



Training Pecan Trees

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Perhaps the most important growth made by a pecan tree is during the first five years. Just as the habits and lifestyle of a man may be strongly influenced by the training received during childhood, the training of young pecan trees largely influences their performance in later years.

Pruning during the early formative years is a form of training. One major objective of training is to guide and encourage the development of a strong framework. A strong framework is necessary to:

- support additional wood growth in future years,
- support crop loads, and
- prevent tree breakage when exposed to the extremes of the elements.

The beginning of nut production is generally thought to be a function of growth (size) rather than age. Therefore, vigorous growth to achieve early tree size should be encouraged. Small training cuts made early during the tree's life reduces the need to make larger cuts later. Early training cuts are also less laborious for the operator and less injurious to the tree. Such well-planned training cuts encourage precocity (early production) by minimizing the removal of wood when compared to making large corrective pruning cuts during later years.

When training young trees, keep in mind an ideally structured tree and always strive to shape each tree to this pattern. No two trees are alike and few if any will conform exactly to your picture, but it will serve as a standard for you to work toward.

The central leader system is the preferred pecan tree structure for most pecan trees conventionally spaced and managed in Oklahoma. The central leader structure consists of one straight trunk developed vertically throughout the tree with uniformly spaced, wide angled (45° to 90°) lateral (scaffold) branches arising from the trunk (Figure 1). The central leader (trunk) should be of significantly larger diameter than the scaffold branches that arise from it.

To develop pecan trees with a strong, dominant central leader, consider the following training procedures:

At Transplanting

Training begins at planting. Encourage strong vigorous early growth of the tree. Tops of bare root trees (4 to 8 ft. grade) should be cut back 1/3 to 1/2 at the time of planting.

First Growing Season

When new shoots are 4 to 6 inches long, select a strong, vigorous, uppermost, well anchored shoot to be the central

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leader (trunk). Pinch out the growth point of the remaining (temporary) shoots leaving them 6 to 10 inches long. Retention of these temporary shoots creates an unkempt, 'trashy' trunk. The presence of the 'trashy' temporary shoots during the early years of the tree's life aid the development of a stout, large caliper central leader (trunk). (See Figure 5.)

Repinching of the temporary shoots may be necessary if the tree makes vigorous growth.

Growth on the original trunk may be eliminated or maintained at a length of 6 to 8 inches by pinching.

First Dormant Season

Side limbs on the original trunk should be treated as temporary. Plan to keep them pinches to 6 to 10 inches while totally removing them during the next two or three years.

Encourage the development of the selected central leader by removing or pinching all secondary branches that may have developed on the central leader during the first summer.

Begin thinking of the height you plan to allow the lowest permanent lateral (scaffold) branch to develop. Scaffold limbs lower than 5 or 6 feet are usually a nuisance, especially when operation of tractors and other equipment is considered.

All lateral growth present on the original trunk and central leader shoot below the desired height of the first scaffold are temporary and should be removed during the next three to five years. Allowing some of this lateral growth to remain during these early years maintains tree vigor and increases the strength and caliper of the trunk.

To properly develop the central leader, always allow it to be at least 12 inches taller than any side limb.

If the selected central leader made vigorous growth during the first season, remove 4 to 6 inches of its growing point to encourage uniform bud break throughout the length of the central leader (Figure 6). This in turn encourages a high percent of these buds to grow into shoots with fairly uniform length during the upcoming growing season.

Second Growing Season

Maintain continued growth of the central leader by allowing it to be 12 to 15 inches taller than any side limb.

Continue to maintain (limit) temporary lateral shoot growth at 6 to 10 inches.



Figure 1. A pecan tree trained to a central leader. The tree consists of a straight central trunk with scaffold limbs spaced up and around the trunk. The diameter of the trunk is larger than the scaffold limbs.



Figure 2. A pecan tree with a trunk terminating into numerous branches (leaders), weakening the tree structurally. This tree is susceptible to splitting and destruction of the entire tree.



Figure 3. Removing 1/3 to 1/2 of the bareroot tree at the time of planting increases livability and subsequent total growth.



