

# Pecan Production in the Home Garden

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In all parts of Arkansas, pecan trees are a good choice for the home garden if a large, deciduous shade tree with fall color is desired; the extra bonus of nut production makes the pecan tree a favorite choice for Arkansans. When planting a pecan tree, choose the planting site carefully. To produce a healthy, productive and beautiful pecan tree, the planting site must provide adequate room for growth, full sun, and deep, well-drained soil with sufficient water and nutrients.

Mature pecan trees need adequate space for proper growth. Since a pecan tree may grow over 75 feet tall and wide, it should be planted at least 15 feet from a building foundation or driveway and 40 feet from another pecan tree or other type of tree. Pecan trees need full sun all day.

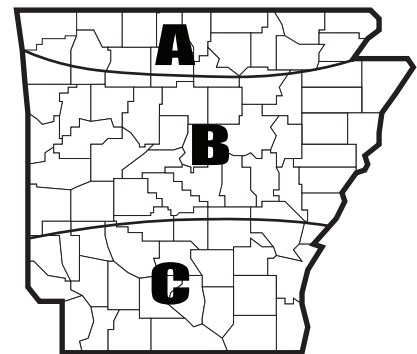
Pecan trees need deep, well-drained soil. For maximum growth and nut production, pecan trees need at least 36 inches of well-drained soil but will grow in less if proper care is provided. It is possible for the pecan to produce a nice shade tree in shallow, well-drained soils of 12 inches. In good soils of 24 inches and with proper management, pecan trees can produce healthy trees with adequate nut production. Pecan trees cannot tolerate tight clay soils, which do not let water run through or drain out. Planting pecans in rocky or shallow soils will produce trees with thin foliage, poor growth and little or no nut production.

The best way to determine soil drainage is by digging a hole 36 inches deep with a shovel or hand-held post-hole digger and filling it with water. Ideally, the water will drain in 24 hours, but if the water has drained within 36 hours, this soil is adequate for pecan trees.

## Varieties and Rootstocks

Choosing which variety to use is an important decision. A pecan tree for a home landscape should have a strong structure and good foliage. One choice is a seedling tree, which is an ungrafted tree grown from a nut of a named variety or is native to that area. A seedling tree makes a beautiful lawn tree because of its straight trunk and vigorous upright growth. The drawbacks to seedling trees are delayed nut production, variable nut quality, and the shape and size of tree.

If the pecan nut is a major reason for planting a pecan tree, consider planting a tree that has been grafted to an improved pecan variety. When selecting a grafted tree, consider your geographic location (Figure 1).



**Figure 1. Areas of Pecan Adaptation**

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Major factors to consider for an improved pecan variety are disease resistance, tree structure, nut size, nut characteristics, nut ripening and type of pollen shed. Disease resistance to pecan scab is an important consideration for locations with humid weather. Pecan scab attacks both leaves and nuts, and it can destroy the whole crop of nuts. A tree with good structure has strong limbs and will take less training. Nut size does vary greatly between varieties and will vary due to the age of the tree, size of the crop, and weather and moisture conditions during the growing season.

Pecan trees with large nuts take extra care and maintenance to fill out the nuts. Large nut varieties usually can produce quality nuts on young trees but rarely can produce well-filled nuts on older trees. A better choice of a pecan variety is one with a medium to small size nut that will produce quality nuts on mature trees. Good nut or kernel characteristics to select are bright golden color, crisp texture, high percent kernel and ease of separating the kernel from the shell, which will help in shelling. The timing of nut ripening is important because a variety that does not mature before an early fall freeze will cause

the nuts to stick to the shuck. Early-maturing pecans are more likely to be subject to predator attack by crows, blue jays and squirrels.

When selecting pecan varieties for the home, bear in mind that you need trees that will pollinate each other within a quarter of a mile. Basically, there are two types of pecan trees: Type I has male flowers that shed pollen first before the female flowers are receptive, and Type II has female flowers that are receptive before the pollen is released by the male flowers. For good pollination, it is important to have both types or to have the other type within a quarter of a mile. Table 1 shows the recommended pecan varieties for Arkansas.

