

A History of the Avocado Industry in California

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Discovery of Avocado in the New World

Avocado is native to the New World, originating in southern Mexico, Central America and the West Indies. The fruit has long been used as a food by Native Americans in these regions and was known by the Aztecs as "ahuacatl". Avocado was first mentioned in print in the report **Suma de Geographia** by Martin Fernandez de Enciso, published in Spain in 1519 (Popenoe and Zentmyer, 1997). He observed the fruit growing in what is now Santa Marta, Columbia during an expedition with the Spanish explorer Juan de la Cosa. A more extensive description of avocado was written by Gonzalo Fernandez de Oviedo, historian for the Conquistadors traveling with expeditions led by Hernando Cortez in 1519. His account was published in 1526 in the **Summario de la Natural Historia de las Indias**:

"They are large trees, with broad leaves similar to those of the laurel, but larger and more green. They bear pears weighing a pound and even more, though some weigh less, and the color and shape is that of true pears, and the rind somewhat thicker, but softer, and in the center of the fruit is a seed like a peeled chestnut...and between this and the rind is the part which is eaten, which is abundant and is a paste similar to butter and of very good eating and of good taste, and such that those who have these fruits guard them and esteem them highly and the trees are wild as are the others which I have mentioned, for the chief gardener is God, and Indians apply no work whatever to them. The pears are excellent when eaten with cheese, and they are gathered before they are ripe and stored, and when treated thus they ripen perfectly for eating but after they have reached this stage they spoil quickly if allowed to stand."

Avocados were continuously encountered by various explorers during the sixteenth century from Ecuador and Peru northward through Central America and Southern Mexico, as far north as Mexico City. Avocado was also encountered by explorers and travelers in the West Indies, although Popenoe and Zentmyer believed that they were introduced to these islands after the Conquest by Spain. George Washington wrote in 1751 that he had tasted "agovago pears" in Barbados and they were popular and abundant in the marketplaces (Gustafson).

The First Plantings in California

The first plantings of avocado in California probably occurred around 1850. It was reported in the California State Agricultural Society Report for 1856 that an avocado tree was grown by Dr Thomas White in San Gabriel (Butterfield 1963). This tree produced no known progeny, but other seedling trees were planted throughout Southern California by people interested in exotic fruit. It is recorded that three seedling

avocado trees brought in from Mexico and planted in Santa Barbara by Judge R. B. Ord in 1871. These trees are generally considered to be the foundation of the avocado industry in California. (Ryerson 1923).

In 1963 Butterfield reported that the oldest living avocado tree in California was probably at the University of California, Berkeley near the creek east of the Center Street entrance. The tree was thought to be a Guatemalan seedling brought to California by Tulio and Pedro Ospina of Guatemala (College of Agricultural Reports, 1879, p.76). At the time of Butterfield's report, the tree had only a few branches left alive.

Nurseryman Kinton Stevens set out 120 seedling trees in Montecito in Santa Barbara County in 1895, establishing the first avocado orchard. The orchard prospered initially but died after several drought years.

Also planted in 1895 was a Mexican seedling given to George A. White for his ranch in Santa Barbara by Francisco Franceschi, an importer of subtropical fruits. In 1940 it was reported that the tree had been bearing since 1900 and, by October, 1937, had grown 56 feet high and had spread over a 50 foot lot. The trunk diameter was 37 inches four feet off the ground (Van Rensselaer, 1940).

The first "commercial" avocado orchard of budded trees was planted in 1908 by William Hertrich for Henry E. Huntington on his estate in San Marino, Los Angeles County. During this time the chef at the Los Angeles Athletic Club saved seeds from avocados imported from Atlixco in the State of Puebla, Mexico (Coit). The seeds were given to Hertrich, grown in pots, and eventually four hundred seedling trees were planted and later budded to varieties then available. The orchard was heavily damaged by the catastrophic "1913 Freeze", but was rebuilt; a few of the trees still exist (Shepherd). Other trees that had been planted in various locations in Los Angeles and had survived the freeze fruited well and demonstrated that avocado was adapted to the region (Coit).

