



Managing Pecans in the Home Landscape

Becky Carroll

Extension Assistant, Fruits and Pecan

Jackie Lee

Extension Entomologist

Pecan trees are common in the home landscape as ornamental trees, and with special care, can produce quality nuts. Today, pecans are recognized as a healthy addition to our diets. High unsaturated fats reduce the chance of stroke, heart disease and other health problems. With the high prices of pecans in the grocery stores, many people would like to grow their own pecans to harvest. This Fact Sheet outlines pecan management and harvest practices for homeowners to maximize nut production from existing or newly planted pecan trees. Although pecan trees are beautiful, provide shade and have delicious nuts, these trees can have challenging management issues for homeowners.

Variety Selection and Source Material

Members of the hickory family, pecans are native to Oklahoma and are found in most counties in the state except the far northwest and panhandle areas. Naturally occurring pecan trees are referred to as “native pecans” or “seedling pecans,” differentiating these from improved varieties, which are grafted. While quality nuts can be harvested from both native pecans and improved varieties, there are several advantages to growing varieties. A seedling or a tree grown from seed will not produce pecans identical to the parent tree. Each seedling is different and may produce nuts with better or lower quality than the parent, but it may take 15 years to 20 years to identify these qualities. Propagation of improved varieties is achieved through grafting or taking shoots from a desired tree and joining them onto the seedling rootstock, resulting in identical pecans from tree to tree.

Homeowners planning to establish new trees should select varieties adapted to their particular climate. It is also advantageous to select varieties resistant to common diseases and insect pests. Extension Fact Sheet [HLA-6201 Pecan Varieties for Oklahoma](#) looks at some of the best varieties for different areas of the state. The most popular varieties being grown in recent years include Pawnee and Kanza. These varieties pollinate each other and have smaller nuts, making them easier to grow high-quality nuts. Larger pecans require more inputs to achieve a high-quality pecan.

Unfortunately, improved varieties are not always easy to find commercially. In many instances, varieties offered at discount outlets are not suitable for Oklahoma's climate. Homeowners can purchase trees already grafted, or try grafting

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are also available on our website at:
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their own trees with graftwood purchased from a local source. A list of growers offering graftwood can be found at: <http://okpecans.okstate.edu/PDFs/graftwood-source> and a list of nurseries growing pecan trees are available at <http://okpecans.okstate.edu/PDFs/pecan-nurseries>. The grafting process is detailed in several Extension Fact Sheets. [HLA-6204 Bark Grafting Pecan Trees](#) and [HLA-6230 Four-flap Grafting](#) are the two most common methods. Several grafting workshops are offered each spring throughout the state. Contact your local Extension educator for classes offered nearby.

Homeowners can also collect graftwood, if a desirable cultivar is available. Graftwood must be collected during the winter months, while it is still dormant. It is kept in cold storage until the rootstock is ready for grafting, generally around late April and May when the bark ‘starts slipping’ or sap begins flowing and the bark loosens on the trunk. Graftwood collection is described in the Extension Fact Sheet [HLA-6217 Collecting and Storing Pecan Propagation Wood](#).

Planting

Pecans are wind pollinated. Two complementary varieties need to be planted to ensure good pollination, unless native pecan trees are within about 300 feet, which can meet the pollination requirements. Pecan trees can grow up to heights of 70 feet with a root system as wide as the tree is tall. Pecan trees require abundant sunlight and should have plenty of space to avoid overcrowding. Plant pecan trees at least 40 feet to 60 feet apart and away from power lines and buildings.

Planting time depends upon whether trees are purchased as bare root or container trees. Bare root trees should be planted while dormant, usually in mid-February to March. Container trees can be planted starting in early October through May. Native trees can be used as rootstocks, if available. Smaller seedling trees can be transplanted while dormant, then allowed to acclimate at least a year before grafting.

Bare root trees and transplants may have very large tap roots, but recommendations are to cut the tap root to about 18 inches long before planting. Take care not to allow the tree roots to dry out or freeze before planting. Dig the hole just large enough for the root system but do not dig too deep. A shallow hole is better than one too deep. Fill in the hole with the same soil removed during excavation and tamp down while filling to eliminate air pockets. Water well to settle the soil.

