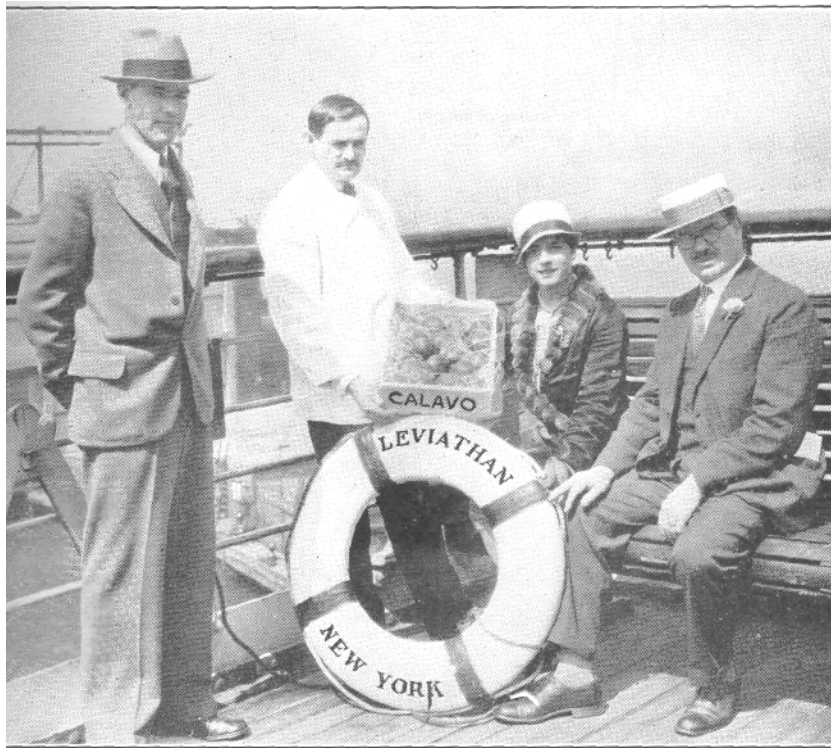


THE AVOCADO IN NORTHERN CALIFORNIA

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United States Department of Agriculture



Calavos Used in Dining Rooms of Famous Liner

The rapidity and enthusiasm with which the avocado is now being planted in California and its value as human food justifies an investigation to determine the extent of territory where gentle winter climatic conditions permit its successful culture. This paper is a report of observations in various regions from Bakersfield on the south to Oroville on the north, where the tree is now being successfully cultivated.

Humbolt pronounced the palm the princess of the vegetable kingdom. This being true, there can be no question but that the avocados are aristocrats of the noble family. The beauty of the glossy, evergreen foliage, the elegance and lusciousness of its fruits entitle the tree to an exalted position in the horticultural royal family. The fact that by selecting proper varieties, mature fruit fresh from the tree can be had every month in the year adds greatly to its value.

The San Joaquin Valley

Beginning at the southerly end of the great San Joaquin Valley and continuing north, a few trees are found at Bakersfield. One of the most notable specimens in the valley, now about 25 years old, still bearing its annual crop and never injured by frost, is in the city of Visalia. A Mexican lady, the late Mrs. Anderson, told the writer that she raised the tree from seed she brought from Chihuahua, Mexico. At a fruit grower's convention in Visalia, mentioning that such a tree was in existence, about 20 members expressed a desire to see it. Piloted to the locality, the lady was surprised and at the same time elated at the interest taken by expert fruit growers in her tree. It produced 100 fruits as far back as 1917, and it had a good crop during the past year. It may be worthy of the attention of the variety committee of the Avocado Association. Proceeding north I found two large thrifty Mexican trees near Reedley. Milton Deering and Kirkman, Nurserymen also have plantings 20 miles east of Fresno.

A recent visit to Modesto disclosed a number of large specimens that have not been seriously injured by frost, though a few dead twigs showed the effects. One of these trees is about 15 years old and is carrying a good crop at the present time. It is well out in the valley, and in what is naturally a frosty region. One grower has 5 varieties worked on one tree and bearing annual crops of 250 to 300 fruits.

Following north along the foothill regions we find scattered trees doing well along both shores of San Francisco Bay. Scattered trees are found at Mission San Jose, Berkeley and Belvedere on the east and at Los Gatos, Saratoga, Palo Alto, Sausalito and San Rafael on the west. I have never seen more vigorous and fruitful trees than the dozen on the grounds of Mrs. Mary H. Harman, at Belvedere, including the Queen, Spinks and others. All these trees on March 22 were blossoming for the new crop and ripening the old. All seem to enjoy the damp cool air of the bay region, not a leaf showing the slightest injury from frost or wind.

The Santa Clara Valley

Several hundred bearing trees are located in the hill regions on the west side of the Santa Clara valley, the most notable collection being that of Mr. R. W. Hills, near Los Altos, and those on the campus of Stanford University. The following letter from Mr. Hills of Hills Bros., coffee merchants, a member of the Avocado Association, contains so much valuable information it is largely copied. He says:

San Francisco, Cal.

