

Mexican Avocado Exploration— Searching for an Ideal Avocado

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During recent years, the major project of the Variety Committee of the California Avocado Society has been to locate an avocado, with all the commercial advantages of the Fuerte and the additional virtue of bearing regular consistent heavy crops.

With this purpose in mind an intensive search is being made throughout Southern California avocado districts and a number of promising seedlings have been found. These are being tested under various climatic conditions in plots established by the variety committee in cooperation with the University of California. However, it was felt that the search should be extended to include some of the avocado growing districts of Mexico where several of our well known varieties originated. Accordingly, an expedition to that country was planned, not as an Avocado Society project but entirely as a private venture, privately financed. Difficulties and objections had to be overcome and the project was finally carried out mainly because of the enthusiasm and efforts of Mr. H. B. Griswold of La Habra, California, who has contributed so generously of his energy, time and funds for the general advancement of the avocado industry. Several members of the variety committee had originally planned to make the exploration together but unfortunately the others who intended to go were unable to do so. Consequently, it fell to my lot to make the trip alone, starting out in November, 1941.

To those who helped with financial support of the exploration and to those who helped in working out the plans I wish to express sincere appreciation. Mr. Carter Barrett, who had been in Mexico in 1938, was very helpful in providing letters of introduction and securing through correspondence the approval of Mexican officials. He also obtained from the United States Department of Agriculture the permits necessary for introduction of bud wood and scions so that propagating material could be sent to him by mail. To Mr. A. D. Shamel of the United States Department of Agriculture at Riverside, California. I am particularly grateful for many helpful suggestions and much pertinent information about the localities investigated. His several visits to Mexico and his recent study of the summer fruiting avocados of that country make him a most valuable authority. In Mexico City, Mr. L. D. Mallory, Agriculture Attaché of the American Embassy, was very helpful in arranging interviews with various officials of the Mexican Department of Agriculture. These officials were much interested in our project and offered to cooperate in any way possible. They were able to supply considerable information of a general nature regarding the types of avocados grown in different localities.

In order to save time and energy the trip was made by rail from Los Angeles direct to Mexico City. Several days were spent in Mexico City gathering information and visiting fruit markets. There are large public markets in all cities of any size in Mexico and

looking over the fruit in these markets was one method of approach in hunting for the type of avocado we were attempting to find. Incidentally, a wide assortment of merchandise is sold in these markets, subtropical and tropical fruits of many kinds, live pigs, live poultry, meat, fish, vegetables, grains, beans, furniture, pottery, and various other new and second hand articles too numerous to mention. Much of the merchandise offered for sale, including food, is displayed in piles on the sidewalk or pavement. These colorful, crowded markets furnish an interesting study of many phases of Mexican life. I went to the produce markets regularly in all the cities visited, hoping to find the type of avocado for which we were searching. Occasionally there was a fruit that looked promising but for the most part there were few if any avocados that would be acceptable to the American trade. When a fruit was found that in a measure approached our standards it was very difficult to trace its origin from the market to the producer.

After making such contacts as seemed advisable and completing arrangements in Mexico City, exploration in the avocado producing districts was started. Travel about the avocado districts was accomplished by hiring automobiles and drivers locally, and supplemented by much leg work. Considerable time was spent in the valley around Atlixco in the state of Puebla because this was considered the most likely section in which to find the type of avocado wanted. The probabilities are that the ideal fruit will be a hybrid between the Mexican and Guatemalan races of avocados. Here in the vicinity of Atlixco there are both Mexican and Guatemalan types intermingled as in no other place, and hybrid seedlings in great numbers are to be found. Avocado production is scattered over a considerable area along the eastern base of the great snow-capped volcano Popocatepetl. Most of the avocados from this region are grown at elevations between 6000 and 7000 feet. The climate is mild with only occasional frosts. Ample experience proves that avocados originating in this locality thrive under California conditions as a number of importations of budwood from the Atlixco district have previously been made. By far the most important of these introductions were made by Mr. Carl Schmidt in 1911. The Fuerte was one of those.

FEW IF ANY BUDDED TREES TO BE FOUND

A great many of the avocado trees in Mexico are located in small home orchards, while others grow more or less wild, singly or in groups along roadways, in open fields, and scattered through the canyons of the rolling hills. Regular commercial plantings of avocados on a large scale are very rare. Most notable is the Rodiles grove several miles south of Atlixco. Here is a planting of several thousand avocado seedlings of various ages set out in regular orchard form about 24 feet on the square. The fruit produced here varies greatly as to size, shape, quality and season of maturity. This grove has recently been increased in size by planting a large additional block of young seedlings. In answer to my inquiry regarding the advisability of budding or top working these seedlings to secure more uniform quality and greater production the owner said that he had considered it but did not think this would be worth while.

This grove is an excellent place to observe the variation in seedlings; but with no tree production records, appraisal of the trees in a planting of this size involves considerable guesswork. As we had anticipated, reliable production records are even more scarce in

Mexico than in California. Those of you who have done field work with a variety committee know what that means. However, the fellow with only a few trees usually has a good idea of which ones are producing regularly.

In the Rodiles grove one vigorous, well-shaped seedling was located that bore good-looking fruit somewhat similar to the Fuerte. An aluminum tag marked M.A.E.1 was attached to the tree for future identification and colored pictures were taken of both fruit and tree. The fruits which I collected from this tree in November did not soften satisfactorily as they were evidently immature at the time. Bud wood and scions were sent to California by air mail. I understand this material arrived in good condition but at a most inopportune time, i.e., during an intensely hot dry spell with humidity at Los Angeles the lowest recorded in fifteen years. As a result propagation was extremely difficult and the grafts have not survived the winter.