J. Elliot Coit reported that he gave fruit to Professor E. J. Wickson at U. C. Berkeley and he "liked it and considered it suitable to grow in home gardens by those who liked it". But, he also said "there was no prospect for commercial culture because it contained no sugar and fruits were supposed to be sweet—the sweeter the better" (Coit).

Despite the remarks by Wickson, the possibility of growing avocado on an extensive, commercial scale began to be discussed. The development of the avocado industry gathered steam after several nurserymen began exploration in some of the best avocado districts in Mexico, and a freak accident (as a result of the freeze of 1913-14) led to the selection of the Fuerte variety.

Development of Superior Varieties

Frederick O. Popenoe, owner of the West India Gardens nursery in Altadena, Los Angeles County, sent his son, Wilson Popenoe, and his employee Carl Schmidt, on collecting expeditions in 1911 to find superior selections of avocado that might be productive in California. Carl Schmidt sought out fruit that looked good in the market places, then tried to follow the trail back to the tree to sample budwood for shipment to California. Schmidt was familiar with the avocados sent from Atlixco and he did most of his collecting in this region. One of the budwood samples found in the backyard of

Señor Le Blanc in Atlixco was No. 15 a producer of fruit of exceptional quality. A devastating freeze in the winter of 1913 killed most of the avocado trees in the nursery, but No. 15 survived. A batch of 50 nursery trees of the hardy new No. 15 variety was reluctantly accepted by grower John T. Whedon in lieu of varieties ordered earlier, but frozen in the nursery. F. O. Popenoe, noting their hardiness for having survived the freeze "named them 'Fuerte' after the Spanish word for strong" (Poole and Poole).

"The Fuerte trees were planted on Whedon's place near Yorba Linda (Orange Co.) on March 12, 1914, thereby establishing the first orchard of the cultivar that would come to be for many years the industry's principal, market-preferred variety—the variety, indeed, upon which the California avocado industry was built, and that was introduced and grown successfully in many other countries" (Shepherd).

This small orchard was to prove profitable for Whedon. As described by Poole and Poole, "When his orchard came into production he had standing orders from hotels in Los Angeles and San Francisco who were willing to take all he could ship, paying as much as \$12.00 per dozen. Because of the Fuerte's cold resistance and high quality fruit, the buds from his trees were in great demand, and in some years, he realized as much as \$6,000 from buds alone (Poole and Poole, 1967).

Other nurserymen also brought in important selections. E. E. Knight of Yorba Linda brought in budwood of superior varieties from Guatemala, including selections that would later be named Queen and Linda (Hodgson).

The United States Department of Agriculture's (U.S.D. A.) Dept. of Plant Exploration and Introduction noted that private nurseries could not be expected to do a complete exploration of Mexico and Central America for promising avocado varieties, so they hired Dr. Wilson Popenoe for nine years to do a thorough exploration of all of the known avocado areas. Popenoe introduced many selections but none became as famous as the Fuerte (Hodgson). Hodgson noted that "the avocado growers of California and Florida early had the best that the world affords in the way of varieties upon which to build a commercial industry", an important contribution from the U.S.D.A.

Noting the success of Whedon and others, interest grew in the avocado and soon ten nurseries were growing budded trees. Nurseries were using Mexican type rootstocks because they were abundant and more tolerant of cold weather than the Guatemalan rootstocks. Enthusiasm grew but there was a great deal of confusion concerning varieties; it was soon realized that some sort of organization was required to help make this a successful industry (Coit).

Formation of the California Avocado Association

The first association of California avocado growers began with a meeting on May 15, 1915, at the Hotel Alexandria in Los Angeles. Its most important result was the formation of a California Ahuacate Association for the purpose of "...the improvement of the culture, production and marketing of the Ahuacate." The word "ahuacate" was used because it was the word in common use in Mexico for this fruit. Following spirited debate, **Avocado** replaced **Ahuacate** as the official name of the association *and* the fruit (Shepherd). The word "avocado" was apparently a new word not found in dictionaries at the time, and the Association eventually informed the dictionary

publishers of the correct spelling and definition, and that the plural form would be "avocados", not "avocadoes". Coit noted that "It was early decided that any member caught using the detestable term 'alligator pear', then in common use in Florida, should be severely reprimanded".