Note that most pecan trees are grafted to southern pecan varieties, which do not have the winter hardiness necessary for the climate of Arkansas. Look for varieties that are grafted onto the Giles rootstock from Kansas or other northern pecan varieties. These may be difficult to find in nurseries, but are worth pursuing for their winter hardiness.

**Table 1. Recommended Pecan Varieties for Arkansas**

Variety	Adaptability (Fig. 1)	Nut Size	Nut Quality	Nut Ripening	Potential Crop Size	Scab	Tree Structure	Pollen Type
Caddo	A,B,C	Medium	Very Good	Early	Moderate	Good	Strong	I
Amling	C	Medium	Very Good	Middle	Moderate to Low	Very Good	Strong	I
Elliot	C	Small	Good	Middle	Large	Very Good	Strong	II
Kanza	A,B,C	Small	Very Good	Early	Moderate	Very Good	Strong	II
Lakota	A,B,C	Large	Good	Middle	Moderate	Very Good	Strong	II
Pawnee	A,B,C	Large	Very Good	Middle	Large	Good to Fair	Strong	I
Oconee	B,C	Very Large	Very Good	Late	Large	Good	Strong	I
Stuart	B,C	Large	Fair	Late	Moderate	Fair	Fair	II

## Soil, Planting and Preparation

Before planting a pecan tree, take a soil sample to determine if additional lime and fertilizer are needed. Pecan trees can be purchased either as bare-rooted or container-grown. Bare-rooted trees are available from December to mid-March and are less expensive than container-grown trees; be sure to prevent roots from drying out or freezing before planting. Container-grown trees can be planted any time but do best when planted from fall to early spring. When planting a container-grown tree, it is necessary to score the root ball and spread out the roots. Any broken or damaged roots should be trimmed before planting.

The hole for planting should be only as large and as deep as needed. Plant the tree at the original depth; a color change in the bark will indicate the original soil line. Spread the roots in all directions and firmly pack the soil around the roots. Do not add amendments like peat moss, sand, mulch or fertilizer in the planting hole. Water immediately after planting to remove any air pockets and to settle the soil. Prune off the top half of the newly planted tree (Figure 2), and protect the bark from possible damage from lawnmowers, weedeaters and herbicides.

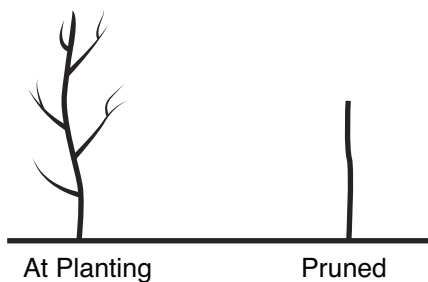


Figure 2. Removing to Top Half of Newly Planted Tree

## Care of Young Trees

### Watering and Weed Control

Young pecan trees will need 10 to 15 gallons of water weekly by irrigation or rain. Pecan trees do not like wet or saturated soils, so do not overwater. To promote the development of fast-growing, deep, well-rooted trees, it is important to water deeply. Between waterings, let the soil dry out, but not completely, to allow oxygen back into the soil.

Weed control is as important as watering because weeds will compete for water and fertilizer before the tree can use them. Control weeds by hoeing, pulling, mulching or using chemical herbicides. If using a chemical herbicide, protect the tree's trunk and foliage from herbicide contact.

### Fertilizing

Young pecan trees will need 2 pounds of a complete fertilizer such as 10-10-10 for each inch of trunk diameter (measured 4 feet above the ground). Apply fertilizer in February or March and again in June or July. Do not apply fertilizer at planting or right after. If young trees are not growing 18 inches of growth each year, apply an extra pound of ammonium nitrate per inch of trunk diameter in June or July. In soils with a pH of below 6.5, add a pound of zinc sulfate for the first four years. Fertilizer and zinc sulfate should be applied evenly around the tree but away from the trunk.

### Training and Pruning of Young Trees

Proper training of a young tree will promote a strong, attractive tree. The first year after planting, pecan trees grow slowly, and only the top needs to be pruned to one limb (trunk). The second year's growth will need to be lightly pruned to promote the trunk and to remove sharp angles or weak forks, and lower side limbs should be cut back or removed (Figure 3). The third and fourth years' pruning will continue forming a strong trunk and side limbs (Figure 4). Each year the lowest limb or limbs may be removed from the trunk.

