



PLANTING AND CARE OF YOUNG PECAN TREES

Lenny Wells
Department of Horticulture
University of Georgia
Tifton GA

Orchard establishment is critical to the success of a pecan operation. The faster trees come into production, the more profitable the orchard will be. Obtaining good growth of first-year trees is key to enhancing early orchard profitability.

Pecan trees can be planted as containerized or bare-root trees. Containerized trees provide a more flexible planting window, from fall through early spring. After trees are removed from containers, check for pot-bound roots. If this is a problem, roots should be pulled away from the soil and pruned. If the taproot has become twisted at the base of the container, it should be straightened or cut to encourage the growth of a new taproot. Place the root ball in the hole, add water and native soil.



Bare root trees should be planted as soon as possible after they arrive from the nursery. Prevent exposure of the roots to wind or sunlight to prevent drying out of the roots. When in transit from the nursery, roots should be protected by packing them in wet hay or sawdust and wrapping the tree roots tightly with a tarp. Trees may be stored for short periods of time with roots protected as described above. If trees will not be planted for an extended period of time, they should be heeled in.

Figure 1. Planting a bare-root pecan tree with the top-most lateral root at the soil line.

Trees may then be removed and planted as needed.

Holes for bare root trees should be dug with an 18" auger to a depth suitable for the tree's root system. Planting trees too deep is the most common mistake made in tree planting. A general rule of thumb is to set trees at the same depth they stood in the nursery. Theoretically, this can be observed as a color change on the bark of the tree. However, mounding of dirt over the graft site of whip-grafted trees can create an artificial color change in the bark of the tree, which can be deceiving, resulting in trees planted too deep. It is critical that the tree not be planted too deep. When this occurs, the roots may die from lack of oxygen, leading to tree stress or death. Additionally, trees set too deep are often easily blown over in a storm when they reach 15-20 years of age. It is much better to plant trees too shallow rather than too deep. Root tissue can adapt and serve as trunk tissue but trunk tissue will not develop a root system. Plant the tree with the graft union an inch or two above the soil line or with the top-most lateral root at or just below the soil surface (Figure 1).

Historically, it has been suggested that root trimming be kept to a minimum at planting. Recent research by Dr. Mike Smith, pecan horticulturist at Oklahoma State University suggests that root pruning at planting actually improves tree growth. Dr. Smith's research suggests pruning the tap root back to as little as 18" and removing all lateral roots from the taproot. Tree survival and growth depends on new root development, not the existing root system. New roots develop from the cut surface, enhancing tree growth.

After the tree is set at the appropriate depth, begin filling the hole with water. After the hole is $\frac{1}{4}$ - $\frac{1}{2}$ full, begin pushing dirt into the hole while the water continues to run. When the water level approaches the top of the hole, turn the water off and fill the hole with dirt. This will prevent the development of air pockets around the roots. Level the soil around the tree but do not pack the soil down around the tree. Very little soil settling should occur, but if so, additional soil can be added after settling to bring the soil level with the surface again. It is not necessary to create a berm or basin to hold water around the tree.

After the tree is planted, prune $\frac{1}{3}$ to $\frac{1}{2}$ of the top of the tree and remove any branches to compensate for the large percentage of roots lost when the trees are dug. When heading back the tree, cut at an angle just above a bud facing to the southeast. This will be the terminal bud that should develop into the central leader and will be somewhat protected from the prevailing northwest winds. Rub off all buds on the tree except the top two. By saving two buds, one of the two should survive and be available to form the central leader. If the uppermost bud exhibits good growth, remove the shoot formed by the lower bud after the first year. If trees are alive but budbreak is delayed relative to the other planted trees, re-cutting the top sometimes forces budbreak.

The trunk should be protected from cold damage, herbicide, and wildlife for the first three years of growth. This can be done by painting the trunk with white latex paint or by placing a three and a half foot growing tube or sleeve



Figure 2. Garlic oil dispenser for use in repelling deer from young trees.

over the tree. Four inch corrugated drain pipe is often used for this purpose. If a tube or sleeve is used, split it down the length of one side so that it can be removed after 3 years. An effective method of deterring deer from feeding on the foliage of young pecan trees is the use of garlic oil dispensers placed on the tree (Figure 2). These can be obtained from Gempler's (www.gemplers.com). The dispensers will last for one growing season.