There are a great number of odd and interesting avocado seedlings in Mexico but it was felt that little would be gained by importing bud wood from trees that did not meet our exacting requirements. It seemed most important to devote the limited time available to the search for heavy bearing trees producing Fuerte-like fruit or fruits which would approach our present standard of excellence.

Investigation in Atlixco and vicinity of various seedlings reputed to bear superior avocados proved to be interesting but located no fruits of the type wanted. Ideas as to what constitute a desirable avocado vary greatly in Mexico as elsewhere. Their terms "Chino," "Pahua" and "Corriente" are commonly used to broadly classify the avocados of Mexico. Growers have decided differences of opinion as to how their particular fruits should be classified. Any avocado approaching our standard of excellence would definitely be "Chino" to the Mexicans.

MOSTLY MEXICAN RACE AVOCADOS IN MICHOACAN AND URUAPAN

The avocado growing districts in the state of Michoacán were reported to have many fruits maturing in the winter and the trip to this state was undertaken with high hopes. However, practically no mature avocado fruit was found there at the time of this survey in early December. Many of the trees were then in bloom or had recently set a crop of fruit. Growers reported that their avocado shipping season was from about February to September, the peak coming from May to July. The avocado industry of Michoacán centers mainly in the beautiful rolling hills and valleys adjacent to the city of Uruapan. Large quantities of avocados are shipped from Uruapan in season and the industry is of considerable importance to that district. The majority of the avocados produced here are the dark, thin-skinned Mexican type. The elevation is about 5200 feet, climate is mild but frosts are occasionally experienced.

Near Lake Patzcuaro on the estate of General Cardenas (ex-President of Mexico) is a planting of several acres of avocado seedlings probably 12 or 15 years old. These are set out in regular orchard form and have been well cared for. The superintendent said the grove had borne practically no fruit at any time. This may be due to the cool climate, the altitude being about 6800 feet.

At the time this survey was made, in November and December 1941, the , only locality

I visited in Mexico where avocado trees were found to be maturing their fruit in any quantity was in the general vicinity of Atlixco and the surrounding villages. This was said to be the only district in Mexico where avocados are harvested throughout the year.

At the suggestion of Mr. Carter Barrett a careful watch was maintained for the disease known as sun-blotch but no trees were observed in Mexico with the symptoms characteristic of this disease.

Two insect pests were found to be infesting avocado trees in most places visited. One of these is a small insect causing leaf galls. In many instances the avocado leaves were so deformed by these galls as to be hardly recognized as leaves. How much actual damage results from the avocado leaf galls is a question. The trees apparently thrive in spite of the pest. Many trees seem to be immune and free from galls although surrounded by others badly infested.

The second pest observed is a small borer which works in twigs, branches and trunks of the avocado trees. These borers seem to be particularly active in the Atlixco district and were doing considerable damage to both young and old trees. I saw one grove of young avocados in which the trunk of each tree had been painted with crude oil to kill the borers working there. Probabilities are the borer was not all that succumbed as a result of this treatment. The presence of these borers on many trees make it difficult to find clean bud wood or scions and every precaution should of course be taken to prevent their introduction into the United States. The avocado seed weevil is also a pest of major importance in some parts of Mexico.

On several occasions avocado trees of tremendous size were observed which were, no doubt, at least a century old. Definite information regarding their age is lacking however. Some of these trees were infested with borers and leaf galls but otherwise appeared to be healthy. Around the ancient Aztec village of Tochmilco nestling on the side of Mt. Popocatepetl a number of such large trees were observed which still bear good crops of fruit They were of the Guatemalan type and were reported to be distinctly alternate bearers. Several of these trees bore fruit, similar in size and shape to small Nabals, which were highly prized locally and classed as "Chino."

Budded or top worked trees are a rarity in Mexico. In only two cases were budded avocado trees found on this survey and these were both in home gardens. Growers expressed doubt that top working or budding their seedlings would be worth while. One Mexican government official who is well aware of the possibilities of budding and grafting avocados said that he had tried to introduce these methods of propagation for a long time. He was greatly disappointed that he could arouse little interest in this type of work.

"Corriente" or small avocados of indifferent quality are abundant and cheap in Mexico while "Chino" or quality fruits are in demand at relatively high prices. In view of this it is odd to find such lack of interest in propagating the better avocados.

While this was not intended as a pleasure trip, many delightful experiences incidental to the work involved leave most pleasant memories of the country and its people. A friendly, helpful attitude was characteristic of all classes of people and their reputation for hospitality is well deserved. The only serious difficulty experienced was temporary

physical disability, not at all uncommon to Americans traveling in the country. Anywhere in Mexico, but particularly in the smaller towns, food and drink is a problem for an American—what to eat and what to leave alone. I soon learned to throw caution to the winds and partake of whatever was available. This greatly pleased my Mexican companions and various hosts. It was explained that they had been embarrassed, at times, by Americans who were too skeptical of Mexican food. These emotional, pleasure-loving people are delighted to accept you as a friend if you accept them and their way of life "as is."

Before returning to the United States I had hoped to explore the avocado districts of Oaxaca and to visit the Atlixco section again to continue the search in that most promising territory. However, declaration of war by the United States made it advisable to return to California where other matters required immediate attention.

There is no limit to the amount of exploration for avocados that could be carried on in Mexico, but the going is slow and the results of course highly uncertain. There may be no tree that meets the exacting standard we have set up. "Looking for a needle in a haystack," you may say. Yet perhaps not an entirely hopeless task. Some day some one may locate just what we are looking for. It might be in the highlands of Mexico. "¿Quien sabe?"