

Avocados Hit by Cold Wave

Southern California's avocado industry was materially damaged in the major cold wave of Jan. 7-11, 1937. This was the first real "freeze" that the avocado has experienced since becoming a nationally popular fruit and a leading California fruit industry. However, most damaged trees are expected to make rapid recovery during the summer of 1937.

Losses suffered will include varying amounts of foliage, some fruit, a small number of trees themselves in extremely cold spots, and much blossom-bud wood needed to carry next season's crop. None of the five southern coastal counties escaped some or considerable damage, although the damage varied greatly between trees, groves, and districts. San Diego County, as a whole, probably fared the best. It will take some time to complete an accurate survey. Temperatures ranged from 30 to 19 degrees in most avocado districts, varying in groves, districts and counties in both degrees and effects.

To protect consumers, all Calavo picking schedules have been suspended until such time that damaged fruit will clearly reveal itself. All "Calavo"-stamped fruit to appear on markets will guarantee extra-rigid grading and quality. Fortunately, considerable volume of "Calavo"-stamped fruit was being held under protection at the growers' plants and elsewhere during the cold wave period, and is now moving to market.

County and state fruit inspectors are now busily checking all shipments by growers and all receipts in the markets.

Orchards located on flat or but slightly sloped ground in the intermediate and interior districts, as well as some coastal areas, were most severely damaged. Some orchards may be set back from one to several years. Among the orchards faring the best were those located on substantially sloping hillsides and having good air drainage for considerable distance beyond the lowest levels of the groves, in the intermediate and coastal districts.

Pew avocado orchards are equipped with heaters, as the orchards are located in the areas which are not affected by ordinary early morning frosts. A major "freeze," however, is a much colder body of air which extends considerably higher. The last major freeze occurred in 1922, when commercial avocado plantings were few.

FIRST FREEZE TO HIT "INDUSTRY"

Although it is most difficult to estimate the Southern California avocado crop loss from the January 7-11 cold wave, due to extremely spotted losses throughout the five southern coastal counties, the Calavo Growers of California hesitantly estimates (Jan. 18, 1937) that possibly 20 per cent of the state's crop has been damaged. According to this percentage, approximately three to four million pounds may have been injured. Damage varies greatly between orchards and districts.

Regular Calavo picking schedules had not been resumed early this week, it being deemed that "Nature" itself may prove to be the least costly and most efficient grader and separator of damaged and undamaged fruit on the trees.

Areas worst hit were Ojai and the Sierra Madre mountains' foothill areas, although parts of other areas also suffered as -heavily. Cultural authorities advise growers to withhold pruning until after all danger of additional frosts is eliminated.

Loss of much of the blossom and budwood, thought necessary to carry next season's crop, may prove to be a "blessing in disguise" for those growers whose trees suffered from slight to moderate foliage damage, according to at least one leading cultural authority. The avocado tree's inability to regularly set a good crop is due partly to its producing such a profusion of blossoms in the springtime that few apparently are strong enough to set fruit. The frost, by eliminating the profuse blossoming, may enable the trees to bring forth a late set of a smaller number, but far more "potent," blossoms, it is thought.

Severely damaged fruit may be ascertained usually by a slight to considerable brownish discoloration of the outside skin of the fruit. Slightly damaged fruits are more difficult to determine, being ascertainable by cutting sample fruits or when picking from the tree. When the stem "button," that part of the stem immediately next the fruit, is brown, or when cut it reveals dead fibres through the center, then the fruit also is undoubtedly damaged. Brown or dead stems usually mean damaged fruit, except in some cases where the "buttons" are green on both the outside and inside.

THIRD "FREEZE" FOR HUNTINGTON ORCHARD*

January, 1937

While the cold weather experienced during the period from January 7th to 11th, 1937, was severe as far as low temperatures were concerned, the effect upon the avocado trees in the Huntington Botanical Gardens' orchard at San Marino was comparatively light, when compared with the effects of the cold weather during the years 1922 and 1913.

Mr. Wm. Hertrich, curator of the noted Huntington Botanical Gardens, believes that this lack of tree damage was largely due to the great size of the trees, many of which meet and form a solid mass of roof over the ground. As far as can be determined by January 15, none of the trees have been frost-bitten to any extent, other than the softer growth. No heaters were used in the orchard.

However, most of the fruit was damaged.

Low temperatures recorded at the lower edge of the orchard were as follows:

January 8 (Friday morning), 25 degrees F.

January 9 (Saturday morning), 22 degrees F.

January 10 (Sunday morning), 24 degrees F.

January 11 (Monday morning), 25 degrees F.

GILES HART.

* Previous article by Wm. Hertrich giving history of Huntington Botanical Avocado Grove up to Jan. 1, 1937, appears on page 158.

Second Freeze More Severe

As the Yearbook went to press, the second January cold wave struck the avocado industry, and particularly San Diego County, its center, which had escaped much damage in the first freeze. Temperatures during the second freeze averaged some 3 to 4 degrees lower and were of longer duration than the first. In major avocado districts, thermometer readings ranged from 17 to 29 during the second freeze. Groves suffering least damage were those located on considerably elevated hillsides and hilltops which were well air-drained.

It is estimated, as of January 25, 1937, that about 9,000,000 pounds or 70% of the industry's un-harvested fruit and 50% of the season's total crop was damaged to some extent. Much of the newer planted acreage was killed; a few older orchards may also be frozen back. However, as the history of the Huntington orchard reveals, an avocado tree of substantial size may be frozen to the ground but later send up new growth from the roots. This would indicate the avocado is a very vigorous tree.

Dr. F. F. Halma, Assistant Professor of Subtropical Horticulture at the University of California at Los Angeles, State and County Fruit Standardization Officials and Calavo leaders are holding numerous joint conferences, and making: laboratory tests and field surveys immediately following the second freeze, for the purpose of determining what are marketable fruits and how to differentiate between damaged and undamaged fruit. The industry appreciates the University of California's making Dr. Halma available for this special work.

GILES HART.

(Editor's Note: Necessity for going to press with the 1936 Yearbook makes it impossible to include Dr. Raima's findings, which are not yet completed. It is hoped that the results of this work will add materially to the present limited, technical knowledge on the effects of low temperatures on avocados.)