

Avocado Production in California

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Background

Avocados are native to Central America and the West Indies. While the Spanish were familiar with avocados, they did not include them in the mission gardens. The first recorded avocado tree in California was planted in 1856 by Thomas White of San Gabriel. The first commercial orchard was planted in 1908. In 1913 the variety 'Fuerte' was introduced. This became the first important commercial variety, due to its good taste and cold tolerance. Despite its short season and erratic bearing it remained the industry standard for several decades^[3]. The black-skinned 'Hass' avocado was selected from a seedling grown by Robert Hass of La Habra in 1926. 'Hass' was a better bearer and had a longer season, but was initially rejected by consumers already familiar with the green-skinned 'Fuerte'. However, by 1972 'Hass' surpassed 'Fuerte' as the dominant variety, and as of 2012 accounted for about 95% of avocados grown in California^[3].

By the early 1930s, California had begun to export avocados to Europe. Research into avocados' nutritional benefits in the 1940s — and a shortage of fats and oils created by World War II — contributed to an increased acceptance of the fruit^[3]. However, acreage expansion from 1949 to 1965 depressed markets and led to slightly decreased plantings through the 1960s (Fig. 1)^[2]. Due in large part to better marketing, the industry expanded rapidly in the 1970s and 1980s, reaching its peak in the mid-80s with 75,000 acres^[2,5]. However, overplanting and new competition from Chile, combined with a growing consumer fear of high-fat foods, resulted in a glut, low prices and a market crash

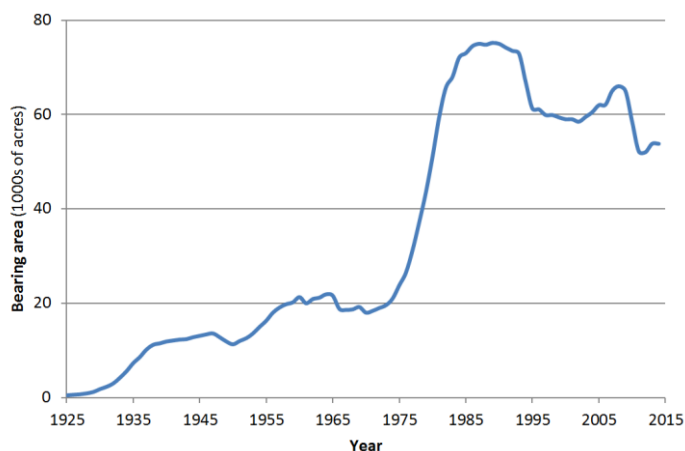


Figure 1: Area of bearing avocado trees in California since 1925^[4,5].

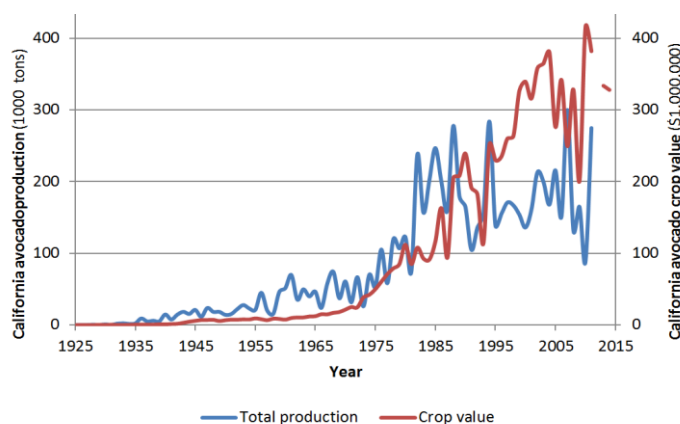


Figure 2: California avocado production (total crop and total value) since 1925^[4,5].

in the early 1990s^[1,3]. The state's crop lost over half its value between 1990 and 1993 (Fig. 2)^[5]. Aggressive marketing, combined with acreage reduction, revived the industry for the next decade^[1,3]. Starting in the mid-2000s, however, drought and sharply increasing water prices, especially in San Diego County, have resulted in further acreage reductions^[3]. San Diego County alone lost over 8,000 acres of avocado groves between 2007 and 2012^[4,5]. Foreign competition, especially from Mexico and Chile, pose another challenge for the industry^[3].