On October 23, 1915, the first semi-annual meeting of growers was held with Edwin G. Hart as the first president and chair of the Board of Directors. At the end of the year there were 74 members composed of growers, researchers and others interested in avocado. The Association was renamed the California Avocado Society in 1941.

This organization has been the main driving force for variety improvement, grower education and working with the University of California on research solving cultural problems. The California Avocado Society is famous worldwide for its production of useful and informative Yearbooks. The Yearbooks serve as a library of information for growers and researchers in California and worldwide. Over the years the Society has sponsored many grower meetings, and since 1990, the Society has co-sponsored six meetings a year with the U. C. Cooperative Extension farm advisors to present timely cultural and research information to growers.

The Variety Committee

In 1916, nurseryman F. O. Popenoe published descriptions of 86 varieties. Nurserymen and growers were rapidly coming up with new varieties along with "overly optimistic claims", and it was apparent that a variety committee was needed to evaluate the varieties, standardize the names and publish recommendations for growers (Coit). The Variety Committee, under the auspices of the Association (later the Society) has functioned since this time and provided an invaluable service to growers.

In 1926, Dr. I. J. Condit (with the help of the Variety Committee) published a list of 400 named varieties. In 1933 the Committee revised the list and reduced the number of varieties. In 1936 the Association started a seedling registration. To be registered, the "owner of the seedling suggested a name, which would be adopted and made official by the Association only if it conformed to the rules of horticultural nomenclature". The name had to consist of only one word (not a verb or adjective), could not have been used previously, and a description of the tree and fruit, its location and owner's name and address were submitted. One of the problems eventually solved by the Variety Committee was the argument over thin-skinned Mexican varieties vs. thick-skinned Guatemalan varieties. Coit reported that, by 1963, the Committee had settled on the use of hybrids 'Fuerte' and 'Hass', each of which had good qualities of both avocado races (Coit).

Organization of the California Avocado Grower's Exchange

One of the original purposes of the Association was to market fruit, but with high prices (\$0.50 to \$1.00 per large Guatemalan fruit) and a shortage of fruit, growers found it fairly easy to do their own marketing (Coit). By 1922, however, growers were faced with a very heavy fruit set and the Association's directors decided that the members needed to try cooperative marketing. Arrangements were made with the American Fruit Growers packinghouse in Los Angeles to pack and sell fruit from all of the members on a commission basis. The plan didn't work because "some members ignored the rules and

sold their best grade to old customers and took the low grade and cull fruit to American Fruit Growers." (Coit).

At that point the Association's board of directors examined the idea of cooperative marketing set up under California law much like Sunkist and the Walnut Grower's Exchange. By the summer in 1923, it was felt that the crop of avocados in sight made urgent the formation of an organization solely devoted to the marketing of avocados. The California Avocado Exchange was formally established on January 24, 1924 to handle cooperative marketing, and the Association retained all of its previous functions except marketing (Coit). J. Elliot Coit worked as the coordinator between the organizations for the next twenty years, while George B. Hodgkin served as general manager of the marketing cooperative until 1956. The name of the Exchange was changed to Calavo Growers of California in 1927 (Shepherd). In addition to the exchange, a number of independent packing houses developed in order to give growers marketing alternatives.

Introduction of the 'Hass' Variety

The green-skinned Fuerte was a favored variety by consumers in the early days, but it, and many of the other new selected varieties, was plagued by short harvest seasons and erratic yields. The black skinned Hass variety was selected by a stroke of luck in the 1920's at the farm of Rudolph Hass in La Habra, California. In 1926 Hass bought Guatemalan avocado seedlings (thought to be of the 'Lyon' variety) from the Rideout nursery in Whittier. The seedlings were to be field-grafted to the popular 'Fuerte' variety, but after three attempts, Hass could not get the Fuerte buds to take on one of the seedlings. After the last attempt at grafting, Hass let the seedling tree grow, but the tree was ignored. Hass thought the fruit was ugly, with rough purple-black skin. According to Charles Hass, Rudolph's son, "My brothers kept telling him, Dad, it tastes great, you gotta try it!". Rudolph eventually tasted the fruit, liked the creamy flesh, the nutty taste, the lack of fiber and the 18 % oil content, and the long harvest season. His new selection, which he named after himself, was granted U. S. Plant Patent No. 139 on August 27, 1935. Hass made a deal with H. H. Brokaw, a nurseryman in Whittier, to grow and promote the Hass avocado, but by the time the patent expired in 1952, Rudolph Hass had made only \$4800 on the new variety (Dillow 1996).

