

Texas Fruit and Nut Production

Native Pecans

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With the recent rise in market prices for pecans, owners of native pecan trees are considering improving their groves. However, pecan market prices are difficult to predict, both short- and long-term. Before making improvements, growers need to determine whether their sites are likely to bring in adequate returns on the investment.

Historically, native pecans have been a weaker economic crop than improved pecans because of the native's small nut, low percentage of kernel, traditionally low market price, and greater alternate bearing (the tendency to bear nuts in 2-year cycles, with a large crop followed by a small or no crop). Only about 40,000 acres of native pecans are managed for production, and the state's native crop is seldom over 20 million pounds.

When determining whether it would be economically feasible to improve your site, consider the soil depth, flooding potential, management options, pest control, and harvest requirements. A native pecan management program may include nut production as well as livestock grazing (Fig. 1) and recreational hunting.



Figure 1. Grazing is an integral part of native pecan management; ideally, the animals should be removed 45 days before harvest.



Figure 2. Deep soil is characteristic of native pecan bottoms.

Soil

Pecans grow best in deep soils. Groves along large rivers or streams have more economic potential than those on small creeks. Large rivers and streams have deep soils—at least 20 feet—which is typically underlain with a gravel layer and a static water table. (Fig. 2).

Flooding potential

Evaluate the site for its potential to flood. In the fall during the harvest, flooding can wash away an entire crop.

Site preparation

Preparing the site involves removing foreign timber, establishing pasture, selecting the best trees, and improving small trees.

Remove foreign timber: To rejuvenate a native pecan bottom, the first step is to remove all foreign timber—oak, elm, hackberry, mesquite, etc.—regardless of size. All of these tree species compete with pecans for sunlight, water, and nutrients.

It is common to find a few large pecan trees surrounded by very dense stands of foreign timber and smaller pecan trees. Remove the foreign timber quickly and carefully. The trees can be pushed out with a bulldozer or cut with chainsaws and dragged out of the grove.

Individual trees can also be girdled in early spring and burned out. To girdle a tree, saw two rings about 6 inches apart around the tree and remove the bark sliver with an ax. The tree then essentially starves to death because food can no longer be transported to the roots.

Large trees will take a year or two to die. As the limbs fall, they can be piled around the tree and eventually set on fire.

Do not use brush herbicides containing picloram around pecan trees. A safer herbicide for this purpose is triclopyr (example trade name: Remedy), but it too must be used carefully and according to label directions to avoid damaging the pecan trees.

Establish pasture: Native pecan groves may be more profitable if combined with livestock grazing. Simply allow the native grasses to reclaim the land once sunlight again hits the grove floor.

Smooth the orchard floor by disking it grossly uneven, and fertilize it with 100 pounds of actual nitrogen per acre for a few years. The nitrogen will help both the sod and the trees. Sometimes the trees must be fertilized for 3 to 5 years to begin bearing well. Use foliar zinc sprays to stimulate growth. Because a firm surface is needed for harvest, disk to even out the terrain only in the dormant season.

Select the best trees: Evaluate each tree for productivity, nut quality, and susceptibility to disease (scab) and insects (phylloxera, weevil). Use paint or tags to mark the trees that produce relatively larger nuts or higher percent kernel to remain as permanent trees.

Conversely, mark trees with small nuts for immediate removal. Remove all weak, inferior, and damaged trees. A native pecan grove often contains many tall, spindly trees that must be thinned (Fig. 3).

Large trees have more economic potential until they become too big to spray and harvest. Trees that are isolated and widely spaced from the main grove are vulnerable to birds and other nut eaters (Fig. 4).

An ideal grove has trees that are spaced widely. For maximum production, the trees need full sunlight over the entire canopy. In reality, this wide spacing is rare. The optimum spacing in a native bottom allows 50 percent of the ground to be shaded by tree canopies and the other 50 percent covered in sunlight.

Continue evaluating and removing trees every year. For best results, thinning must be ongoing and long term.

