

Alfalfa Production in California

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Background

Alfalfa was introduced to California in the 1850s from Chile. The varieties imported were well adapted to California's climate and alfalfa soon became a major crop, especially on irrigated land ^[5]. In fact, alfalfa was one of the first crops to be grown under irrigation in California ^[4].

In the Imperial Valley, alfalfa became one of the dominant crops, together with small grains, and was considered "the foundation of Imperial Valley agriculture" and "the basis of nearly all rotation schemes" ^[3].

Alfalfa is a perennial crop and generally used for three to five years ^[2].

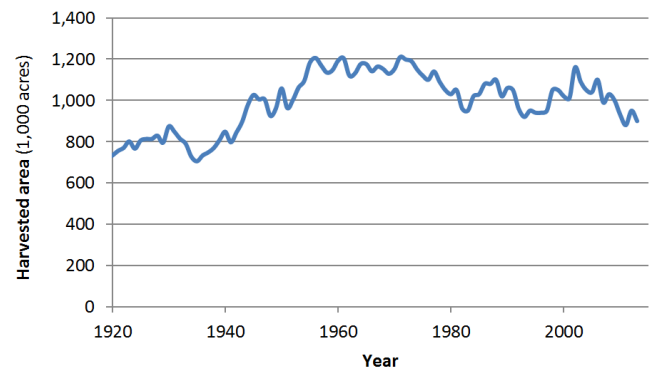


Figure 1: Alfalfa acreage in California since 1920 ^[7].

Acreage

Since the 1920s, the alfalfa hay acreage in California has fluctuated between 0.7 and 1.2 million acres (Figure 1) ^[7]. The acreage is influenced by profitability of alternative crops, the demand for alfalfa hay by the state's dairy herd, which consumes about 70 percent of the supply, and by water constraints ^[1, 2, 4]. Alfalfa is a highly water intensive crop and production cost depend strongly on water prices and pumping costs ^[2].

Alfalfa is produced across the state from the low desert in the south to the northern intermountain region ^[6]. However, most alfalfa is produced in Southern California and the San Joaquin Valley. In 2007, 47% of the state's alfalfa acreage was located in the San Joaquin Valley and 25% in Southern California ^[6]. The counties with the largest area are Imperial, Kern, Merced, Tulare and Fresno (Figure 2). Roughly

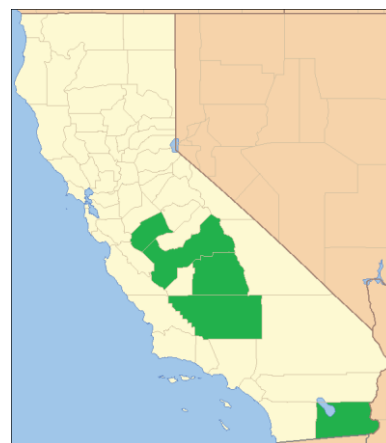


Figure 2: Location of the five leading alfalfa producing counties in California ^[6]
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half of California's alfalfa acreage can be found in these five counties.

Alfalfa is by far the most important crop for hay production in California, accounting for about 85 percent of the value of all hay production ^[2].

Yield

Alfalfa hay yield increased almost linearly from 1920, when about 3.5 tons/acre were harvested, to the early 1990s, when average yield reached some 7 tons/acre. Since then, the yield has stabilized (Figure 3) ^[7]. The yield increase was the result of crop breeding, which led to pest and disease resistant varieties, and improved management practices, such as irrigation techniques ^[1].

Climate determines the number of cuttings per year and therefore yield. While eight to ten cuttings are possible each year in the low desert; farmers harvest only two to four cuttings a year in the cool northern intermountain region ^[2]. For most of the 20th century, California's yield has been twice the U.S. average (Figure 3) ^[7]. California's high yield

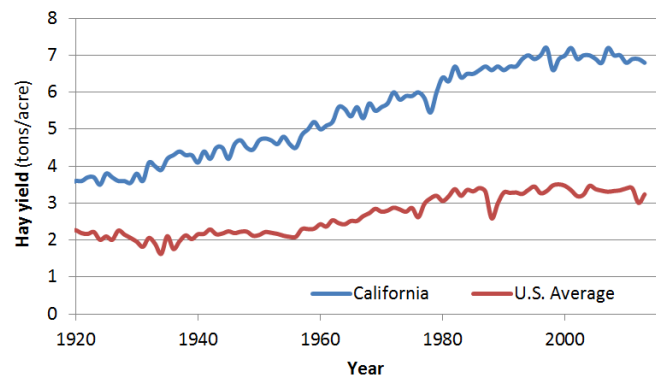


Figure 3: Alfalfa yield in California and the U.S. since 1920 ^[7].

can be attributed to non-dormant cultivars that can take advantage of a longer growing season and to the irrigated production of alfalfa hay in the state ^[1].

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