successfully grown, I have written to Alachua County and obtained a letter from the owner of one of the old avocado trees there, who is Mr. C. C. Shooter, of Earleton. He writes as follows: "While my tree has not so far been a heavy bearer" (this would not be expected from a seedling in any event) "we have had some fruit nearly every year, and I consider it the most valuable tree on the place, and we look forward to the ripening of this fruit with greater pleasure than any other. The tree has never been injured by a freeze. The cold three years ago took off some of the leaves, not by any means all, and there was even a little fruit the following summer. I have carefully watched the effects of frost on the bloom. On two occasions it stood at 28, the last time combined with heavy white frost, without any injury. and following this cold there will be quite a good crop this summer, the biggest it has ever had. The fruit is now as large as cherries. It is worthy of notice that the avocado bloom stood 28. The peach bloom was injured by a much lesser degree of cold later in March, and the entire Le Conte pear bloom entirely killed.

"The tree is a Mexican seedling sent out by the Department of Agriculture probably between 1895 and 1898. It is now over 35 feet high, and measures 52 inches in circumference at the ground. Has never been cut back or injured by cold; stood 18 degrees of cold with only the loss of a few leaves. Fruit pear shaped and small. Purple when fully ripe. Quality, very rich and delicious."

From California, the **Fuerte**, a hybrid between Guatemalan and Mexican types, with tight seed and brittle rind of the former and the thin skin, high percentage of fat and anise odor of latter, is a very promising fruit. It seems about as hardy as the true full Mexican, and combines many of the advantages of both types. Like Solano there is

some difference of opinion as to its season of ripening, but this is probably due to the different blooms, as explained with regard to Solano. Fruit has matured in November, December, and January at different places, but I think it may be set down as a January fruit. California analysis gives it more fat than the average ripe olive, and nobody has ever taken any exception to its vigor and productiveness. Mr. Cellon complains that he has found hard spots injuring the quality in some instances, but this complaint is not general. My own fruit has dropped early (November and December) but I lay it to early bloom, and young grafts on old stock. Weight one-half to one pound. Color green.

The **Puebla**, the other Mexican adopted by the California Association, has not as yet ripened fruit in Florida, but is a good grower, and promising

The **Harman** produces a small fruit with a glossy greenish-purple surface and loose seed. Flesh, cream color, of fine buttery quality and rich flavor. Good grower and heavy bearer, ripening in July and August.

The **San Sebastian** is a tremendous grower, on West Indian roots, and ripens in June and July, when good fruit is very scarce. It is a good bearer, of excellent quality, though averaging small (10 to 11 ounces, sometimes reaching 13) is large enough to be commercially valuable.

The **Gottfried** is a seedling of Mexican type from seed sent over from South America. The original tree is enormous, and the fruit is the largest of the Mexican type I have ever heard of. It averages about a pound and runs up to 19 ounces. Pear shaped, purplish-black; seed inclined to be loose and skin peeling readily. Quality excellent, free from fibre or essential oil twang; rich and smooth yellow meat. Season, August.

While there may be, and probably are, many varieties under development and test that will prove superior to some that have already been tested out, we have enough tested sorts, of known value and qualities to enable Florida to have avocado fruits ripen every month in the year in the more favored parts, and in the colder sections to have reliable corps of this most valuable fruit, which may be depended upon when oranges, peaches, and true pears are frost killed.