

# Designing A Pecan Orchard

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## Guide H-607

Esteban Herrera, Extension Horticulturist

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The selection of an orchard design will depend upon varieties to be planted, soil management practices and if fillers or temporary trees are to be planted. There are four designs well adapted for pecan trees: the square, quincunx, rectangle, and triangle.

The square system is probably the most common planting method. A tree is planted in each corner of the square with a constant distance between trees in the row (fig. 1a). The most common distance between trees is 30' x 30'. When trees begin to crowd, alternate rows can be removed, resulting in 30' x 60' spacing (rectangular).

The quincunx or diagonal system of planting is essentially the square system with a filler tree in the middle of the square (fig. 1b). The number of trees per acre is increased without excessive crowding. If the permanent trees are 30 feet apart, the filler will be 21.2 feet from each permanent tree. Trees planted in the middle of the square can be varieties which are early bearing and productive, or pollinator trees for the permanent varieties. Alternate rows can be removed later when the orchard begins to crowd.

Special attention should be given in the planting sequence to selecting varieties that ensure, upon tree removal in alternate rows, at least two varieties—one with early pollen shed and one with late pollen shed characteristics—are left for needed cross pollination.

The rectangle system is not very popular in New Mexico. Instead a final goal of 24 trees per acre is expected (fig. 1c). Temporary trees are removed as they begin to crowd. The orchard is initially planted at 30' x 15'. When trees from alternate rows are removed, final tree spacing will be 30' x 30'. More trees can be thinned out later when they begin to crowd. When every other tree in every row are removed, a 41.5' x 41.5' spacing results.

The triangle or hexagon system allows for about 15% more trees per acre, giving maximum utilization of orchard space. In this system all trees are equidis-

tant from each other (fig. 1d). This design is seldom used in New Mexico. It is difficult to lay out and is not as well adapted to fillers or temporary trees because distances between trees will not be the optimum when every other row is removed.

## ORCHARD DENSITY AND THINNING

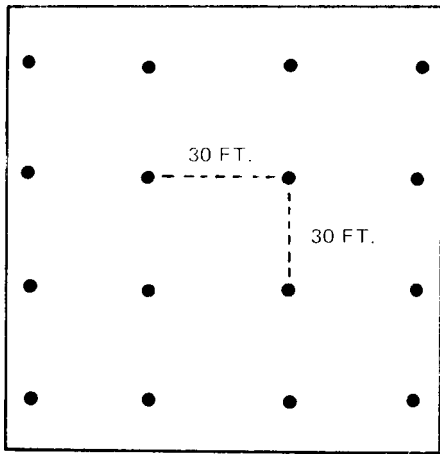
A pecan orchard should be designed so trees can be thinned without losing a uniform distance throughout the orchard.

| <i>Density</i> | <i>Spacing (in feet)</i> | <i>Trees/acre</i> |
|----------------|--------------------------|-------------------|
| Ultra          | 15 x 30                  | 96                |
| Standard       | 30 x 30                  | 48                |
| Thinned        | 42 x 42                  | 24                |

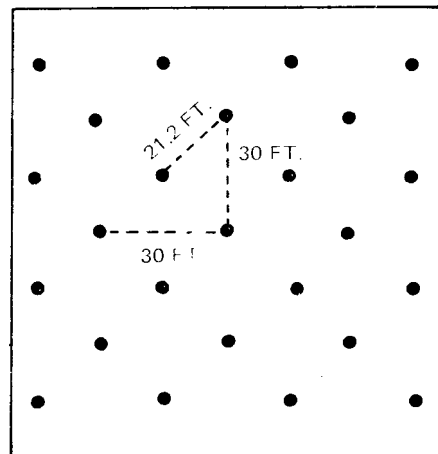
The extra-high-density planting is increasing in popularity. Precocious varieties can be planted in rows as temporary trees to increase orchard production during the early years of the orchard's life. Every other row is eliminated whenever trees begin to crowd (going from 15' x 30' to 30' x 30'). Removed trees are usually transplanted to another area to start a new orchard. Every other tree in every row is further removed to a final space of about 42' x 42'.

Another popular scheme is to plant only varieties used for permanent trees and transplant the pecan trees from alternate rows whenever trees are crowding each other (8 to 12 years depending on the area and soil fertility). If properly done, transplanted trees will be back into full production in about four years. Orchard thinning can be performed again when trees begin to crowd again and production begins to decrease, which can be noticed when lower limbs die because of shading.

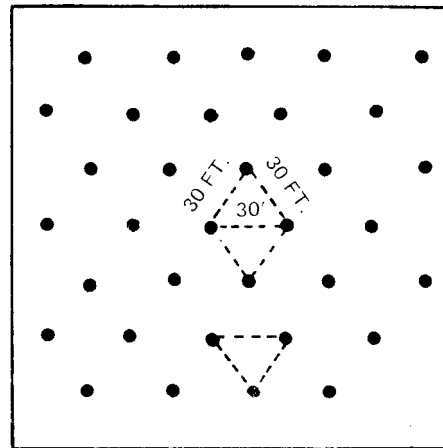
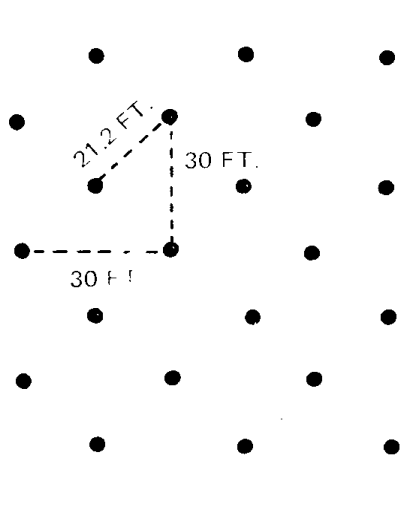
Fig. 1. Pecan orchard design systems.



a-Square



b-Quincunx or Diagonal



d-Triangle