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MATURITY-QUALITY IN SAN JOAQUÍN VALLEY AVOCADOS

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California's central San Joaquín Valley now has an avocado industry approaching 1,500 acres. Plantings are located mainly in Tulare, Fresno and Kern Counties along warmer foothill areas where citrus has been produced for many years.

Because of cold winters and hot summers, the San Joaquin Valley is considered marginal for avocado production when compared with Southern California coastal areas. The fact that climate does class avocados in the San Joaquin Valley as a marginal crop also is strangely responsible for the fact that acreage is slowly increasing there. Varieties planted in the San Joaquin Valley usually mature two to four weeks earlier than comparable varieties in Southern California. This gives a market advantage to growers shipping fall maturing fruit from the Central Valley.

The summer fruit season consisting mostly of Hass is finished in Southern California during October. Winter fruit, mostly Fuerte, does not begin until December. This means that during October and November fall maturing varieties have a narrow slot in the market when the competition from Southern California is not great.

Varieties grown in the San Joaquin Valley which mature during October and November and fill this market slot are of the Mexican Race or closely related to the thin skinned type—Zutano, Bacon and Susan. Zutano is most widely planted because of good annual production. This variety is followed by Bacon which has good quality but poor production records in many areas. Susan plantings are scattered throughout the area. Because of its cold hardiness and heavy production in some years, this variety was thought to have potential commercial value for the San Joaquin Valley.

Because Hass is being planted extensively along coastal climatic areas in Southern California, fruit from these new plantings is held later into the fall each year. Avocado growers in the San Joaquin Valley have tended to hold their Susans, Zutanos and Bacons on the tree until market conditions indicated it was advantageous for them to pick. Often this holding period occurs during a time when the fruit is legally mature, rapidly increasing in oil content and quality is beginning to deteriorate. Experience shows that once San Joaquin Valley fruit reaches an oil content of 8 to 10 percent, it continues to increase rapidly in a short period of time. By the time oil content reaches about 15 percent, fruit quality may drop rapidly. In other words, fall maturing fruit of Mexican Race varieties presently grown in the San Joaquín Valley do not always hold well on the trees.

In some years, fruit quality remains high during the on-tree holding period while other years it deteriorates quite rapidly. External appearance is usually good, blemishes and

cracking seen in inland Southern California areas almost never occur in the San Joaquín Valley. However, blossom end breakdown, especially on large fruit, is common. While still on the tree, fruit begins to soften resulting in further bruising in picking, packing and handling operations. Breakdown continues during packing, storage and shipping. Disease problems such as Dothiorella fruit rot are commonly seen associated with the blossom end breakdown and cracking. (See Figures 1 and 2.)

Figure 1. Susan avocados showing external progressive stages of blossom end breakdown due to overripe development.

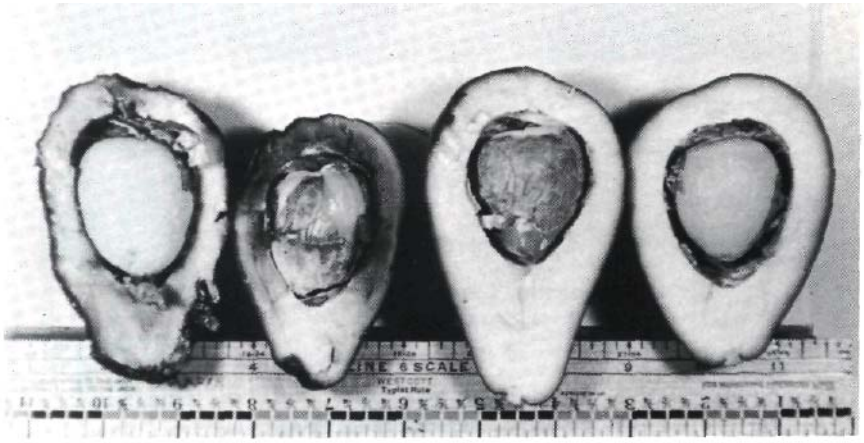

Figure 2. Susan avocados showing internal progressive stages of blossom end breakdown due to overripe development.

Oil tests indicate this fruit has higher oil content on the blossom end than on the stem end, apparently accounting for the more rapid deterioration of the blossom end.

Picking and handling methods to overcome the short life problem were reviewed extensively in 1973. Tests to observe the effects of picking, packing and storage on fruit of various degrees of maturity were conducted. Industry packers and shippers decided that measures had to be taken in order to insure that an inferior product was not put on the market. One suggestion was that two pickings, the first to remove large, early

maturing fruit, would be a possible solution. However, a review of past oil test records showed conclusively that this could not be done. There is no correlation between fruit size and maturity in fall maturing avocado varieties in the San Joaquín Valley.

The only practical and immediate solution to the short-lived problem, therefore, is to pick the fruit soon after oil tests indicate that avocados within a given orchard are legally mature. Picking, packing and shipping of these varieties must proceed regardless of market conditions at the time of and shortly following legal maturity. In this way growers can be assured that their fruit will reach the market in good condition.

It is fortunate that San Joaquin Valley growers do not have the latitude for playing the market with their fruit or be able to prorate picking in a manner successfully demonstrated by growers in Southern California. Fall maturing San Joaquin Valley fruit must be handled when it is at peak quality which may last for only a short period of time. It may be demonstrated that some varieties hold better and longer than others but each will have to be judged on its own merits in the future.

The small and still young avocado industry in the San Joaquin Valley can be damaged as easily by putting over-mature, poor quality fruit on the market as it can by shipping immature fruit. Each grower must carefully learn his variety maturity and quality behavior in order to pack and ship fruit that will not damage the good markets afforded him by the unique growing conditions found in the San Joaquin Valley.