

Observations on the Avocado Variety Situation

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The need for a search among the many avocado seedlings for individual trees which might be propagated as commercial varieties was recognized at an early date by those interested in the avocado. During the early history of the California Avocado Association, now the California Avocado Society, a variety committee was appointed. This committee has never ceased to be the most active one in the organization.

Many avocado varieties of high quality have been studied. A variety found favor if it had a high oil content, if it had good flavor, if it ripened uniformly, did not have too large a seed, was reasonably free of fiber, and if the fruit presented a good appearance, regardless of color. Each year, new seedlings have been studied and many owners of individual trees have sung the praises of their own pet selections.

FUERTE

The Fuerte was recognized for its quality, its adaptability to packing and to shipping long distances, and for its marketability. It was found that in many localities the tree could produce a good crop, especially if weather conditions were favorable at blooming and setting time. Planting of avocados was stimulated and the Fuerte was the variety usually planted. Production of fruit of this variety increased by leaps and bounds; and as this small-to-medium-sized, green, pear-shaped fruit became the California variety on the market, the demand for this type of avocado increased. Advertisements depicting the Fuerte variety have helped to indicate that a good avocado is a Fuerte; thus, the market demands a Fuerte-like fruit. It is necessary to give heed to what the consumers of the country will buy.

In this period of development of the avocado industry, when a commercial enterprise is the goal of avocado growers, profitable production must be the keynote, even though some sacrifice is made as to oil content, size of seed, and other qualifications of an ideal avocado. Our major effort is to make the business pay. We must strive for quantity of production. However, the interest in new varieties should not be allowed to wane. Owners of individual trees should be stimulated to offer new fruits for study. Of the sixty-seven varieties registered by the California Avocado Society, few will become candidates for commercial rating. Some may become satisfactory for family orchards.

THINSKINS

A number of thin-skinned varieties appear favorable as producers of good-flavored fruit. These may not make good shipping varieties but can be planted in cold locations for local sales. All phases of the avocado variety study are important, but emphasis must be placed on commercial varieties which show indications of supplying the needs of a growing industry which is gradually expanding and increasing the sales and consumption of the avocado.

Each variety should be expected to have its climatic adaptability. A number of promising varieties are already planted in commercial orchards in all the avocado-growing districts of the state. Future activity will largely be to locate these plantings and to study the performance of these varieties.

Additional promising varieties, which have not reached the commercial propagation stage, are being studied.

In 1938, plans were made by the variety committee, with certain cooperators, to propagate some of the new seedlings in the several southern counties. Arrangements were also made with the Division of Subtropical Horticulture to conduct trials on the campus at Westwood. A list of fourteen seedlings made up the first trials. While all of these were introduced at Westwood, certain of the varieties were not placed on trial in the other locations. A number of later discoveries have been introduced into the planting at Westwood. Following is a list of the original fourteen varieties: Coit, Clifton, Edranol, Hass, Hazzard, Hellen, Henry's Select, Juan, Mac-Arthur, MacPherson, Middleton, Mundo, Pierce, Ryan.

STRAINS

For some time there has been a great deal of interest in what are called "special strains" of the Fuerte, discovered as individual trees which in their locations are especially good producers and consistent bearers. The Cole strain was probably the first to be propagated and distributed throughout southern California. Later, others were discovered and propagated, such as the Carr, Bevan, Burgess, McDonald, Williams, and Hodson. The Cole strain has been quite productive at Camarillo, but most of the Fuerte-strain trees are still quite young, and it remains to be seen what their performance will be when removed to a new environment.

Many other strains are being tested under varying climatic conditions; as a matter of fact, nearly all growers who are keeping records of their trees have found one or more productive trees which appear to be outstanding. When propagating for additional planting, evidence appears to be strongly in favor of budding or topworking from a selected tree in one's own orchard, or from a nearby orchard in the same locality. Perhaps buds or budded trees from an outside district having the same climatic conditions will prove satisfactory. It is improbable that a Fuerte strain from a high and consistent-yielding mother tree will always perform in the same manner when removed to a markedly different climate. However, various strains have been widely distributed and will be watched as they come into bearing.

PRODUCTION TRENDS

What is the situation regarding production of the most important commercial varieties? The nine varieties which supplied 96.3 per cent of the fruit to Calavo Growers in 1940 were Fuerte, Puebla, Nabal, Itzamna, Dickinson, Anaheim, Spinks, Queen, and Challenge. Others which have been quite popular at times are Taft, Dutton, Lyon, Benik, and Carlsbad.

The Puebla has lost favor because of poor quality and lack of productiveness in some years, and is being generally topworked.

The Nabal is erratic in production in most districts, bearing such a heavy crop one year that the tree is weakened and dies, when growing under adverse conditions. At best, it is an alternate-bearing variety. It has proved more satisfactory along the San Diego County coast than elsewhere and is looked upon with favor by many growers in that district.

The Itzamna, planted quite heavily along the coast in San Diego County, is now being replaced. The tree is quite susceptible to frost and the fruit is not of the best quality.

The Dickinson is still produced in quite large volume along the coast, especially in Ventura and Santa Barbara counties. It is not being planted to any extent. One factor not in its favor is its hard shell and the inability to determine when it is ready for consumption.

The Anaheim is called the "money-maker" by many growers who seldom miss getting a good crop. However, it is a weak tree and very susceptible to frost. The fruit is frequently too large and marketability is not always good. While it is not being extensively planted, some growers are topworking other less profitable varieties to the Anaheim.

The Spinks is not being planted, mainly because it is an unsatisfactory shipping fruit. It is large with a large seed and the flesh darkens around the seed.

While the Queen is a fruit of good eating qualities, it is very large, unattractive, an alternate bearer, and susceptible to frost. It is not being planted.