Market acceptance of the dark-skinned variety was slow as the consumers had learned to recognize "green" as the proper color for an avocado. Steady promotion by packers and growers gradually resulted in increased market acceptance so that, by 1957, Hass comprised 15% of the crop in California. By 1972, forty years after its introduction, Hass surpassed Fuerte in total volume marketed from California. By 1990, Hass accounted for 83% of California's avocado production (vs. only 2% for Fuerte). Hass is also dominant in the mountainous state of Michoacán, Mexico (the main area growing fruit for export) and other subtropical avocado regions in the world, but the variety does not fruit and grow well in the more tropical regions such as southern Florida, the Caribbean islands, and Hawaii. West Indian varieties are more commonly grown in these tropical areas.

Root Rot becomes Epidemic

In the late 1930's growers began to notice a decline and tree death in some areas of

their groves. The problem was called "apoplexy", "asphyxiation", "decline", "melanorhiza" or "waterlogging". (Shepherd). Finally, in 1939, a graduate student from South Africa, V. A. Wager, working at the Citrus Experiment Station in Riverside, proved that the cause of the problem was the fungus *Phytophthora cinnamomi*. The California Avocado Society donated \$3700 to the University in 1943 to begin research on this devastating disease. Dr. George Zentmyer at U. C. Riverside began a comprehensive program in 1948 to study the disease. This work eventually included studies on the life cycle and biology of the fungus, factors affecting disease initiation and development, and all phases of disease control including resistant rootstocks, fungicides, biological and cultural control and disease prevention.

The avocado root rot research program at U. C. Riverside came under the direction of Dr. Michael Coffey during the 1980's, and later under the direction of Dr. John Menge in 1990. Emphasis is on selection and breeding of more tolerant and resistant rootstocks, and biological, chemical and cultural control. Significant progress has been made on the understanding of this disease and several new rootstocks with increased resistance to the disease have been introduced to the industry, but avocado root rot is still the most important disease problem in avocado production.

Production research funding was dramatically increased beginning in 1972 when the marketing order was amended to create an industry Production Research Committee. This funding for research was continued by the California Avocado Commission (CAC) when the marketing order became inactive. From 1990 until 2000 the CAC contracted with the California Avocado Society to manage the research program. Since 2000, management of the research program has been done by the Production Research Committee of the CAC under the leadership of Reuben Hofshi. Funding for avocado research in 2001 was second only to citrus research funding for industry-sponsored research funding for tree crops in California. Funding from the industry to the University has enabled research on many other worthwhile projects, including breeding, pest control, irrigation, fertilization and post-harvest studies.

Issuance of the Marketing Order

Almost all market development during the first forty years of the industry was done by the growers who had organized, first with the Association then later with the Cooperative, Calavo Growers of California. As the number of independent packers increased and the production increased, it was perceived that an industry-wide program of advertising and promotion was needed for the industry to remain successful. An Avocado Promotion Committee was formed in 1958 and in 1959 a proposal was placed before the growers to apply for a State Marketing Order which would allow for mandatory assessments to pay for promotion, advertising and market development. Calavo growers were opposed to the Order, as were most avocado handlers (Shepherd).

A voluntary program was proposed that would have been managed by the handlers under an organization known as the California Avocado Development Organization (CADO). Funding would come from assessments from the growers, but it was agreed that 95% of the crop must participate in order to make this industry-wide program work; this level was never reached and the CADO plan was dropped. CADO still exists as a

forum for discussion among handlers (Shepherd).

With the failure of the voluntary plan, Calavo and the Avocado Promotion Committee petitioned the California Department of Food and Agriculture to issue a state marketing order, which was approved after hearings in October, 1959. An injunction forced by a small group of handlers delayed the order until October 1961.