Figure 4. A vigorous, healthy, freshly dug tree ready for planting. This tree is approaching 8 feet in height. Most field grown, bareroot trees of this grade have a three-year-old root system with a 1 year-old grafted or budded cultivar top.



Figure 5. A 'trashy' trunk tree. Temporary growth is allowed to grow on the central leader (trunk) below the height of the first scaffold limb during the first three or four years. This 'trashy' temporary growth is restricted to 6 to 10 inches by pinching. Each shoot is removed in lieu of new growth when the shoot exceeds 1 inch in diameter.



Figure 6. Six (6) inches of this vigorous central leader was removed during the first dormant season. This encourages higher percent buds along the central leader to grow and produce more uniform growth during the upcoming growing season.



Figure 7. The side branch to the right is approaching the diameter of the trunk and should be removed. Otherwise, this tree will grow to become structurally weak, like the tree in Figure 8.



Figure 9. This branch is being removed while leaving the protective branch collar intact with the trunk.

Second Dormant Season

Side limbs 1 inch or more in diameter and located below the desired height of permanent scaffold branches should be removed.

Side limbs selected to become permanent scaffold branches are not headed back unless they are taller than the central leader or are considerably longer than other scaffold branches.

Secondary shoots arising on the central leader during the past growing season usually have narrow angled shoots that may develop near the same locations during the upcoming growing season.

Extremely vigorous central leaders may be cut back 4 to 6 inches to encourage uniform bud break throughout the length of the central leader.

Subsequent Years

Training procedures described for the second dormant season may be repeated each year until the desired tree height is obtained or the tree height becomes prohibitive to continue training.



Figure 8. This weak crotch subjects the tree to total destruction by splitting the trunk to the ground. One limb (preferably the one on the left) should have been removed during the early training years of the tree's life. Use of the threaded rod for support is questionable.

By judicious annual training, even those cultivars that tend to form weak crotches can usually be made amply strong. Trees of the 'Wichita' cultivar are notorious for production of weak, narrow angled branches. In contrast 'Maramec' cultivar trees are easier to train since they tend to produce stronger, wide angled branching.

An important simple training rule is to correct forks early. When both branches (prongs) of a fork are similar in size, remove one or cut it back 1/3 or more in length (Figure 7). A fork in which more than two shoots or branches come together at a common point is commonly called a crows-foot can be corrected by removing all but one or two branches. When two branches remain, cut back one 1/3 or more.

It is usually necessary to force side branches to grow more horizontal. For example, when it is necessary to choose between two side shoots, remove the more upright (vertical) growing shoot in favor of the one growing more horizontal.

As a shoot continues to grow, it separates itself from the parent branch or trunk by hard woody tissue. This woody tissue becomes obvious at the shoot base as a slightly raised ridge. This is the branch bark ridge or collar. With age the branch collar increases in size, as a protective chemical barrier is formed within.

This protective barrier inhibits tree-inhabiting microorganisms from entering the wood above or below the branch collar. The branch collar can be a guide to proper pruning. Place the shears or saw in front of the branch collar and cut downward and slightly outward (Figure 9). Then you will remove the branch, leaving the branch collar containing the protective barrier intact to continue protection of the tree. Instead of removing branches flush with the trunk or another branch, remove them almost flush by leaving the raised branch collar intact with the tree (Figure 4).

It is not necessary to dress smaller cuts on young, vigorous, rapid-healing trees. The benefits of wound dressings are questionable regardless of the size of wound and age or vigor of tree. A good rule of thumb is to apply wound dressing only if it is satisfying to you and makes you feel 'good'!

Selected References

- Bryant, D.M. 1969. Developing the framework of the young pecan tree. New Mexico State University Extension Guide 400 H-605.
- Couch, G.A. 1981. Tips on pecan tree training. Okla. Pecan Commission Publication.
- Romberg, L.D. 1979. Prober training is important. Pecan Quarterly 13(4):20
- Shigo, A.L. 1982. A pictorial primer for proper pruning. Forest Notes. Spring.
- Sparks, D. 1980. Training pecan trees. Proc. Okla. Pecan Growers 50:15-50.

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