Today's Production

Avocados are frost-sensitive, and are grown mostly along the southern coast. In 2012 San Diego and Ventura counties grew 65% of California's avocados ^[4]. There is also important acreage in Santa Barbara, Riverside and San Luis Obispo counties (Fig. 3). California has historically dominated the US avocado industry. Over the past decade, California has produced between 75% and 92% of the nation's avocados. The other major producer is Florida; Hawaii also has a small acreage. All California avocados are marketed fresh ^[4].

'Hass', the major variety grown in California, can be harvested from spring through fall. Green-skinned winter varieties are also grown, but face strong competition from imported Chilean 'Hass' ^[3].

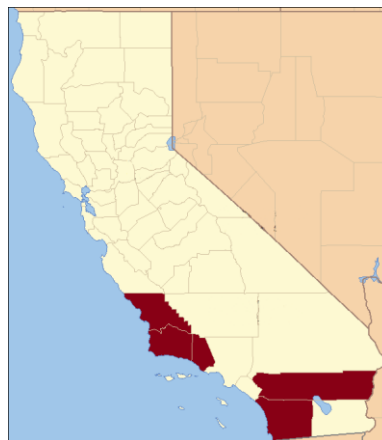


Figure 3: Location of the five leading avocado producing counties in California ^[5].

Yield

Avocados have a strong alternate bearing habit, and yields are also greatly affected by drought and freeze events (Fig. 4). Average yields are therefore in general lower than a typical heavy bearing ("on") year and higher than a typical light-bearing ("off") year and are not a good indicator of the yield potential of a particular grove in a given year. For example, in the 1970s, when the state average yield ranged from 2,000 and 9,000 lbs/ acre, a single 'Hass' grower reported a five-year high and low yield of 21,000 and 1,900 lbs/ acre, respectively ^[2]. However, despite fluctuations, average yields increased steadily from 1925 through the 1950s, and have remained fairly stable since the 1960s ^[4,5]. The increase during

the first half of the century coincides with the industry's adoption of the higher-yielding and more reliably bearing 'Hass' variety ^[3].

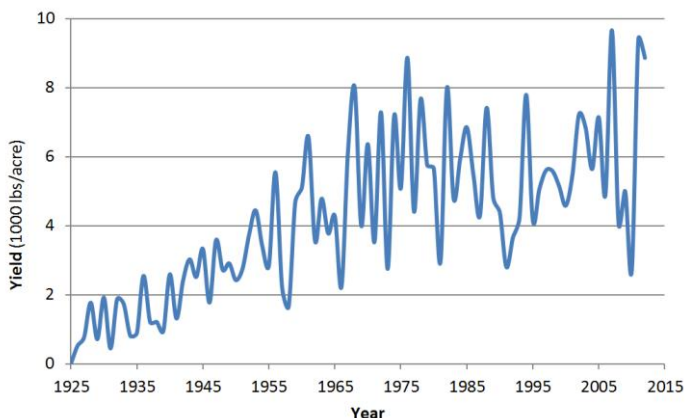


Figure 4: Avocado yields since 1925 in California ^[4,5].

Fertilization

Based on USDA surveys since 1993, California avocado growers applied on average 115 lbs N/ acre each year. The annual phosphate (P_2O_5) and potassium (K_2O) applications averaged 48 and 51 lbs/ acre, respectively. While 91% of growers reported

applying nitrogen, phosphorus and potassium fertilizers were applied on 40 and 45% of the acreage, respectively. Growers applied N on average 3 to 4 times per year and P and K 2 to 3 times ^[4].

References

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This document is available online at https://apps1.cdfa.ca.gov/FertilizerResearch/docs/Avocado_Production_CA.pdf

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