Do not add any nitrogen fertilizer to the hole when transplanting trees. In the absence of a soil test, no nitrogen fertilizer should be added to trees the first year following transplanting until adequate growth is attained. Annual terminal growth for young pecan trees should be from two to four feet. If trees exhibit this kind of growth, they can be fertilized in June of the first year by application of 1 lb of 5-10-15 or ½ lb of 10-10-10 distributed in a 25 square foot area around the tree. If good growth is not observed, do not fertilize the first year. Do not place fertilizer within 12 inches of the trunk. In addition to 10-10-10, zinc sulfate should be soil applied at 1 lb. per tree for the first three years following transplanting if soil tests indicate zinc levels below 15 lbs/acre. Zinc sulfate can be applied as a band application of 2 to 4 lbs zinc sulfate per tree over the drip emitter or in the wetted zone of microjet sprinklers. This allows for fast, efficient uptake of zinc by the tree.

Drought stress is one of the leading causes of mortality of young pecan trees. It is essential that young trees have access to adequate soil moisture. Drip and micro-irrigation sprinklers are probably the most efficient means of supplying moisture to the young pecan roots, which occupy a smaller volume of soil rela-

tive to those of a mature tree. Micro-irrigation is particularly suited to young trees because it wets a larger area of soil than does the drip system, encouraging better root growth. Using 8 gph emitters, 4 hours of irrigation every other day should be adequate the first year. Following a 1 inch rain, the irrigation can be turned off for three days.

Aside from soil moisture, weed competition is the most limiting factor to the growth of young pecan trees. Weeds can rob young trees of soil moisture and nutrients, reducing growth by as much as 50% in the first three years. Yield may also be reduced by 75% during the first 4 years of harvest if weeds are not controlled early in the life of the tree. Research indicates that a 7 X 7 foot area around the tree should be kept free of weeds during the first year of establishment and at least a 10 X 10 foot area is required in subsequent years for optimal growth and yield. Post-emergence herbicides such as paraquat and glyphosate can be used when directed at the ground. Care must still be taken to eliminate herbicidal drift and protect exposed leaf tissue and bark from herbicides. Surflan or Prowl H2O can be used as pre-emergence herbicides on first-year trees. Most other pre-emergence herbicides should not be used during the first year following planting.

Temik is no longer labeled for use on pecans, but if any old Temik (which still has the pecan label) is available, applying 1/10 to 1/4 lb of Temik adjacent to the irrigation emitters around young trees increases root, stem, and tree dry weight (Figure 3) as well as trunk caliper and in some cases, production in