Tree Care

Nutrient Management

A healthy pecan tree is much more resilient to pest problems and will produce higher quality nuts. Managing tree health starts with soils, particularly nutrition and soil moisture. The preferred time to fertilize pecan trees in Oklahoma is February through March (or at least 3 weeks to 4 weeks before spring budbreak). The visual appearance of individual trees is often a useful guide to fertilizing the trees. This requires regular inspection of the trees. Leaf color, quantity, retention, shoot length and diameter are all significant measurements of growth. This provides information of the tree's nutritional condition. Properly fertilized pecan trees will have an abundance of large, dark green, healthy leaves forming a full canopy. The annual terminal growth on mature, bearing pecan trees should be four inches to eight inches long. Young, nonbearing trees should make more growth.

Pecan trees generally require yearly applications of nitrogen and zinc. A soil test will determine if phosphorus and potassium are in adequate supply. If unknown, individual trees may be fertilized at the rate of one pound of complete fertilizer (10-10-10) per year of age or inch of trunk diameter. Trees 15 inches to 25 inches in diameter may require two pounds of complete fertilizer per inch diameter. The rate can be increased to three pounds per inch diameter on trees larger than 25 inches in diameter. Scatter the fertilizer under the canopy of the tree, where roots are located. Additions of zinc are normally required for trees from south of Tulsa while those in northern sections of Oklahoma normally have adequate zinc. Zinc applications are normally applied through foliar sprays (2 pounds of 36 percent zinc sulfate per 100 gallons water) unless the soil pH is less than 6.5, and then soil applications can be made. Soil applications of 36 percent zinc sulfate can be made at the rate of one-half pound per inch of trunk diameter with a maximum of 10 pounds per tree per year. Refer to Extension Fact Sheet [HLA-6232 Fertilizing Pecan and Fruit Trees](#) for fertilizer rates and application instructions.

Irrigation

Irrigation is especially important for young trees. Water trees after planting, then irrigate weekly, if rainfall isn't adequate during the growing season. Trees of nut-bearing age need water at several key times: during the spring for vigorous shoot growth, from May through July for nut sizing and, most importantly, from August to October for nut filling. The late irrigation affects the nut fill, which is important to produce high quality, well-filled kernels. Drip irrigation systems work well to provide efficient irrigation to the pecan tree. One inch to two inches of water per week may be needed during the heat of the summer. As the trees grow larger, they will require more water. For instance, 1 year old trees typically use 6 gallons per day and 30 foot tall trees use about 100 gallons per day during mid-July through early-September.

Pest Management

Managing pest outbreaks can be challenging for homeowners, as it is difficult to apply pesticides correctly due to tree size and the specialized equipment required. Also, many of the pesticides listed for pecan pests are sold only to commercially licensed applicators. If pesticide application is

warranted, it is often easier to hire a commercially licensed applicator to spray landscape trees. Fortunately, homeowners can adopt a number of pest-avoidance strategies to minimize pest problems in landscape pecans, while still obtaining a sizeable harvest. Starting with a resistant variety will limit problems with common diseases, such as scab, and reduce the need for pesticide applications. Practicing sanitation can further reduce pest pressure and utilizing traps help to monitor for potential insect pests.

Weed Control

Weed control is more important than nutrient management and irrigation, especially during the establishment of new trees. Weeds, including lawn grasses compete for nutrients and water and release chemicals into the soil slowing the growth of newly planted trees. A weed-free area around newly planted trees should be kept clean by using herbicides, weed barriers or organic mulches. Organic mulches are especially beneficial during tree establishment. The decision to keep a clean area under pecan trees can be difficult for some homeowners who love the look of a green lawn. Extension Current Report [CR-6242 Weed Control in Pecans, Apples and Peaches](#) details ways to keep the planting area weed-free.

Insects

If you have ever found an empty pecan shell with a small round hole, you can blame the pecan weevil. Pecan weevil is the major insect pest of pecans in Oklahoma. The adult weevils (Figure 1.) lay eggs in pecans and the larvae feed on the developing kernels (Figure 2.). Larvae chew a round exit hole in the nut (Figure 3.), fall to the ground and pupate in the soil. They can remain in the soil for one year to three years. In Oklahoma, peak adult weevil emergence generally occurs in late August to mid-September; however, this timing can be earlier or later depending on soil moisture. Typically, weevil emergence will increase three days to four days after a 1- to 2-inch rainfall.