The Challenge is not very popular because of its size, thick skin, color, large seed, and poor quality.

The Taft is now not planted, mainly because of its shy bearing habit and its tendency to rust spots on the skin when grown away from the coast.

The Dutton is not a desirable fruit. It is large and its marketability is poor. The variety is not being planted.

The Lyon is a consistent bearer of high-quality fruit but is a weak tree, susceptible to frost and wind, and is therefore not a very satisfactory tree for commercial planting. The fruit is a little too large.

The Benik, while a good fruit, is not an attractive one, is tender to frost, and is not a reliable bearer.

The Carlsbad plantings are being extended somewhat along the San Diego County

coast, mostly, however, as topworked trees. In general, there is little increase in the plantings of this variety. The fruit is dark in color, though of a good quality, and sometimes quite large.

PROMISING NEW VARIETIES

Some of the newer varieties which are being planted in sufficient numbers to study from a commercial standpoint are Edranol, Hass, Mac-Arthur, Henry's Select, Ryan, Hellen, and Coit.

The Edranol, which is being planted in Santa Barbara County and to a certain extent in other locations, appears to be adapted to coastal conditions. The skin of the fruit from coastal plantings has a better texture than that of fruit from more inland districts, although the trees planted in the transitional areas are quite vigorous and precocious. For a fruit of the Guatemalan type, it is quite resistant to frost. It is a spring and early summer fruit with comparatively long maturity season, and it has the general appearance of the Fuerte. Along the Santa Barbara coast the season may last until late fall.

The Ryan, originating near Whittier, is considered to be a hybrid. It is about the size of the Fuerte, but with a larger seed, and it matures in the Whittier district from July to September. It is about as resistant to frost as the Fuerte. The standing of this fruit as a commercial variety is dependent upon its production performance, which has not yet been established.

The Hass, another late spring and summer fruit, has been propagated for several years. One characteristic quite definitely established is its early-bearing habit. It is a vigorous grower but is somewhat susceptible to frost injury. It is high in oil, has a good flavor, and keeps well. Young, topworked trees are bearing satisfactorily at La Habra Heights and Whittier. Some information on this variety from other districts of southern California should be available within the next year or two.

The Henry's Select has been propagated and distributed throughout California. Within a short period, knowledge as to its performance should be available. The tree is vigorous, attractive, and frost-resistant. The peak of production at Escondido is in October. It is a dark fruit similar to the Puebla in appearance with good keeping qualities and good flavor.

The MacArthur, while not proving satisfactory at Monrovia, where it originated, has done very well in Santa Barbara County, where it has been a satisfactory bearer. It is quite resistant to cold for a Guatemalan variety, and has a good flavor. The season is from August to November at Santa Barbara.

The Hellen has proved a satisfactory fruit at Santa Monica, where it originated. It is a Guatemalan, a green fruit about the size of the Puerte; the flavor is good, the tree is a vigorous grower, and it appears to be a consistent producer at Santa Monica. Trees of the Hellen variety have been quite generally distributed during the last two years, especially in coastal areas.

The Coit has not been generally planted. However, enough trees of this variety have

been distributed that we shall be able to form some idea of its success, especially in more coastal districts. It is a light green fruit, a little larger than the Fuerte, of good flavor, maturing in late spring and early summer at Vista. It is a hybrid and should stand some frost.

REGISTERED VARIETIES

Of those varieties which have been officially registered by the Society, several stand out as commercial possibilities. These are:

Clifton, a green thin-skinned fruit maturing in October and November;

Coit, already mentioned;

Hellen, also previously discussed;

Irving, a green fruit maturing during the Puerte season at Carlsbad;

Juan, a green fall fruit, a little large but with a fine flavor;

MacPherson, a fruit which, if it proves to be a satisfactory bearer in most districts, has considerable promise. It is a Fuerte-like fruit maturing during the Fuerte season and is now being propagated commercially;

Middleton, a thin-skinned variety which matures in the fall, usually during October at Pomona. This variety has been propagated for several years. In some districts, if left on the tree too long, it cracks transversely;

Nowels, an early Fuerte-like fruit which has promise and is being tried in several locations. Its maturity season begins in October or November;

Zutano, a green November-December fruit propagated by W. L. Truitt at Fallbrook. The tree produces very well at Fallbrook and the fruit, which is about the size of the Fuerte, has a good flavor.

Mexican or thin-skinned varieties, Guatemalan varieties, and hybrids (using the term for those varieties which we think are natural crosses between thin-skinned and Guatemalan varieties) all have a place in our future studies of the variety problem.

While we may not be able to develop the avocado industry with two varieties, as has been done in California with the orange industry, a minimum number of commercial avocado varieties is desirable. We are learning that varieties are adapted to certain restricted environmental influences. This will make it necessary to limit some varieties to a few districts in which they will grow and produce fruit most satisfactorily. Thus, more varieties will be necessary than if a few were adapted to varying sets of climatic influences.

SUN-BLOTCH

Before closing I cannot resist saying something about sun-blotch, which is such a menace to our orchards. This subject should be talked about whenever possible so that we may always keep the danger of the disease before us when selecting buds or when

topworking trees. Be sun-blotch conscious. Keep a lookout for it when selecting buds, especially if the tree has been topworked. It would be safer never to take buds from a top-worked tree.

Before budding seedlings, carefully scrutinize each one in the nursery row. Among several hundred seedlings, it is possible that we may find an occasional infected tree.

If we all pull together, furnishing information freely regarding the varieties being studied, contributing to the knowledge of the performance of those varieties which are being tried on a commercial scale, we shall be able to make recommendations for plantings in each of the avocado-growing districts at an earlier date than if we lack that cooperation.