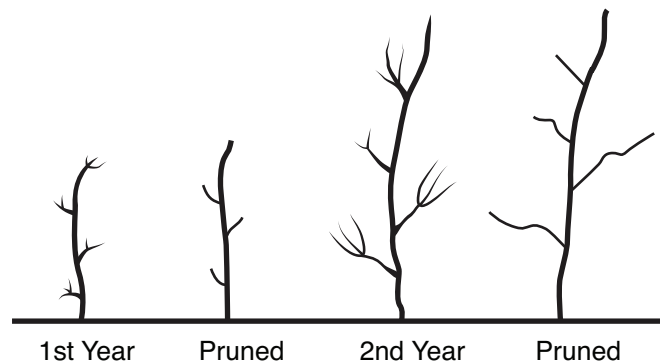


Figure 3. Pruning the 1st and 2nd Years

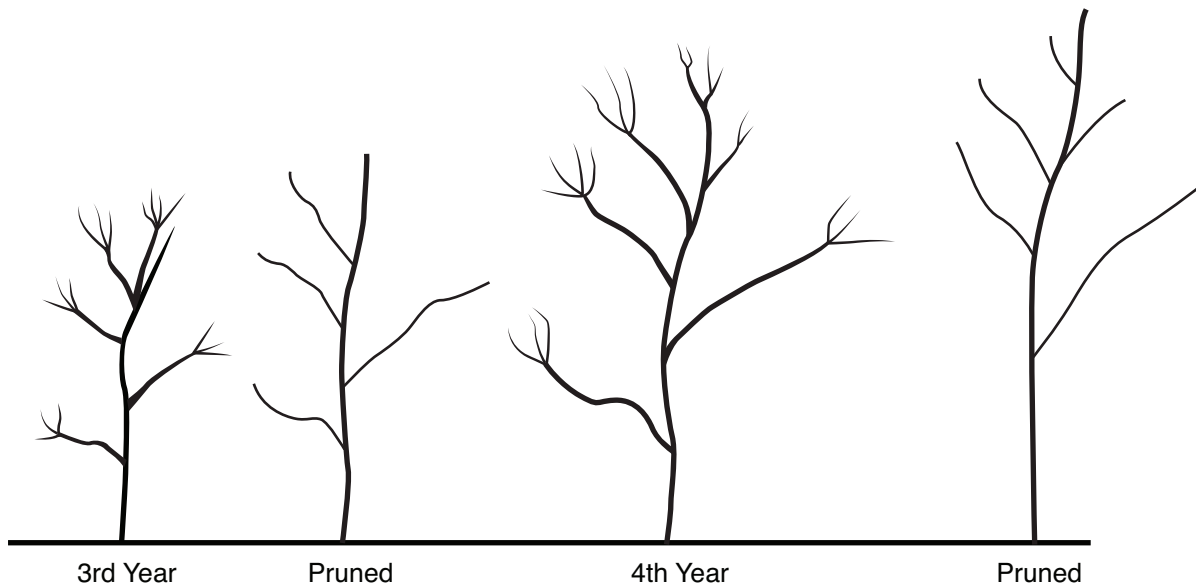


Figure 4. Pruning the 3rd and 4th Years

## Producing Pecans

A good indication of a mature tree's health and productivity is its shoot growth of 6 inches or more each year. To produce large amounts of nuts, adequate amounts of water, fertilizer and care are needed. Mature trees need water from rain or irrigation each week of the growing season. In the spring, an inch of water in the form of rain or irrigation is needed each week, and in summer and fall that amount should be increased to 2 inches each week. It is best to water deeply once every week rather than to give frequent shallow watering, which will only benefit grasses and/or other plants under the trees. Extra water will be needed if the tree has a heavy crop, or competition from thick turfgrass, or there is an extended hot, dry period.

Fertilizing is one of the main factors in producing large crops of nuts. Mature trees should be fertilized in the same manner as young trees but with the 10-10-10 fertilizer amounts increased to 4 pounds per inch of trunk diameter. Also, zinc sulfate soil application should be increased to 3 to 5 pounds annually if soil pH is below 6.5.

