Carya illinoensis
Pecan

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INTRODUCTION

The state tree of Texas, this tree needs plenty of room (above and below ground) to grow (Fig. 1). Pecan trees can reach up to 130 feet in height but will usually grow 70 to 100 feet tall with a spread of 40 to 75 feet. The largest of the hickories, this deciduous American native tree has a uniform, symmetrical, broadly oval crown and is massively-branched. Large major limbs grow up and out from the trunk in a distinctive upright, spreading fashion. On older trees, lower branches become wide-sweeping, with their tips almost touching the ground. Trunks can grow to six feet in diameter. The wood is used for flooring, cabinets, and furniture. The native sweet Pecan makes a good urban shade tree.

GENERAL INFORMATION

Scientific name: Carya illinoensis
Pronunciation: KAIR-ee-uh ill-lin-no-EN-sis
Common name(s): Pecan
Family: Juglandaceae
USDA hardiness zones: 5B through 9A (Fig. 2)
Origin: native to North America
Uses: fruit tree
Availability: generally available in many areas within its hardiness range

DESCRIPTION

Height: 70 to 100 feet
Spread: 50 to 70 feet
Crown uniformity: irregular outline or silhouette
Crown shape: oval; round

Figure 1. Young Pecan.

Crown density: open
Growth rate: medium
Texture: coarse

Foliage

Leaf arrangement: alternate (Fig. 3)
Leaf type: odd pinnately compound
Leaflet margin: serrate
Leaflet shape: lanceolate

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Leaflet venation: pinnate
Leaf type and persistence: deciduous
Leaflet blade length: 4 to 8 inches
Leaf color: green
Fall color: yellow
Fall characteristic: showy

Flower
Flower color: yellow
Flower characteristics: inconspicuous and not showy; spring flowering

Fruit
Fruit shape: oval; round
Fruit length: 1 to 3 inches
Fruit covering: dry or hard
Fruit color: brown
Fruit characteristics: attracts squirrels and other mammals; suited for human consumption; fruit, twigs, or foliage cause significant litter; persistent on the tree; showy

Trunk and Branches
Trunk/bark/branches: grow mostly upright and will not droop; showy trunk; should be grown with a single leader; no thorns
Pruning requirement: needs little pruning to develop a strong structure
Breakage: susceptible to breakage either at the crotch due to poor collar formation, or the wood itself is weak and tends to break
Current year twig color: brown; gray
Current year twig thickness: thick
Wood specific gravity: 0.66

Culture
Light requirement: tree grows in part shade/part sun; tree grows in full sun
Soil tolerances: clay; loam; sand; acidic; alkaline; extended flooding; well-drained
Drought tolerance: high
Aerosol salt tolerance: none
Soil salt tolerance: poor
Other

**Roots:** surface roots can lift sidewalks or interfere with mowing  
**Winter interest:** no special winter interest  
**Outstanding tree:** not particularly outstanding  
**Invasive potential:** little, if any, potential at this time  
**Verticillium wilt susceptibility:** susceptible  
**Pest resistance:** very sensitive to one or more pests or diseases which can affect tree health or aesthetics

**USE AND MANAGEMENT**

Pecan trees are well-suited to large landscapes and natural settings where wildlife is greatly attracted by the fruit. Branches on the tree are sometimes rather brittle, breaking toward the base. Be sure to space major limbs along the trunk so they are not all originating from the same point on the trunk as seen in pecan groves. Prune to a central leader which can usually be identified if the tree has not been topped. This will add longevity and greater safety to the tree since well-spaced limbs are better-attached to the tree than those clustered together. Leaves sometimes drop during the summer due to insects or disease, stimulating the tree to initiate a new set of leaves in late summer.

Growing well in full sun or part shade locations, Pecan trees grow best on fertile, well-drained, acid or alkaline moist soil, and are not salt-tolerant. They grow, although more slowly, on droughty sandy soils and often defoliate early without irrigation. Care must be taken in locating this tree, not only due to its size and fruit drop but because the leaves and pecan husks release a substance which can stain clothes, pavements, and cars during rains. The falling pecans can also damage vehicles.

Numerous pest and disease problems make pecan a high-maintenance plant which often requires spraying in order to maintain a good-looking, clean tree. Pecan is subject to sudden summer limb drop, a phenomena characterized by branch failure in the middle of a large-diameter branch. This typically occurs on a very hot summer day with no wind. The best treatment is preventive pruning to eliminate some of the weight along major horizontal limbs. This thinning type of pruning should only be performed by a professional. Squirrels have also devastated trees in New Orleans and other areas by stripping off the bark.

Many selections are available for nut quality, disease resistance, and for specific regions. Be sure to select a cultivar suitable for your particular area of the country. Consult your county agricultural agent for the latest recommendations. Be sure to train and prune trees so branches are well-attached to the trunk so the heavy nut production will not cause branch failure. ‘Desirable’, ‘Stuart’, ‘Moreland’, ‘Elliot’, and ‘Curtis’ are among the most popular ones in Florida. ‘Desirable’, ‘Cheyenne’, ‘Choctaw’, ‘Cape Fear’, ‘Shawnee’, ‘Oconee’, and ‘Caddo’ are among those recommended in Texas. ‘Cheyenne’ has a semi-dwarf spreading form and medium to large fruit. ‘Chickasaw’ has a fine-textured, spreading form, disease resistance, and medium to large fruit. ‘Elliot’ has an upright habit of growth with fine texture, disease resistance, and small fruit. ‘Owens’ has compact growth and medium to large fruit. ‘Shoshonii’ has upright growth habit, strong branches, disease resistance, and large fruit. ‘Stuart’ has a vase-shaped form, is an old selection widely planted, with
large fruit but is weak-wooded. ‘Melrose’, ‘Candy’, ‘Elliot’, and ‘Sumner’ have increased scab resistance.

Propagation is by budding or grafting.

**Pests**

Aphids of various types feed on Pecan causing distorted and stunted growth. The hickory leaf stem gall phylloxera causes the formation of hollow green galls on leaves, stems, and twigs. The galls form in early summer turn black in mid-summer. The galls are up to a half inch in diameter. Trees are often defoliated by aphids and sooty mold in mid-summer and put out a second flush of leaves in late summer.

Hickory bark beetles mine the bark and sapwood. The boring cause wilting of young twigs or trunks may be girdled and trees killed. Keep trees healthy by fertilizing regularly and by watering during dry weather.

The twig girdler larva girdles twigs causing weakened twigs to break off and drop. The larva is about a half-inch-long and rides the branch to the ground where it overwinters. Gather the fallen twigs and destroy them.

June beetles eat the leaves of Pecan at night. The injury is usually not severe but can be mysterious since no insects are seen during the day.

Caterpillars (including tent and fall webworm) of various types feed on Pecan.

Scales of various types attack Pecan but can be controlled with sprays of horticultural oil.

Spittlebugs can be a nuisance on Carya.

Pecan weevil.

**Diseases**

Pecan trees are very susceptible to scab. It is best to plant only those cultivars resistant to this disease.

Hickory anthracnose or leaf spot is caused by a fungus. In wet years the disease causes severe defoliation. The symptoms are large reddish brown spots on the upper leaf surface but brown on the lower surface. The spots may not have distinct marginal markings. The disease overwinters on fallen diseased leaves so dispose of infected leaves in the fall.