

# Transplanting Mature Pecan Trees

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## Guide H-627

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High-density planting of pecan tree increases nut production on a per-acre basis. Increasing the number of fruiting shoots above an acre of land is the main purpose behind the idea of planting more trees per acre. Planting pecan trees 15' X 15' (192 trees per acre) or 15' X 30' (96 trees per acre) for maximum utilization of available land seems to be the best practice in the irrigated areas of the West. High land values make it almost economically impossible to justify the resulting bare areas when spacing trees 30' X 30' (48 trees per acre). Inter-cropping may be another alternative, but most crops will be competing with trees for water and nutrients. Furthermore, most crops will need water at different times than pecan trees. More and more growers are making ultra-high density plantings (15' X 15' or 15' X 30'). Orchards are thinned out 6 to 10 years later, depending on the original planting distance, usually temporary trees are transplanted to another location.

There is no doubt that the newly transplanted trees will produce pecans earlier and in more quantities than young trees that would be planted the same year. Therefore, the grower will be ahead when transplanting mature pecan trees in spite of the higher costs involved. However, the time when the trees are to be thinned out from the original orchard seems to be critical.

There are reports showing that trees spaced 15' X 30' have outyielded, on a per-acre basis, trees planted 30' X 30'. This increased production will usually pay for the extra investment needed for additional trees and cultural costs, and will result in a greater net income. However, the grower needs to remember that thinning trees out of the original orchard has to be done before trees begin to compete with each other. When pecan trees begin to produce top growth in the upper branches, this vigorous growth will shade out lower branches. As trees get taller, a point is

reached where production begins to decline along with nut quality. Growers need to watch the trees for any sign of weak growth because of competition among trees, and they also need to keep good production records.

A tree's age when tree thinning is needed in the original orchard depends on soil fertility and cultural practices. Good soil fertility and good cultural practices, especially irrigation and fertilization, make the trees grow faster and lower branches will be shaded earlier. If the optimum transplanting time is delayed, both temporary and permanent trees will suffer and be set back in terms of pecan production. Increased production from the permanent trees, 2 or 3 years after orchards have been thinned out, indicates the orchard should have been thinned out earlier.

Once a decision has been reached about transplanting pecan trees, a plan has to be outlined to ensure a smooth transplanting operation. Transplanting involves more than just moving the tree to its final location. It involves several cultural practices such as proper pruning techniques, tree removal, transporting and planting, irrigation, training, and fertilization.

Pruning is a key factor in successfully transplanting mature trees. During winter, after trees to be transplanted have been selected, they should be pruned severely. Part of the root system is lost when a tree is transplanted, and the tree must be cut back to balance the root shortage. Leaving a single trunk 5 feet tall before transplanting has been the practice followed by most growers, especially when trees are around 12 inches in diameter. Other growers have transplanted trees with 6 to 8 inches of trunk diameter and a height of more than 15 feet. Three to four major limbs are left, cutting them back to about 2 to 3 feet. In any event, growers need to realize that the more foliage the tree produces the first

year, the more critical the irrigation practices will be. Leaves will lose water to transpiration, and trees need to replenish that water quickly.

No more pruning is done the first 2 years after transplanting because all the tree's foliage is needed to manufacture carbohydrates so the tree can form new shoots and roots. During the third year or later, remove the lower limbs and let the higher limbs grow and produce. Multiple branches tend to grow from the same place so prune to leave only one branch coming off the trunk at one place. Tip-pruning the remaining branches helps thicken them and will produce more laterals for better production.

A central leader can be trained, but it will take several years to fully develop. Trees planned for transplanting during the next 2 years can be cut back as previously described. This encourages development of the permanent trees, filling the spaces made available and enhancing orchard productivity. Early pruned trees will need to be pruned again to the 5-foot height before transplanting. Two or three lateral limbs can be left but they need to be pruned back to about 2 feet in length. Because transplanted trees have lost a considerable amount of feeder roots, good water availability for the newly transplanted trees is critical to the success of the procedure. Transplanted trees have a limited root system, which needs to be watered more often than established trees. Water trees immediately after planting and every 2 weeks during the growing season. During hot days in the middle of summer, it is advisable to water more often, especially in light (sandy) soils. Transplanted mature trees get the maximum benefit from a drip irrigation system because water is applied only at the root system and at the right depth.

Trees should not be fertilized the first year after transplanting, unless trees are planted in sandy soils and good shoot growth is occurring. During the second and subsequent years after transplanting, fertilization rates will depend upon tree growth and fruit load.

Tree transplanting needs to be done by specially designed machines (tree diggers) and well

trained personnel. These diggers usually have six sharpened shovels that form a V-shape when all shovels are closed. These shovels make a 5-foot hole when digging a tree to be transplanted. Shovels are hydraulically operated and water is pumped into the holes as trees are being dug. This makes it easier to extract the root system and it also keeps the roots moist. Roots are usually cut without tearing and pulling; this encourages fast healing. After the tree is dug out, it is hauled to the new location where it will be planted in a hole with the same dimensions as the rootball of the tree being transplanted. The plug of soil removed from the new planting site is usually used to fill in the hole where another tree has already been dug from the orchard.

Transplanting shock that may affect the trees, from delayed growth to tree death, can be avoided by conducting the operation during winter when trees are dormant. Maintain good soil moisture throughout the whole season, especially the first year. Successful tree transplantings have been done during summer by keeping the soil moist at all times.

Mature transplanted trees have reportedly produced 1 or 2 pounds per tree 2 years after transplanting. Some trees have produced 10 pounds after 4 years. Fourteen-year-old trees have produced around 30 pounds 5 years after transplanting. Although most trees will not produce this many pecans, it gives an idea of bearing potential for transplanted mature trees.

Some of the advantages of tree transplanting might be:

- a) certain surface area in the farm can be used to grow other crops while some trees are grown for 6 to 8 years in an ultra-high density spacing.
- b) more production per acre is possible for 6 to 8 years in an ultra-high density orchard, say 15' to 30', than in an orchard planted to the regular high density spacing of 30' X 30'.
- c) when transplanting trees from a crowded (mature) orchard, permanent trees left behind will increase production sharply and could double yields in 3 to 4 years.