July 23, 1927.

Mr. G. P. Rixford,
1813 Pierce Street,
San Francisco, Cal.

Dear Mr. Rixford:

Responding to your request for some of my experiences in avocado growing in Santa Clara County, I would say I first planted in the spring of 1915- We have Taft, Fuerte, and Blakeman, as well as several varieties that have since been discarded. The next year

we omitted any planting, but the following year and ever since, we have made it a point to put out a few specimen trees of every variety that was favorably spoken of.

The climatic conditions in the Santa Clara Valley differ from those of the South in the following respects: The nights of April and May are all much colder, running from thirty-six to forty degrees temperature. This slows up the growth and retards the setting of the spring foliage. All varieties seem to make up for this delay, however, and it has no particularly bad effect, except in the case of Taft, this being the very last tree that puts out new leaves, and if any hot weather comes before this foliage is toughened up sufficiently to resist it, the results are very injurious. We had one tree that had set a very large crop last year for the first time, but during the latter part of June the temperature went to a hundred degrees, and the foliage was withered and the entire top fruit lost. None of the other trees in the orchard were affected. The cold nights of April and May also have the effect of increasing the time it takes for a tree to come to maturity. At the time I first planted in the Santa Clara Valley, we put out some trees on our place in Tulare County. These trees fruited two years before those in the Santa Clara Valley. The season of fruiting is also somewhat retarded I think a month or six weeks later on most varieties.

Most of the varieties that have proven unsatisfactory elsewhere have also been so with us.

The Fuerte behaves with us as satisfactorily as it does at any place in the State, so nothing more need be said of that variety.

I think our Challenge trees are the best growing ones we have on the place. The trees are large and vigorous and produce a very heavy crop every other year. I notice there has been a great deal of criticism in regard to the quality of the Challenge in the past year or so, but think it is because they have not been sufficiently fertilized. A tremendous crop of five hundred pounds of fruit takes a lot of fertility from the soil and unless this is replaced the fruit will naturally lack in quality.

The Mayapan sets fruit about as young as the Lyon and seems equally prolific. We had fruit for the first time last year, but for some reason it was not very satisfactory. The trees are looking well this year though, and I am hoping the result will be better.

I am beginning to think that after all, with all of its difficulties in the past, the Lyon is going to be a very valuable tree for the Santa Clara Valley. It produces regularly large fruit and certainly lacks nothing in quality. We have a few trees at the bottom of a ravine, which is the coldest spot on the grounds, and they have gone through one or two extremely cold winters, and while they seem to have suffered very badly, they have recovered, and the gardener reports that one of the trees must have at least 150 fruits this year. Another advantage of the Lyon is the fact that on account of being small and sheltering its fruit well, it does not suffer in a gale as badly as some of the larger trees. We had a very big crop of Solanos and a good setting of Dickinson and Sharpless, all three varieties being very tall, trees and we had three heavy gales this past winter, during which nearly all of the fruit was blown off, while I don't think we lost one of the Lyons.

The Colorado does well, setting large crops in alternate years, with a small crop other

years.

The Dickinson also is very satisfactory, setting a crop on alternate years. The fruit is of good size, and of good quality, if cut at the right time.

We have put out a good many of the new varieties in the past few years, but they have not fruited yet. Those that did set fruit this spring, lost it all during the hot days in the latter part of June. However, we have not very many spells of hot weather, as you know, in the Santa Clara Valley and it usually comes at a time when the trees are well prepared to resist it.

As a whole, I am very well satisfied with the results of my experiment, but, of course, it will take several years yet before we are able to make a fair comparison of this section with the Southern part of the State.

In a later note Mr. Hills says:

"I might add that I am more convinced than ever that the Lyon is a good tree for the Santa Clara Valley. I was down there yesterday and found that while the hot weather had caused a great many young fruit of all varieties to drop, it had not disturbed the Lyon, so we have a tree that has survived the heaviest gales, cold weather and hot weather. The fruit is large and of good quality, and it comes in bearing early. I certainly can recommend it highly for any Santa Clara plantings."

In a more under date of March 21st last, Mr. Hills says:

"Some years ago we received some seedlings from Washington. They arrived in very poor condition and we had considerable difficulty in making them live; however, two survived, one of which is now in fruit for the first time, but the quality remains to be seen.

Among the "Northrup" seedlings we had one that developed a satisfactory fruit, which seemed to be a cross between a "Puebla" and "Northrop There were only two or three fruits last year, but they were delicious—rich and as fine flavored as any I have ever tasted. They mature in the fall, at the same time as the original "Northrop". This variety would seem to be just what we want, as the "Puebla" does not reach maturity with us until February; that is as the usual thing. We are now picking them at the present time—March 21—so this new "Northrop" seedling answers our need for a fine quality fruit that would ripen in the fall."