The marketing order was managed by a new organization of growers and handlers known as the California Avocado Advisory Board. Their purpose was to design and implement promotion programs funded by assessments on grower receipts. Unfortunately, state marketing orders are often encumbered with bureaucratic problems from Sacramento, so the industry leaders petitioned for the establishment of a commission, which was created in September, 1977 by Assembly Bill 1602. Again, opposition within the industry delayed the operation of the California Avocado Commission until August 1978.

The California Avocado Commission Board of Directors is composed of ten growers of commercial avocados from five districts (2 per district), four handler representatives and a public member. Through innovative promotion programs, the Commission has largely been successful in the introduction and establishment of the avocado to the American diet. Strong demand has been built for the California avocado both in the domestic market and some foreign markets. In recent years the Commission has been faced with many thorny issues, including convincing local bureaucracies that avocado growers can only be successful if they have affordable water, and informing leaders in Washington D. C. about the dangers of importing potentially insect-infested fruit from Mexico and Central American countries.

The Challenge from Foreign Countries

The avocado industry has long been concerned with the importation of avocados from foreign countries. The concerns came from two angles. First was the concern that foreign fruit may introduce a new pest or disease that would be difficult if not impossible to control. Second, fruit produced in countries with low labor costs and low water costs (in many cases there are no costs for water) would compete with unfavorable results against California fruit at the marketplace.

During the early fruit explorations in Mexico and Central America, it was discovered that some fruit being sent to the United States contained species of seed weevils that were not known to occur in the United States. On February 27, 1914, the U.S.D.A. imposed a quarantine on avocados grown in Mexico and Central America to prevent the introduction of seed weevils, stem borers and other pests. Not only did this quarantine keep out the unwanted pests, but, as an important side benefit, it allowed the young California industry to nurture and grow without excessive competition. The complete quarantine lasted until 1997 when the U.S.D.A. decided to amend it and allow Hass avocados from certified "pest-free zones" in Mexico to enter nineteen states in northeastern U.S. and the District of Columbia during the months of November through February. The purpose of the change was to satisfy requirements of the North American Free Trade Agreement passed by Congress in —, yet still keep Mexican fruit away from the avocado production areas in California and Florida.

On November 1, 2001, after formal requests by the Mexican government, U.S.D.A./APHIS (Animal and Plant Health Inspection Service) published in the U.S. Federal Register the "Mexican Avocado Import Final Rule" which increased the number of states where Mexican Hass avocados could be distributed to 31 states. The Rule also lengthened the time of the shipping season through April 15 of each year. On December 18, 2001, the California Avocado Commission filed a lawsuit in federal court asking that the rule be declared invalid.

Mexico is the largest producer of avocados in the world, with production at 940,000 tons in the calendar year 2001. United States is second with 164,500 tons. Other countries include Indonesia (130,000 tons), Chile (120,000 tons) and Peru (89,800 tons). Although avocado production from Mexico is high, the domestic market in Mexico takes most of the fruit. Exports of fresh fruit from Mexico to the U.S. totaled 11,285 tons in 2000/01, down 16% from 1999/00. If the expanded access holds, exports to the U.S. are expected to double.

Other avocado-producing countries, namely Chile, New Zealand and the Dominican Republic, have access to ship avocados to all states in the U.S. Chile has made the most out of this opportunity; starting in 1985, Chilean avocado growers began shipping Hass avocados in the fall and winter months to the U.S. in such quantities that California growers no longer found a home for their winter greenskin varieties. In the winter of 2001-02 Chile is expected to ship 120 million pounds of Hass to the U.S., more than a third of the annual Hass production from California. Chile is expected to increase shipments as more of their groves reach maturity, and they are expected to lengthen their season. Industry analysts expect that California growers will only have the summer months to ship fruit without competition from Chile.

The Federal Marketing Order

In September of 1999, The Hass Avocado Promotion, Research and Information Act was introduced in Congress. The goal of this legislation is to educate consumers about the nutritional benefits of avocados, to increase the consumption of avocados, and enhance the value of Hass avocados in the U.S. produce market. These objectives are to be achieved through public relations programs, trade merchandising, and consumer advertising. The legislation was signed into law in October 2000 after thirteen months of diligent work by the avocado industry, congressional staff and the members of the California Delegation in Congress.