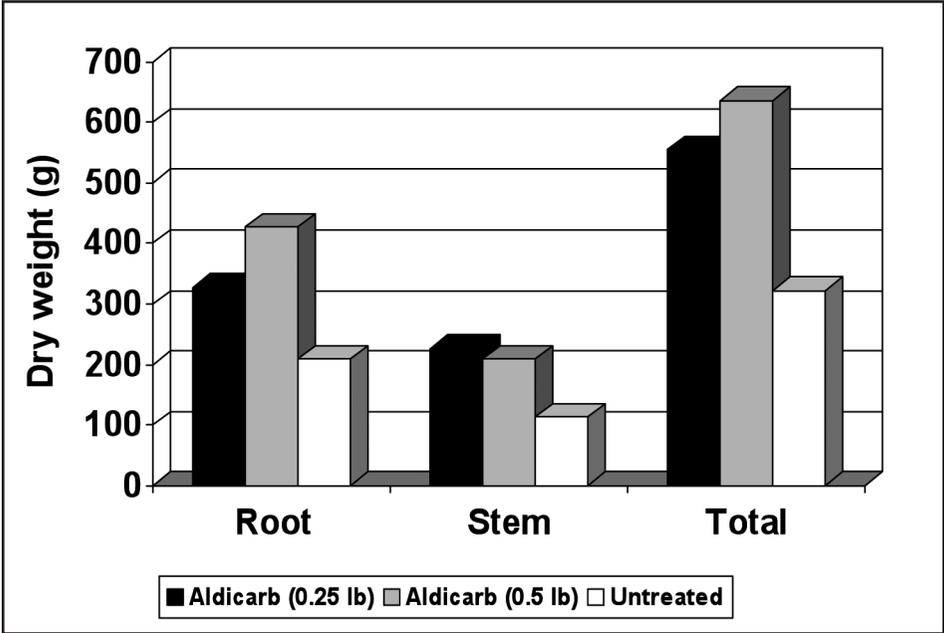


Figure 3. Effect of aldicarb on mean root, stem, and plant dry weight (g) of first-year seedling pecan tree transplants.