Improve small trees: Small native pecan trees are ideal for topworking (grafting) to improved varieties (Fig. 5). Use only varieties that produce small nuts and are resistant to pecan scab. Examples are 'Caddo,' 'Apalachee,' 'Lakota,' 'Prilop,' 'Osage,' and 'Kanza.' In Central and West Texas, 'Sioux' has also worked well in native groves.

Topwork the trees at least 6 feet from the ground to prevent cattle and deer from destroying the graft. Grafting the trees from the back of a pickup works well.

Grafted trees need more care than those not grafted. If you do not provide this care, the trees are better left as natives.



Figure 3. Weak trees should be removed early in the renovation process.



Figure 4. Isolated trees are vulnerable to birds and other nut eaters.



Figure 5. A native tree can be topworked (grafted) to an improved variety.

Timber buyers

Before removing trees, contact potential buyers of firewood, saw logs, and/or veneer logs to determine if the trees could have monetary value after they are cut. In large native bottoms, you will need a trained forester to estimate the economic value and help find buyers.



Figure 6. Small sawmills can be used to mill pecan logs into pecan lumber.

Firewood has probably accounted for most of the sales, but the market can become saturated. Texas native pecan wood is dark with many markings, which is atypical in the national hardwood trade. However, there could be a market for use in floors, furniture, and handmade paneling. Pecan logs have also been sold for mushroom production.

The initial thinning operations may produce as much as 2,500 board feet of logs and 5 to 8 cords of firewood. Timber harvest sales could offset the costs of thinning and even bring in some profit.

Although large, industrial timber buyers have not developed in Texas, more than 50 small sawmills operate in the state. Typically the owners of these portable sawmills cut and dry timber for their own use or for retail sale (Fig. 6).

Cultivation

Profit margins for native pecans are often narrow. Pay close attention to grove yields, management costs, and anticipated market prices. Most managed native pecan groves average 500 pounds of nuts per acre per year; however, production is usually 1,000 pounds one year and none the next.

Direct your management practices toward maximizing the on-year crops. Protect the good crops and minimize expenses on light or off-year crops. Manage nitrogen, zinc, pecan nut case bearer, and pecan weevil according to the crop size.

Nitrogen fertilizer stimulates growth, which improves production. It also benefits pasture grasses. Always fertilize the pasture grass in late winter or early spring. If a good pecan crop is set, fertilize again in late May or June.

Zinc sprays are essential for leaf and shoot growth and for filling the pecans in good years. Apply it once every year at bud break. In good crop years, apply zinc a second time, usually with the pecan nut casebearer sprays. Zinc is a low-cost spray treatment, and more than two sprays will be beneficial in the good years.

Management/harvest options

Many types of lease agreements for native pecans are made in Texas. Owners and operators should try to work out an agreement most acceptable to their economic involvement. Common management systems include:

- **Owner-operated:** The owner takes care of the grove and performs all operations, including harvest.
- **80:20:** The grove manager pays all expenses and provides all labor and all equipment. The manager receives 80 percent of the gross; the owner receives 20 percent.
- **60:40:** A gatherer harvests and markets the crop for 60 percent of the gross; the owner receives 40 percent. This type of agreement is occasionally used on groves that are under minimal or no management.
- **50:50:** The owner and the manager split the costs 50:50. The manager provides all labor and equipment and markets the crop. Gross returns are split 50:50. This form of lease agreement is the most common.
- **Lease:** The grove is leased for a set price. Some groves are leased just before harvest; others are leased for a number of years. This arrangement is common.
- **Custom harvester:** The owner takes care of a grove and hires a custom harvester to gather the crop.

Bacterial and fungal diseases

Some diseases, such as scab and downy spot, attack both improved and native pecans. Remove natives that are particularly susceptible. Exceptions could be made for trees that are especially productive with excellent pecans.

In high-pressure years, you may need to spray a fungicide against pecan scab to keep the nuts and leaves healthy.

Insect and vertebrate pests

Major insect pests on native pecans are pecan nut casebearers, hickory shuckworms, stink bugs, and weevils. Few native groves are sprayed for anything other than weevils and pecan nut casebearers. Although in years with no crop, the trees should receive no pesticide sprays, they would benefit from zinc sprays.

