Production and Marketing Report

Pecan Growing in the Western United States

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Summary. Almost 58,000 acres of pecans [*Carya illinoinensis* (Wangenh.) K. Koch] are planted in the western United States, which includes western Texas and southern areas of New Mexico, Arizona, and California. 'Western Schley' is the main cultivar planted, with 'Wichita' trees used as pollenizers. All orchards are flood-irrigated and almost no diseases are present. The pecan aphid complex is the predominant insect problem; however, orchard crowding is becoming a problem, and growers are thinning orchards and transplanting trees to new sites.

In the last 10 years, the western United States has been the most constant and dependable pecan production area in the country Pecan orchards in this region spread over 57,780 acres in western Texas and southern New Mexico, Arizona, and California (Herrera et al., 1990) (Fig. 1). The combined production of all of these areas in 1992 amounted to 60 million pounds (Table 1). Production increased in 1993, but price per pound was lower.

'Western Schley' is the predominant cultivar grown in the western region and 'Wichita', which is planted mainly as a pollenizer, is second. Some orchards in Arizona and California have 'Wichita' as the main cultivar and use 'Western Schley' as the pollenizer. Some of the old orchards in Arizona and New Mexico use 'Ideal' (Bradley) as a pollenizer. No natives are grown in this region.

Flood irrigation is used in areas where water is supplied from reservoirs, Water wells (furrow irrigation) and high-pressure irrigation (mainly trickle or microspraying) also are used. Usually, orchards are changed to flood or furrow irrigation once they reach full production (12 to 14 years). However, more and more growers are retaining high-pressure irrigation systems after orchards reach full production.

The most common plant spacing in the western region is 30 x 30 ft. Tree crowding eventually occurs, and some growers thin trees to prevent shading, which results in low-quality nuts and decreases production (Herrera, 1987; Wheeler, 1983). Growers usually wait too long to remove trees; therefore, pecan production usually increases with good tree-removal practices, Trees should be removed when sunlight in the orchard floor does not reach 30°/0 to 40% in the middle of the day (Malstrom et al., 1982). It is expected that, in the future, all orchards will be thinned to a 60 x 60-ft spacing

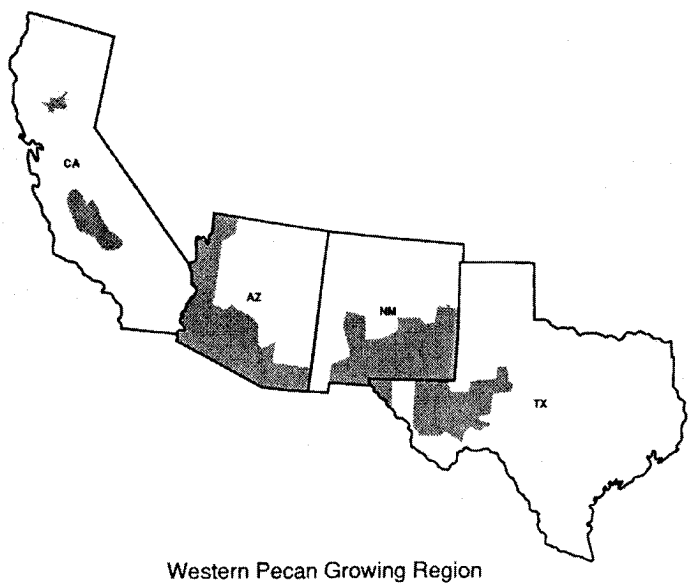
Fertilization practices are centered around nitrogen and zinc nutrition. In established orchards, four to five zinc sprays are applied early in the season when leaves are expanding. Every year, 150 to 200 units of nitrogen are incorporated into the soil; usually nitrogen rates are split into two or three applications, sometimes more if the fertilizer is distributed with irrigation water.

Pecan trees in the western region do not suffer from most of the disease problems encountered in the eastern region. Until recently, problems have included only the aphid complex [black-margined *Monellia caryella* (Fitch)], yellow pecan aphid [*Monelliopsis, pecanis* (Bisell)], and the black pecan aphid *[Melanocallis caryaefoliae* (Davis)]. Insecticides used to control aphids are highly successful, but aphid resistance develops with continual use, Currently, thanks to extension programs nationwide, pesticide application timing has been optimized and fixed-schedule applications have been avoided to prevent resistance buildup (Estes, 1987). The number of growers successfully using beneficial insects (lacewing flies and lady beetles) to control aphids has increased every year.

The pecan nut casebearer (PNC) *[Acrobasis nuxvorella* (Nuenzing)] was spotted first in El Paso, Texas, in 1988(Glogoza et al., 1989), Hickory shuckworm (HSW) [*Cydia caryana* (Fitch)] was found first in western Texas in 1990 (Glogoza and Davis, 1991). Both were reported for the first time in the lower Mesilla Valley, N.M., in 1992 (Davis and Lucero, 1993). PNC was found for the first time in a commercial orchard in 1994, and an insecticide had to be sprayed, Pecan growers will have to change their pest-control programs when these insects become established in the western region, However, some growers would like to cease spraying insecticides. New Mexico State Univ.'s entomologists are researching this subject to find beneficial organisms that attack these pests; they are working with a beneficial insect from other pecan-growing areas of the country and are hoping that these insects will adapt well in New Mexico (Ellington and Carrillo, 1992).