Under date of April 27, 1928, Mr. Hills writes as follows: "I did not mention anything about the government introduced Guatemala varieties, for the reason that few of them had fruited with us. This year, however, we have a few of them in fruit and all of them are old enough to set fruit for next year, so we hope to be able to make an intelligent report by that time. The trees are growing wonderfully well, and I have every reason to believe they will be as satisfactory here as they are in the South. We have 200 trees, running in age from thirteen years down to one year. This also includes grafted trees. We have at present about thirty-five varieties and have dropped about a dozen in the past."

It is perhaps not necessary to add anything to the interesting letters from Mr. Hills' on the cultivation of the Avocado in Santa Clara county, except to say that there are many

bearing trees at Los Altos, Saratoga, Cupertino, Los Gatos and Santa Cruz, located chiefly in the hill region of the western side of the valley. Dr. Smith at Los Gatos, has a large fruiting tree, not injured at 21 degrees and bearing good crops. George B. Hodgkin, manager of the Calavo Growers, Inc., stated to the writer a few months ago after a visit to the region, that from his observations he was satisfied that in the hill region of the west side of the valley there were hundreds of acres of land on which the Avocado can be successfully grown. As evidence of the climate I may mention that at my Los Altos place the citrus family are thriving, lemons, red and yellow guavas, cherimoyas, fruit bearing passion vines and sapote blancos have passed four winters uninjured without protection and are bearing.

In Napa Valley there are two mature trees, one at White Sulphur Springs and one at the Chase place near Yountville, the latter at least twenty years old and had never blossomed when last examined. It was raised from a seed brought from Central America by the father of the present owner of the place, who was once United States Minister to a republic there.

Sacramento Valley

In Placer County about 6 miles north from Loomis, an avocado plantation was started about 15 years ago at Rock Springs Schoolhouse. The original plantation consisted of 75 trees of several varieties.

In a few years nearly all but the Mexican varieties were wiped out by frost. A recent visit by the writer showed a dozen trees surviving, 7 of the oldest are producing good annual crops, and are in a very thrifty condition, 5 younger trees are thriving but not bearing. The plantation is in good loamy soil on moderate sloping ground in front of the farmhouse.

In other parts of the Sacramento Valley are notable trees. At Oroville is a large tree on the grounds of Dr. Newbold. It is about 16 inches in diameter and 40 feet high, while there are others scattered about the town, but the most development in Butte County is at a semi-tropical region known as Sunny Slope, about 13 miles from Oroville, and 6 miles from Bangor. This favored district was first brought into public notice by a Mr. Benedict.

For lack of sufficient capital his enterprise was a failure and the property came into the hands of the present owners, with T. F. Hornung, superintendent and manager. The tract of land in the hands of the present owners is about 5,000 acres. A considerable portion of the acreage is being sold at \$250 an acre cleared and \$150 per acre uncleared. The soil is the characteristic Sierra foothill red loam, known as Aiken loam. The water supply is abundant at \$5.00 per acre.

The original owner planted about 1,000 Mexican seeds in nursery rows, which the present owners once proposed to uproot, but Dr. Galloway, at one time Chief of the Plant Bureau of the United States Department of Agriculture, saw the young trees and suggested that as they were two feet apart and growing thriftily, they be retained until fruiting, as valuable varieties might develop. The suggestion was approved and resulted thus far in the development of five fine varieties. These are all valuable trees and include the *Duke* and *Benedict*.

The Sunny Slope owners have about four acres in permanent location, including the following varieties: Duke, Ganter, Northrop, Fuerte, Puebla, Hartnan and Challenge and about 50 seedlings. Most of these budded trees are bearing this year. The Duke tree, the owners think, is one of the best for this region. The original Duke tree last year produced a crop of 26 dozen and this year is carrying an estimated crop of 52 dozens. The Northrup is loaded with 1,000 fine fruits, some branches bending down with clusters like grapefruit. The total crop this year is estimated at 1,500 dozen.

The elevation above sea level at Oroville is 170 feet, and at Sunny Slope 600 feet. At both places the winter climate is mild enough to permit all the citrus family, strawberry, guavas, sapote blancos and other semitropical fruits to thrive. I have never seen more thrifty avocado trees in any part of California. The temperature record for a number of years shows the following minimums: 1913, 26 degrees, 1921 24 degrees; 1926-7, 32 degrees.

Other planters in the locality are Dr. Webber and Professor Biolett. of the University of California, H. E. Higgins of Cleveland, Ohio, and A. Bi Rhodes, all of whom are developing their lands.

Mr. Higgins is an enthusiastic grower having planted 600 trees last year and 600 this year. He is heartily in favor of reducing the prices. He believes that reducing the price one half thereby placing the fruit within the reach of people of moderate means will so increase the demand that the growers will greatly increase their profits. I hear general complaint that the avocado is now a luxury for the rich.

It does not seem advisable to go on with the extensive planting as at present. The experience with raisins, prunes, cling peaches and apricots, all facing over production, should admonish growers that there is a limit to the world's consumption, even of as choice a fruit as the avocado. Growers should not be buoyed up with fantastic dreams of riches that the avocado can be grown only in the southern portion of the state. I do not mean to tell you that the markets are already saturated but to caution you of trouble to come if the present rate of planting is continued.