One way to reduce populations of weevil is to use Circle traps on the trunks of pecan trees. Trapping and monitoring for pecan weevil is important until shuck split. After pecan weevils emerge from the soil, up to 85 percent enter the tree by crawling up the trunk, the rest fly to the canopy. For this



Figure 1. Pecan weevil adult.



Figure 2. Pecan weevil larvae in nut.



Fig. 3. Pecan weevil larvae exit hole.

reason, Circle traps, which fit around the trunk, are more efficient than other trap types.

In mid-July, place Circle traps around trees to intercept these pests. They should go around the entire circumference of the tree. Two to three traps may be needed for larger trees. Check traps daily and kill all weevils found in the traps. This will reduce the population. For more information on Circle trap construction and pecan weevil monitoring and biology consult Extension Fact Sheets EPP-7190 and EPP-7079 which can be found at: osufacts.okstate.edu.

Another insect pest is the pecan nut casebearer (PNC). The pecan nut casebearer can be a problem in Oklahoma during the end of May or beginning of June. This is a pest that affects the small pecans during development. The adult is a gray moth 1/3-inch long with a raised ridge of scales across the forewings. The adults lay eggs on the small, developing nuts. The eggs hatch and larvae burrow into the nut. They can eliminate a single nut or a whole nut cluster. A heavy infestation can eliminate 70 percent to 80 percent of a pecan crop. Spray timing is very important to adequately manage this pest.

The larvae are difficult to control with insecticides once they have burrowed into the nuts so younger larvae hatching from eggs are targeted. The Pecan ipmPIPE website, <http://pecan.ipmPIPE.org>, has a real time map that can help you determine when to spray for PNC. This map is generated by monitoring traps located across the state. Monitoring begins in early May and extends throughout June. Insecticides are available that work well to manage PNC. Spray an over-the-counter product containing *Bacillus thuringiensis* (Bt) or methoxyfenozide. These products are friendlier to beneficial insects and will help maintain a healthy population of natural enemies, which could help with pest problems later in the season. Consult Extension Fact Sheet EPP-7189 [The Pecan Nut Casebearer](#) for more information.

Sanitation can be an effective method of cultural control for some insect pests of pecan. The hickory shuckworm (Figure 4.) is a moth that lays eggs on or near pecan nuts. These eggs are usually easy to distinguish by a scaly white appearance (Figure 5.).The eggs hatch into caterpillars that feed on the nut or shucks. During the growing season, more



Figure 4. Hickory shuckworm adult moth.



Figure 5. Hickory shuckworm egg covered in white scales on pecan.

than one generation can develop. Before the shell hardens, the caterpillars enter the nut and feed on the young kernel. The damaged nut will usually drop to the ground. After the shell hardens, the caterpillars will bore into the shucks. A sign of this feeding is black stains on the shell or shuck. The hickory shuckworm overwinters in the shucks on the ground. Sanitation will help control this pest in small plantings. Each fall or early spring, remove and burn all shucks. This will destroy the pupating insects. During the growing season, remove and burn any immature nuts that fall. This will decrease the population.

Twig girdlers are a pest that can be managed with good sanitation practices. The twig girdler is a small beetle that has one generation in Oklahoma per growing season (Figure 6.). Some indicators of twig girdlers include: small branches accumulating on the ground, the presence of clean-cut twigs, and/or dangling (flagged) branch tips within a tree. The twig girdler female chews a V-shaped groove around a small twig, girdling it (Figure 6.). She then will lay an egg underneath the bark on the girdled limb. This portion of the limb dies quickly and will fall to the ground with the larva inside. The small larva will overwinter in the fallen twig. During the following spring, the larva resumes feeding, consuming most of the wood. As the larva grows, it bores further down into the twig and fills the tunnel with wood shavings and waste. Pupation occurs in a cavity within the twig. Adults emerge in late summer and early fall. Homeowners should collect and destroy infested twigs and branches they find on the ground, beginning in the fall or early spring. This will eliminate the overwintering larvae. Infested limbs should also be pruned and burned, if feasible .