California avocado growers had long complained that foreign producers of avocados were getting a free ride on the millions of dollars they spent each year to promote avocados in the U.S. produce market. The funding for the programs of The Hass Avocado Promotion Order (HAPO) will come from all Hass avocados marketed in the U.S. Foreign and domestic producers of Hass avocados will equally contribute to the growth of the avocado market.

The US Department of Agriculture is now in the process of completing the framework and selecting the directors that will establish HAPO.

Chronology of Selected California Avocado Industry Highlights

1856. Dr. Thomas White made first reported planting of avocado in California, in San

Gabriel.

1871. Three seedling avocado trees planted in Santa Barbara by Judge R. B. Ord marked beginning in California of continuing interest in avocado cultivation.

1895. Nurseryman Kinton Stevens planted 120 Mexican-race avocado seedlings on his property in Montecito, Santa Barbara County, to establish the first "orchard" of avocados in California.

1906. First "commercial orchard" of avocados in California planted by William Hertrich on estate of Henry E. Huntington, San Marino. Seedlings from avocado seeds collected by Huntington from the Jonathan Club (Los Angeles) were grafted to cultivars favored at the time.

1910. Frederick O. Popenoe founded West Indian Gardens nursery in Altadena, Los Angeles County.

1910. Budwood of seedlings discovered in Atlixco, Mexico, by Carl Schmidt (employee of West India Gardens) introduced into the United States and propagated by West India Gardens, including No. 15, renamed 'Fuerte' in 1913.

1913, January. Major "freeze" devastated susceptible plants throughout California, severely damaging avocado plantings and nurseries, including Huntington orchard and West India Gardens.

1913, March. John T. Whedon accepted from West India Gardens 40 'Fuerte' nursery trees in lieu of freeze-killed trees ordered earlier, planting them March 12 to establish the first commercial orchard of the 'Fuerte' variety.

1914, February 27. Quarantine imposed by United States government on avocados grown in Mexico and Central America to prevent introduction of avocado pests not established in the United States.

1915, May 15. California Avocado Association organized at an advertised meeting held in the Alexandria Hotel, Los Angeles.

1923. Formation of cooperative marketing association of California avocado growers initiated by California Avocado Association, motivated by prospective "heavy" crop on trees. Part-time manager employed (George B. Hodgkin) and organization of "California Avocado Growers' Exchange" accomplished in August. Office established in packing house of American Fruit Growers, Inc. 2160 East Seventh Street, Los Angeles.

1924, January 21. California Avocado Grower's Exchange incorporated in California.

1924, May 15. Exchange "on brink of disaster" with over-supply of avocados coming in on top of inventory of softening and decaying fruit. ("Disaster" was averted.)

1924, June 1. Exchange moved closer to market (1405 East Eighth St., Los Angeles) began direct dealing with buyers, started promotion campaign (publicity, \$200 of purchased advertising, store displays, recipe booklets and leaflets, recipe bags).

1924. Exchange opened and for six months operated retail avocado store in Los Angeles. Operation continued by private parties.

1925, July. California statutory standard of avocado maturity enacted, requiring

minimum of 8% of oil by weight in edible portions of fruit.

1926. Rapid refractometric method for avocado oil content determination officially adopted, replacing earlier time-consuming "soxhlet" method.

1926. Development of avocado ice cream base and avocado sandwich spread initiated by Exchange as products of cooperative research program with University of California.

1926. Program of research on vitamin content of avocado commissioned at University of Southern California.

1926, December 17. First full carload of avocados from California shipped to Chicago. About same date, first half-carload shipped to New York.

1927, January 28. First full carload shipment of California avocados shipped into New York market. (Sales report stated: "...the market in the east doesn't want black fruit.")

1927. Successful experimental shipments of California avocados made to London, Paris, and other European markets.

1927. California Avocado Grower's Exchange renamed: Calavo Growers of California.

1929. Tariff on imports of foreign avocados sought by California and Florida growers (Cuba was a major exporter to the U. S.).

1935. U. S. Customs Court ruled Cuban avocado could continue to enter the United States duty free. Imports of Cuban avocados totaled 7.5 million pounds in the year.

1934. Buildup of latania scale on avocados became a serious problem for California growers, effectively controlled in a few years by natural means.