In big crop years, spraying an insecticide for shuckworms and stinkbugs is justified. Native groves in weevil country (Fig. 7) must be protected from weevils, or their red-headed grubs will destroy the kernels.

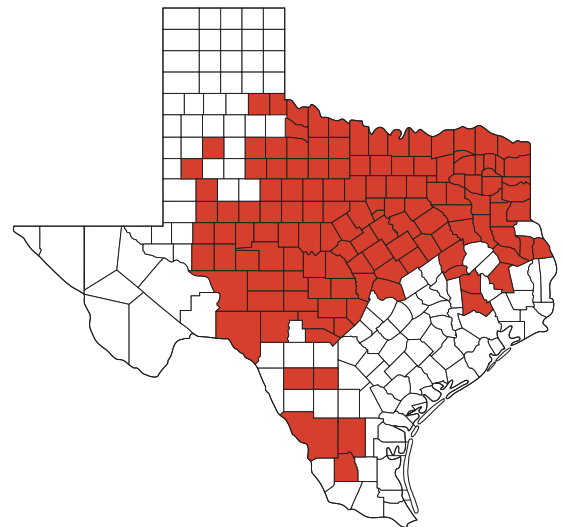


Figure 7. Pecan weevils are found in 131 counties in Texas.

Cone and trunk traps can help you determine when to spray. For the weevil to lay its eggs, the pecans must be in the gel or dough stage. In the gel stage, the fill of the nut changes from water to gel. In the dough stage, the gel begins to solidify. Watch the nut development, and spray accordingly.



Figure 8. A pecan blower or vacuum separator removes foreign materials from the harvested nuts.

Weevils emerge in moist soils; they cannot emerge from hard, sunbaked soil. Because they emerge after late-season rains and lay eggs at shuck split, watch the grove closely to prevent serious damage.

For information about monitoring kernel development, setting traps, and applying insecticide, see *Controlling the Pecan Weevil*, available at <http://agrilifebookstore.org>.

Crop production and profits can be reduced drastically by blue jays, crows, deer, feral hogs, raccoons, squirrels, and turkeys. Although the damage is more obvious in short crop years, it is always a problem.

Hunting and trapping should be an integral part of the native management program. Start control measures early in the growing season because once you see the damage, it is very hard to reduce the losses.

Harvest

Remove livestock from the grove at least 45 days before harvest.

To reduce losses from animals, harvest native pecans as early as possible. Unfortunately, harvest typically cannot begin until late in the season when the trees lose their leaves. A few nuts will drop in October, but most don't fall until November to December. It is almost impossible to shake the nuts from a tree that has leaves on it.

When the trees are shaken, many limbs will also fall. These limbs have died because of shading and must be stacked before the harvester picks up the nuts.

Once harvested, the nuts will need to be run through some type of blower or vacuum separator to remove the remaining sticks, pops (hollow pecans), and other foreign material before being placed in sacks (Fig. 8).

Most natives are stored and transported to market in a type of "super sack" to reduce the labor needed to handle and move the nuts. Take a sample from each sack to determine how well the nuts grade out. Average shell-out (percent kernel) values for native pecans are commonly 41 to 42 percent kernel.

For more information

These publications are available from the Texas A&M AgriLife Bookstore at <http://agrilifebookstore.org>.

- *Commercial Pecans: Controlling Rosette, Diseases and Zinc Deficiency*
- *Controlling the Pecan Nut Casebearer*
- *Controlling the Pecan Weevil*
- *Field Guide to Insects and Mites of Pecans*
- *Managing Insect and Mite Pests of Commercial Pecans in Texas*
- *Texas Pecan Handbook*

The Texas Pecan Orchard Management Shortcourse is held annually during the last week of January at Texas A&M University in College Station. For registration information, contact Texas A&M AgriLife Conference Services at <https://agriliferegister.tamu.edu/> or (979) 845-2604.

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