

The Fuerte Avocado

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It did not occur to those who were responsible for the introduction of the Fuerte avocado that it had potentially so many of those important qualities necessary in a commercial variety. The Fuerte today is recognized as the typical avocado, and in the continued search for new varieties the effort has been directed toward an avocado, green in color, pyriform in shape, and from 6 ounces to 12 ounces in weight.

In California, the Fuerte is the main commercial variety, and is grown in all districts in southern California except the extreme interior, although more ideal weather conditions for fruit set are found in intermediate areas.

The California acreage of avocados of all varieties, according to the California Crop Reporting Service, is 15,271, of which 10,662 acres are planted to Fuerte.

The acreage of all varieties by counties in southern California is as follows:

San Diego	8634
Los Angeles	3466
Orange	2140
Santa Barbara	368
Ventura	508
San Bernardino	63
Riverside	59

During the latter part of the year 1911, Carl B. Schmidt, explorer for the West India Gardens of Altadena, spent several months in southern Mexico looking for promising varieties; and sent budwood from nearly 30 varieties from Atlixco. The Fuerte was number 15 of this group of introductions.

The valley of Atlixco and the city by that name is located in the state of Puebla approximately 75 miles southeast of Mexico City. It has an elevation of 6000 feet and a climate in which the maximum temperature is about 90 degrees and the minimum above 32 degrees. The humidity is somewhat higher than in southern California. The rainfall season is from June to October. Irrigation water is available as gravity flows from the mountains during the dry period of the year. It will be observed that the climate of the home of the Fuerte is mild with less variation in temperature and humidity than in southern California.

The soil is of volcanic origin, the texture being sandy or sandy loam.

As already stated, the buds from the original tree at Atlixco were sent to the West India Gardens, Altadena, in 1911 as number 15. The name Fuerte, meaning hardy, was later

given to the variety because the budlings resisted to a certain extent the low temperatures of the 1913 freeze.

Fifty of the first progeny budded trees were purchased from the West India Gardens in March, 1914, and planted by J. T. Whedon on his place at Yorba Linda, this being the first Fuerte orchard of the many hundreds of commercial ones now a part of the avocado industry of California. Regarding his planting, Mr. Whedon stated (October, 1916) that the number of fruits per tree varied from 2 to 54.

Of the many varieties which he planted at the same time as the Fuerte, he reported the Fuerte and the Dickey were the first to produce fruit.

Two years later, after six years experience with budded avocados and five years growing the Fuerte, Mr. Whedon wrote in the 1919 Yearbook of the California Avocado Association, "of the 21 varieties planted in 1914, the Fuerte is the only one proving entirely satisfactory."

The Fuerte, both tree and fruit, has qualities and characteristics which have been in a large measure responsible for the popularity of this variety with the nurseryman, the grower, the shipper, and the consumer. The tree has a tendency toward a spreading habit of growth but can be trained to make an upright tree. Because of this spreading growth, the tree can be developed to cover a comparatively large space and confine a large proportion of its bearing surface close to the ground, resulting in a lesser picking expense. For greatest efficiency, the planting of a Fuerte orchard should be planned, considering a program of thinning by removal of trees, in an effort to develop an orchard of the best producing ones with a maximum of fruiting surface.

From the nurseryman's standpoint, good buds are usually obtainable and budding to seedlings is comparatively easy.

The Fuerte is more resistant to frost than the Guatemalan varieties but less so than Mexican, or thin-skins. It can be grown in areas where lemons are grown, but must have the same frost protection as lemons.

The variety is less susceptible to greenhouse thrips than some other varieties, but the comparative susceptibility to this pest is not fully known.