1935. California avocado crop nearly quadrupled 1934 crop; under-developed demand resulted in low unit returns and a temporarily demoralized industry.

1935. Board of directors of Calavo Growers of California considered proposal of a marketing order for the California avocado industry and other industry-wide programs, endorsing none but "leaving the door open" for future reconsideration.

1936. Program of regular market-developmental shipments of avocado (small quantities) begun by Calavo Growers of California to England, France, Germany and Panama.

1937, January 8-22. Low temperatures during the longest cold spell on record caused major damage to avocado fruit and trees in most avocado-growing areas of California. The loss of crop was estimated to be 33%; 3.2% of industry's trees died.

1937. Calavo Growers of California filed a legal brief attacking duty-free entry of Cuban avocados into the United States.

1940. The University of California began a long-term study to ascertain the best method for avocado fruit maturity determination and a proper basis for standardization.

1942. V. A. Wager, South African plant pathologist, identified *Phytophthora cinnamomi* as cause of avocado root rot disease.

1942. Low-cost nutritional values of avocados were promoted "the five vitamin fruit" in response to government call for greater production of high-nutrition foods. Biological

assay of avocado vitamins was initiated. Experiments were begun for large-scale production of avocado oil in view of war-created shortage of fats and oils.

1943. Nutritional research revealed nine important vitamins in avocado in appreciable quantities.

1944. Comprehensive five division, two-campus "avocado tree decline research" program begun by University of California with financial support by the industry.

1944. George A. Zentmyer appointed to staff of division of plant pathology of Citrus Experiment Station, Riverside, succeeding late Prof. W. T. Home; thereafter served as principal investigator of avocado root rot disease until retirement.

1947. Extensive experimentation with acetate and foil wrapping of avocado fruit and various coatings initiated. Results were largely negative, and practices were adjudged economically infeasible.

1949. California avocado crop significantly reduced and damaged by a major "freeze".

1950. Pasadena Research Laboratory of the U. S. Dept. of Agriculture announced development of a commercial avocado paste.

1951. Etiolation technique for rooting of avocados successfully developed by E. F. Frolich, University of California at Los Angeles, laying groundwork for commercial propagation of clonal avocado rootstocks.

1951. Frozen avocado paste test-marketed in San Diego. Reception positive, but production problems caused termination of the project.

1957. Representatives of Florida avocado industry filed suit challenging California law requiring that all avocados sold in California contain a minimum of 8% oil.

1958, December. Three-judge federal district court ruled that it did not have jurisdiction in the Florida v. California suit and required the plaintiffs either to appeal to the U. S. Supreme Court or to attack the California standard in California courts.

1958. Informal industry committee of growers formed to study problems affecting grower prices and possibilities of an industry advertising program. The committee became "permanent" later in the year as the "Avocado Promotion Committee" with grower Walter Beck as chairman.

1959, January. Florida plaintiffs challenging provisions of the California Agriculture Code relating to avocado maturity decided to appeal to the United States Supreme Court.

1959. A divided industry considered proposals to request issuance of a State Marketing Order for California Avocado Promotion. Opponents proposed the creation of a voluntary organization of avocado handlers (California Avocado Development Organization) to handle advertising and trade promotion, to become effective if a set sign-up level were achieved. The CADO plan received the endorsement of the Avocado Promotion Committee. The required sign-up was not achieved. The Committee, Calavo Growers of California, and others petitioned the Director of the California Department of Food and Agriculture to issue a marketing order.

1959, October 7. The Director of the California Department of Food and Agriculture issued a marketing order for California avocado advertising, promotion and marketing research, to become effective February 1960. Implementation of the order was delayed by a court injunction obtained by a group of avocado handlers.

1961, October. The California Supreme Court ruled against the challengers and the marketing order became effective. An advisory board was formed (November 10); Walter R. Beck was elected chairman and Ralph M. Pinkerton was employed as manager.

1963. The United States Supreme Court, in the suit brought by Florida plaintiffs, upheld the constitutionality of California law requiring 8% oil content in avocados sold in California.

1964. Commercial freezing of table-ready avocados by cryogenic methods developed by two California avocado growers, Hirtensteirner and Miller, was initiated by Calavo Growers of California and Frigid Foods, Inc. in partnership, test marketed in September in New York, Chicago and Dallas.