Fall webworm caterpillars build large webs in pecan trees. Inside these webs 100 or more caterpillars can be found feeding on pecan leaves (Figure 7). A large infestation can cover the tree with webs and cause severe defoliation. If this occurs you will want to spray an over-the-counter product containing *Bacillus thuringiensis* (Bt) directly on the affected area; the insecticide spray must penetrate the web to be effective. If there are only a few webs, there is no need to spray. You can remove/destroy the webs by hand or by pruning. Many insect parasites and predators feed on fall webworm and reduce their numbers.

Walnut caterpillars feed in large numbers on pecan leaves. They differ from webworm in that they do not construct webs around the leaves (Figure 8). The caterpillars eat the



Figure 6. Twig girdler and girdled stem.



Figure 8. Fall webworm feeding inside silken web on pecan tree. Photo by G. Keith Douce, University of Georgia, Bugwood.org

leaves and only leave the mid-ribs and stems behind. Once the caterpillars eat and grow enough, they will all migrate to the trunk or scaffold limbs to shed their skins before crawling back to continue feeding on leaves. Outbreak infestation of these caterpillars occur occasionally in Oklahoma. If you have an outbreak, consider spraying an over-the-counter product containing *Bacillus thuringiensis* (Bt) directly on the affected area.

Follow all pesticide label recommendations. Make sure the target area is listed on the label (pecan trees) and that you wear the proper personal protective equipment, while applying the pesticide.

Diseases

The best prevention for disease is starting with resistant varieties. Choose pecans that are less susceptible to pecan scab, a fungus that affects some varieties. On susceptible varieties, pecan scab can cause complete crop loss, especially during wet, humid conditions. The leaves are susceptible to scab from bud break until mature. The shucks are susceptible



Figure 8. Walnut caterpillars feeding on pecan leaves. Photo by H.C. Ellis, University of Georgia, Bugwood.org

while developing. Scab causes black spots or lesions that can totally cover the shucks, preventing them from developing or from opening properly. Nearly all fruit and foliage diseases of pecans, including scab, overwinter on plant parts infected the year before. Complete removal and destruction of leaves and shucks during the winter can reduce carry-over of scab and other diseases. Sanitation is a cheap environmentally friendly way to manage these pecan pests, especially for small plantings. Larger commercial plantings may require other pest management tactics, such as fungicide applications. Providing good airflow around the tree and pruning up lower limbs may help reduce the disease pressure.

Harvest

Splitting shucks signal ripe pecans that are ready to be harvested (Figure 9.). Early maturing pecan varieties begin ripening in mid-September and later varieties may continue to mature into mid-November. Varieties that ripen in mid-November or later may be damaged and unusable by fall freezes. If the shucks have not split before the first hard freeze, they may not open. Be sure to buy or graft a variety that ripens early in the season to lessen the chance of nuts being frozen in the shuck.

To make harvest easier, start by using a leaf blower to remove the fallen leaves beneath the tree. A frailing pole can be used to dislodge the nuts from the tree and a tarp can be positioned underneath to catch the nuts. The earlier that the pecans are harvested, the less chance that wildlife harvests them first. One crow or squirrel can collect as much as a pound of pecans per day. If a flock of crows depredate a pecan tree, they can pick it clean in a short time.



Figure 9. Shuck split signals pecans are ready to be harvested.

Storage

After the nuts are harvested, they must be properly dried before storage. Break kernels between your fingers to make sure the moisture content is adequate for storage. A dry pecan kernel will snap when bent. If it is rubbery, the nuts will need more drying time. Spread the pecans on a table and use a small fan to blow air over the nuts for a couple of days. Nuts can also be dried in a mesh bag. After properly dried, the pecans can be frozen in the shell or cracked and frozen. Be sure to store in an air tight container so the nuts will not absorb off flavors from the freezer. Storing in the freezer is the best storage option. At room temperature, a pecan can become rancid after about three months, due to the high oil content in the pecan kernel. If frozen, the pecans can be stored for many years.

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