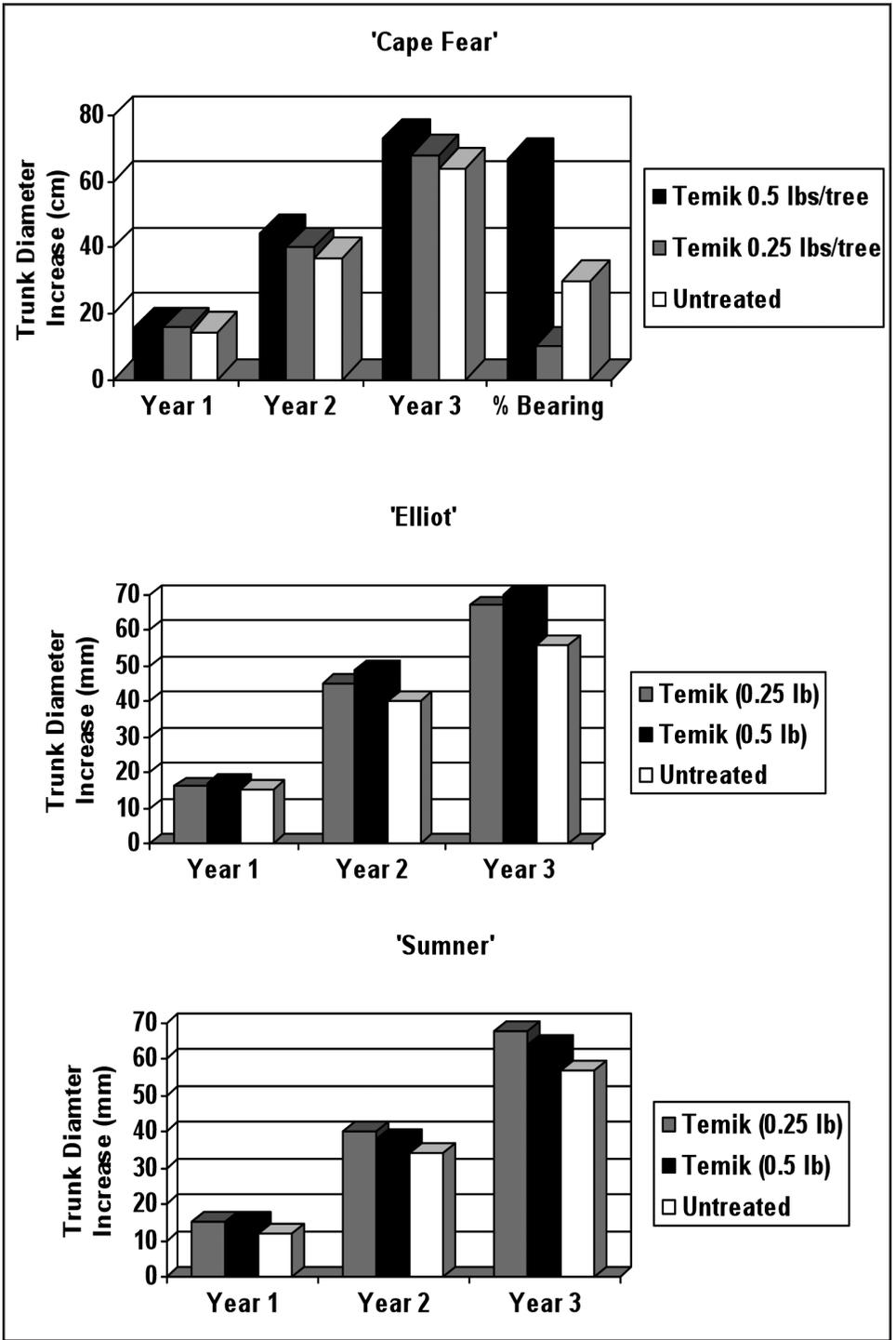


Figure 4. Effect of aldicarb on trunk diameter of first-year 'Cape Fear', 'Elliot', and 'Sumner' pecan tree transplants.

year 3 (Figure 4). Use extreme caution when using Temik and avoid all bodily contact with the material. Read the safety warning on the label prior to use.

Foliage feeders are normally the main pests encountered with new plantings. The pecan budmoth can damage developing shoots soon after budbreak, deforming trees, and delaying growth. Manage these pests by application of a broad spectrum insecticide such as chlorpyrifos when shoot growth is about ½ inch long. Inspect trees for problems and apply an insecticide as needed.

Planting trees of appropriate size can help in early orchard establishment as well. Wood (1996) stated that larger trees at planting attain greater height and canopy within the first 6 years of planting (Figure 5). Trees should be ordered about one year in advance to ensure availability of desired cultivars and size. Most of the time, it is better to wait a year until good trees are available than to plant inferior trees. This requires careful planning. Planting nursery trees, as everything else that is done in a pecan orchard, should be done with an eye to the future.

Literature Cited

Wood, B.W. 1996. Establishing pecan transplants. HortTechnol. 6: 276-279.

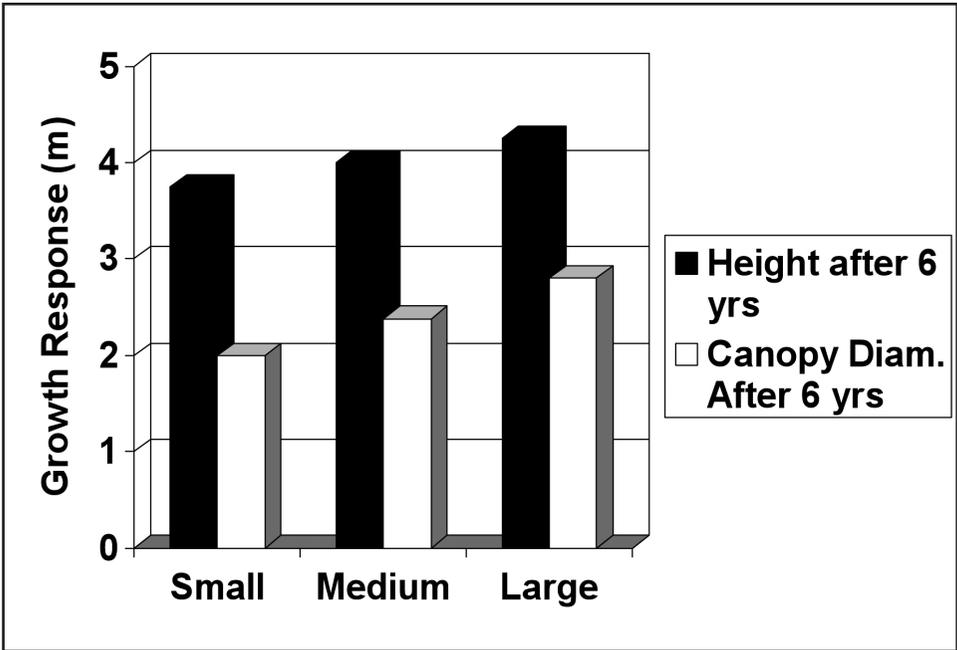


Figure 5. Effect of tree size at planting on growth response of pecan trees (Wood, 1996).