The marketability of the fruit is excellent, and because of its excellence in flavor and keeping qualities, it has given very satisfactory consumer acceptance. The fruit is so well known in the markets that the color and texture of skin, shape of fruit, and size of the Fuerte is considered a standard for judging the values of other varieties. The fruit is green, the skin slightly pebbled and leathery, and the shape pyriform. The size varies, according to conditions, from 6 ounces to 14 ounces. Flavor of the flesh is excellent, usually with no fibre, and an oil content when mature from 12 to 22%.

The results of the trials of the Fuerte by Mr. Whedon and others were so gratifying, that by 1920 budwood was in great demand. About 3 trees in the Whedon orchard at Yorba Linda became the source of buds for many of the orchards planted during the next few years. Planting Fuertes in commercial orchards received quite an impetus, and much acreage was planted at Vista, Escondido, and other locations in San Diego County; Yorba Linda, La Habra, and several other districts in Orange County; La Habra Heights, North Whittier Heights, and other portions of Los Angeles County; as well as other

locations throughout southern California.

During the period 1920 to 1930, a considerable portion of the present acreage now in Fuertes was planted.

A large acreage was planted by sub-dividers, the orchards used as a means to dispose of lands and resulting in several cases in developing a new business center.

There are three more or less distinct climatic zones in southern California where nearly all the avocado acreage is located. They are the coastal, the interior, and the transitional (or intermediate).

The Fuerte is most successful when grown in the transitional zone. However, the degree of success varies within that zone dependent upon local variations of climate.

Mexican race varieties are usually found at their best at some distance from coastal influence and Guatemalans are more consistent in bearing habits near the coast. It therefore is logical to expect hybrids such as the Fuerte to flourish in intermediate areas not subject to the full influence of either the coastal or interior weather conditions.

The greater portion of the Fuerte avocado acreage is found in inland San Diego County, on the higher lands, and in the hills of Orange and Los Angeles Counties.

Some of the plantings are also to be found in Ventura and Santa Barbara Counties, largely on higher ground and removed from coastal influence.

The Fuerte has a tendency to alternate in bearing, depending on weather at setting time and also because of other factors. While there is an inherent tendency of the variety to alternate, that is to bear a satisfactory crop every other year, yet cold or very hot weather at setting time may cause the Fuerte to fail to set a satisfactory crop for the "on-crop" year. If poor weather follows a heavy crop year, a very light crop may be produced the following year. If it follows a light crop year a moderate crop may be set.

Good weather conditions preceded by a light crop may favor the setting of a very good crop.

A study of the alternate bearing habit of the Fuerte has been for a number of years one of the major projects of the Division of Horticulture at the University of California at Los Angeles. (See California Avocado Society Yearbook 1935.)

Included in the project by Hodgson and Cameron is the field study of the progeny of certain selected individual trees which are superior ones in themselves and may transmit this superiority such as consistency and high bearing qualities.

A large number of nurserymen have selected special Fuerte trees from which they have budded and sold nursery trees.

Many orchards have been propagated from three specially selected trees in the first Fuerte orchard by Mr. Whedon at Yorba Linda, and at this time the one tree considered to be the best of the original three is still consistently producing good crops. Probably most of the so-called desirable strains originated from this tree. The other two used as a source of buds are dead.

Not the least desirable of the characteristics of the Fuerte is the long maturity season.

Because of variation in maturity in southern California, Fuertes are marketed from November to June; and occasionally some are marketed both earlier and later than the regular season.

One factor which materially affects marketability in an avocado variety is the portion of the fruit which first begins to deteriorate. A fruit which begins to spoil at the seed is difficult to market. The Fuerte fruit usually begins in the outer portion of the flesh, making it possible to eliminate poor fruits.

The Fuerte is now being tried in many foreign countries, including Palestine, South Africa, Australia, and others.

Jacques De Choulet, of Mexico City, is now growing a Fuerte orchard near the home of the variety at Atlixco, Mexico with the assistance of Carl S. Crawford, of Santa Ana, California, who sent buds of specially desirable and superior trees from southern California and is supervising the development, making frequent trips to Atlixco for that purpose.