

Selecting Soil and Site for a Pecan Orchard

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Esteban Herrera, Extension Horticulturist

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Selection of good soil and orchard site will pay dividends later. Pecan trees are a long-term investment, so growers cannot afford to locate a pecan orchard improperly. One of the most important factors for a successful commercial operation is selection of soil acceptable for optimum tree growth and nut production. It is difficult to describe an ideal soil for pecans, considering the wide variation of soil types in New Mexico. However, we can define several characteristics needed in a soil to ensure good tree development.

SELECTING A SUITABLE SOIL

Good Drainage: Soils should be well drained to allow rapid flow of water into the soil and throughout the root zone. Heavy soils tend to become water-logged. Soil compaction by machinery and equipment also tends to be worse in heavy soils, and can reduce water infiltration. Caliche layers also prevent water penetration in the soil. Soils should have good aeration to allow roots to breathe and conduct physiological processes, primarily water and nutrient uptake. Sandy soils, however, can have excessive drainage which can cause water stress in the orchard.

For an easy way to evaluate soil drainage, follow these procedures:

- During the rainy season, dig a hole 32 inches deep and 8 inches in diameter and fill it with 7 gallons of water.
- If the hole is empty in 48 hours, the soil has adequate internal drainage.
- If the holes still contain a static water level after 48 hours, the soil is not recommended for pecan orchards.

Good drainage can occur in sandy hills and in river bottoms. However, some drainage problems may exist in some river bottom soils where clay and sand are layered. Fine textured soils (silt clay, clay) often have structural problems. Soils adjacent to running streams can have higher moisture content in the subsoil most of the time, but will not have waterlogging problems because moving water contains oxygen. Irrigation water (or soil) with high sodium levels tends to make internal drainage difficult.

Adequate Depth: Deep, loose, permeable soils are needed. The water table should be at least 10 feet below the surface. Growth of pecan tree tap roots depends upon depth of the static water table.

Good Water-Holding Capacity: Absorption of large quantities of water from irrigation, rain or overflow is a must. Coarse textured soils such as sand and loamy sand lack the water holding capacity needed in a pecan orchard. Medium textured soils are recommended.

Suitable Fertility: It would be convenient if the soil is inherently rich in both major and minor nutrients. However, soil fertility does not have to be excellent because nutrients can be supplied by fertilizers. Deep soils with medium texture, ranging from silt loam to sandy clay loam, are satisfactory. These soil types will also have a good nutrient-holding capacity, and will retain fertilizer better, features lacking in coarse textured soils.

ORCHARD SITE SELECTION

Air Drainage: Cold air travels like water, flowing down and away from sloping land. Select a site that permits free and easy air movement. Cold air settles in low spots and can also be trapped by barriers, which can result in both early and late freeze damage.

Level Surface: A soil with an appropriately level topography or one that can be economically leveled is recommended. Money will be saved on

irrigation and cultural practices and harvest can be performed easily.

Climate: If there are frequent early freezes in the fall or late freezes in the spring, as well as hail storm possibilities, the area is not suitable for establishing pecan orchards.

Water: Adequate supply of good quality water is a must in New Mexico when selecting the pecan orchard site. Pecan trees are also sensitive to salt build up in the soils.

To find more resources for your home, family, or business, visit the College of Agriculture and Home Economics on the World Wide Web at <http://www.cahe.nmsu.edu>.

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