1968. The California avocado crop was significantly reduced and damaged by a major "freeze".

1972, January. By referendum, a Production Research Committee was established under the state marketing order to administer funds generated by assessment of growers, initially at the rate of 0.4 cents per pound of avocados marketed.

1973. The California Legislature enacted a statute requiring certification of packed avocados to be in compliance with state regulations.

1973, September. Florida avocado growers again sued to nullify the California requirement of 8% oil in avocados, on this occasion prevailing. Grounds in this suit were different from those considered in 1963.

1976 - 80. Industry expands to 80,000 acres with over 8,000 growers. "Gold Rush" euphoria eventually turns to market glut and low prices (Affleck 1997).

1977, September 2. California Governor Edmund G. Brown Jr. signed California Assembly Bill 1602 authorizing a California Avocado Commission.

1978, April 27. Two California avocado growers sued the director and a bureau chief of the Department of Food and Agriculture in an attempt to block formation of the California Avocado Commission. A restraining order issued in June prevented the counting of referendum ballots. A ruling against the plaintiffs, July 3, upheld the constitutionality of the Commission's establishment and dissolved the restraining order.

1978, August 4. The California Avocado Commission was made operative, the Director of the Department of Food and Agriculture having determined that the referendum vote was favorable, and eventually took over all functions previously performed under the state marketing order.

1981. An Avocado Inspection Committee was established by California Senate Bill 70 to be an independent advisor to the Director of the California Department of Food and Agriculture, with power to assure enforcement of avocado maturity standards and other

elements of the Agricultural Code.

1984, November 1. The California Avocado Commission contracted with the California Avocado Society to develop and manage the industry production research program funded by Commission-collected grower assessments.

1990, December 20-23. The California avocado crop was significantly reduced and damaged by a "freeze" rated by some as the most severe since 1913. At least 20% of the statewide avocado crop was lost. In parts of Ventura and Santa Barbara Counties, crop losses were total.

1991. A new mite pest of avocado was discovered on backyard avocado trees in Coronado and La Jolla, near the port of San Diego. The mite, named Persea mite, in 2 years, infested almost every avocado leaf on every tree in San Diego County. The mites were quickly moved to the other avocado-producing counties, most likely in picking bins. Many groves had to be sprayed with Omite by helicopter in the early years of infestation, but the pest eventually came under fairly good biological control.

1992-1998. Significant amounts of Hass avocado imports from Chile begin to show up in U.S. markets. Importation of foreign fruit in the California off-season for Hass supplants the market for the greenskin avocado varieties. Shipments from Chile for the fall of 1998 estimated at 60 million pounds.

1996. Another new pest, avocado thrips (*Scirtothrips perseae*) arrived in Ventura County and quickly spread to all groves. The pest eventually spread to the other avocado-growing counties, probably on infested fruit and picking bins. Groves in the more coastal climates had up to 100% losses in scarred fruit. Research on biological and chemical control is a high priority in the research program.

1997, February 5. U.S.D.A approves Rule to allow importation of Mexican avocados to nineteen states in the northeastern U. S., and the District of Columbia, during the months of November through February. Only groves in Mexico that are inspected and certified to be free of seed weevil and stem borer are allowed to ship to U.S. California Avocado Commission launches program to monitor USDA enforcement of rules and regulations to make sure Mexico ships fruit free of quarantine pests.

1997, November. First shipments of avocados from Mexico arrive in the U.S. Thirteen million pounds of fruit from Mexico arrive during the winter of 1997-1998.

2002, May. U.S.D.A. announces it will conduct a referendum on the establishment of a Federal Promotion Order for the purpose of assessing all Hass avocados sold in the U.S.. The request for the promotion order was initiated by the California Avocado Commission because assessments from the California growers were paying for almost all of the promotion for Hass avocados in the U.S., in the face of increasing shipments of Hass avocados from Chile, Mexico, Dominican Republic and New Zealand. The promotion order would authorize an initial assessment of 2.5 cents per pound on fresh avocados produced in and imported into the U. S. The promotion order would be administered by a new National Avocado Board.

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