Most essential nutrients are available to pecan trees between soil pH levels of 6 to 7. If the soil pH is out of this range, the uptake of essential nutrients that the tree needs for good growth will be limited. Soil testing kits to determine whether lime is needed to raise the soil pH can be obtained from your county extension agent.

## Insect Control

Many insects attack pecan trees. Satisfactory insect control is hard to obtain without using commercial pesticides. Table 2 shows some of the major insect pests and remedies to help control them.

## Diseases

There are many diseases that can attack pecan trees, but the major disease is scab. Scab produces black lesions on leaves and shucks (nuts). The best control for scab is to plant disease-resistant varieties. In wet years, scab cannot be controlled on susceptible varieties without chemical spraying. Good sanitation will help control or reduce the infection of diseases by removing and destroying all infected stems, leaves and shucks.

## Harvest

Pecans should be harvested as soon as the nuts start to separate from the shuck. Nuts can be thrashed from the tree with a rigid cane or PVC pole. To aid with the harvesting, a tarp may be spread under the tree before the trees are thrashed. Another harvest method is to wait for the nuts to fall and pick them up by hand. Weather causes pecans left on the ground to lose quality quickly, or they may be damaged or removed by predators.

Pecans should be dry before storing. Pecan kernels are dry when they are crisp or brittle when bent. Pecans can be dried in a couple of weeks inside by placing them in a paper bag. Store pecans in the freezer for the best long-term storage.

**Table 2. Most Common Pecan Pests**

<b>Insect</b>	<b>Damage</b>	<b>Remedy</b>
Aphids	Attacks leaves by feeding mainly on the underside of leaves, which can turn leaves yellow or brown, and heavy infestation will cause leaf defoliation. Some aphids produce a sticky substance which will get on anything under the tree such as a car.	Spray leaves with a water hose or with an insecticidal soap solution as high as possible in the tree.
Fall Webworm	Forms a web around leaves and destroys them.	Remove webbing when first seen.
Hickory Shuckworm	Worm tunnels through the shuck of the nut, which lowers the quality of the nut.	Remove and clean up all old shucks and debris. Also, the use of a blacklight insect trap placed in the trees can help.
Mites	Attacks leaves by feeding mainly on the underside of leaves and along the midribs of the leaves, which causes irregular brown patches or makes the edges curl under. Heavy infestation can cause the trees to look scorched and drop their leaves in late summer or early fall.	Spray leaves with a water hose or an insecticidal soap solution as high as possible in the tree.
Pecan Nut Casebearer	Attacks nuts in early spring and summer.	The use of a blacklight insect trap or the use of a pheromone trap for pecan nut casebearer can help reduce the number of insects and damage.
Pecan Weevil	Attacks nuts in late summer making an exit hole in the nut and completely destroying the kernel.	Destroy all infected nuts as soon as they fall. Use a cone trap which encircles the tree trunk.
Pecan Leaf Phylloxera	Makes galls on leaves, shoot and nuts.	Plant a resistant variety.
Stink and Plant Bug	Attacks nuts, which causes black spots on kernels.	Control weeds and other plants which stink bugs can feed on.
Twig Girdler	Girdles small limbs which fall to the ground.	Maintain good sanitation by picking up and destroying all infected limbs.
Walnut Caterpillar	Feeds on leaves which can strip branches or an entire tree.	Use a blacklight insect trap or spray with Bt if possible.

## Resources

For more information about growing pecans in Arkansas, check out these other Arkansas pecan publications:

- FSA6131, *Fertilizer and Cultural Recommendations for Pecan Trees*
- FSA7540, *Home Pecan Diseases and Control*
- MP144, *Insecticide Recommendations for Arkansas*

Arkansas residents may contact their county extension office for these publications.

## Acknowledgments

Portions of this fact sheet were adapted from:

Crocker, T. *Home Garden. Pecans*. University of Georgia Cooperative Extension Circular #744.

Lipe, J. A., L. Stein, G. R. McEachern and S. Helmers. *Home Fruit Production - Pecans*. Texas A&M Extension Horticulture Information.

McCraw, B. D., M. W. Smith and B. Carro. *Pecan Varieties for Oklahoma*. OSU Extension Facts #F-6201.

Taylor, G., *Training Pecan Trees*. OSU Extension Facts #F-6245.

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