The earliest date growers can harvest pecans

Fig.1. *Western United States pecan-growing region.*



Western Pecan Growing Region

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Table 1. ***Acreage and pecan production in the western United States pecan-growing region, 1992.***

State	Acreage	Price/ lb	Production (million lb)	Value (million $)
Arizona	17,000[z]	1.65	15.0[z]	24.75
California	3,500	1.58	2.6	4.11
New Mexico	25,280	1.58	29.0	45.82
Texas (western)	12,000[z]	1.58	13.4[z]	21.17
Total	57,780		60.0	95.85

[z]*Estimated. Source: National Agricultural Statistics Service (1993).*

in the western region is usually around the second half of November. Most growers in the area wait for the first hard freeze to bring pecan moisture down and cause shucks to open. Usually, 'Western Schley' pecans yield 55% to 60% kernel and have about 63 to 74 nuts per pound. 'Wichita' pecans yield from 56% to 62% kernel and have 50 to 62 nuts per pound; sometimes they are larger (Herrera, 1994).

California is the newest pecan production area in the western region. It has a more varied climate than the other states in the region and may be able to grow profitably varieties that the other western states are unable to grow, Currently, California grows about 3500 acres of pecans, mainly in the southern San Joaquin Valley, encompassing Tulare, Kings, Fresno, Kern, Madera, and Merced counties Some orchards also are also located in Butte and Colusa counties Tree age varies from 1 to 15 years; most pecan acreage is about 10 years old. Annual production from this developing acreage is currently listed at about 2 to 3 million pounds (Herrera et al., 1990).

There are about 17,000 acres of pecan trees in Arizona, mainly in Cochise, Pima, Pinal, Maricopa, Mohave, La Paz, and Yuma counties. Most orchards are more than 20 years old. Arizona and California pecan orchards are harvested earlier than those in other areas in the western region.

New Mexico and western Texas have similar soils and climate, A high water table exists in some acreage located in the lower El Paso Valley. The same cultivars are grown, and similar orchard problems exist. The 1992 pecan orchard survey conducted in New Mexico by the New Mexico Dept. of Agriculture revealed a total of 25,280 acres in the state, up 4464 acres (22.5%) from the previous survey conducted in 1985. Out of this new acreage, 1485 acres were transplanted trees, All 25,280 acres of pecans planted in New Mexico are grown in the southern area—70% of which is located in Doña Ana County: the rest occur in the adjacent Luna, Sierra, Otero, Lea, Eddy, and Chaves counties. Doña Ana and Chaves counties had the most acreage of transplanted trees.

Western Texas, the area south of Midland-Odessa and west of a line from Big Springs to Del Rio, has about 12,000 acres, with 50% of that located in El Paso County. The rest occur in Pecos and Culberson counties and the Permian Basin area. The combined annual production from western Texas and southern New Mexico is about 42 million pounds (Herrera et al., 1990).

Five of the top ten pecan-producing counties in the United States are located in the western region, In fact, the top three counties in the country are in this region. Doña Ana is first, followed by El Paso and Pima. Pinal County is ranked eighth followed by Pecos (U.S. Dept. of Commerce, 1992). There are four shelling plants in the western region: Visalia, Calif.; Sahuarita, Ariz.; Las Cruces, N.M.; and El Paso. Another plant in Juarez, Mexico, State of Chihuahua, services pecan growers from northern Mexico.

The Western Pecan Growers Association annual conference includes an educational program, a trade and equipment show, a pecan nut competition, and the Food Fantasy, where cooks compete for prizes with food or dessert items from recipes that include pecans. The conference is held every year during the first weekend in March. A 5-day pecan orchard management course is offered the first week in June (every other year, even years) at New Mexico State Univ. at Las Cruces.

In spite of having received good pecan prices during 1989-92 and 1994, pecan acreage in the western region will not increase significantly in the near future. Few orchards have been planted in New Mexico and Arizona in the last 5 years. In fact, a reduction of 3000 acres of pecans took place in the last 3 years in Arizona, mainly due to high water costs. Salinity and poor nut quality due to hot weather also contributed to the reduction. Most new plantings have taken place in western Texas (Midland and Pecos counties) and California. Any significant pecan planting that may occur in the future will probably take place in California. The increased acreage in the western region has resulted mainly from removing trees from crowded orchards. Most of the newly planted acreage is in Mexico, especially in the state of Chihuahua, which has a climate like southern New Mexico and western Texas.

The western pecan-growing region has a potential to produce over 100 million pounds of pecans in the next 10 years. No significant new plantings are foreseen in the same period. Northern Mexico, with the same type of climate, could also produce 100 million pounds in the next 10 years. Significant acreage of new plantings has occurred during the last 5 years in Mexico. Water availability may becomes problem for these areas; water use for agricultural purposes is ranked in importance behind population and industry needs. However, a more pressing need for western pecan growers is to receive the best prices for their production, Marketing and promotional efforts for pecans should be a high priority for western pecan growers.

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