

Carya illinoensis: Pecan¹

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Introduction

The state tree of Texas, this tree needs plenty of room (above and below ground) to grow. 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 (Figure 2)

Origin: native to the south-central United States, and northeastern and central Mexico

UF/IFAS Invasive Assessment Status: native

Uses: fruit



Figure 1. Full Form—*Carya illinoensis*: Pecan

Description

Height: 70 to 100 feet

Spread: 40 to 75 feet

Crown uniformity: irregular

Crown shape: round, oval

Crown density: open

Growth rate: moderate

Texture: coarse

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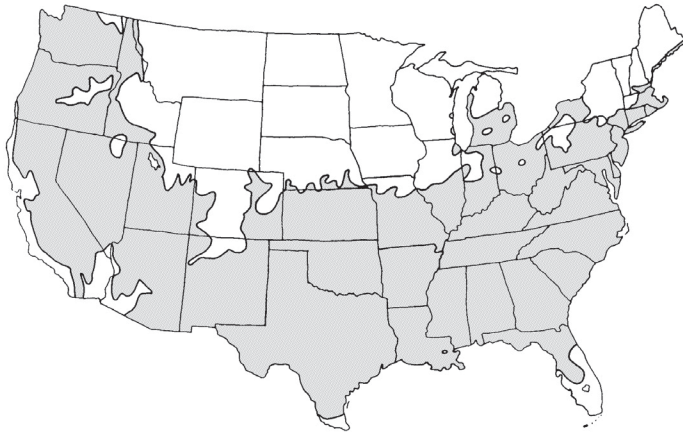


Figure 2. Range

Foliage

Leaf arrangement: alternate

Leaf type: odd-pinnately compound; made up of 9 to 17 leaflets

Leaf margin: serrate

Leaf shape: lanceolate

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 12 to 18 inches; leaflets are 3 to 8 inches

Leaf color: dark green on top, paler green underneath

Fall color: yellow

Fall characteristic: showy



Figure 3. Leaf—*Carya illinoensis*: Pecan

Flower

Flower color: yellow-green

Flower characteristics: not showy; male—4" to 5" long catkin, often in pairs of 3; female—spike that emerges in clusters at branch tips

Flowering: spring



Figure 4. Flower—*Carya illinoensis*: Pecan

Fruit

Fruit shape: oval, round

Fruit length: 1 ½ to 2 inches

Fruit covering: dry or hard; nut that is enclosed in a smooth, thinly shelled, 4-valved husk that splits completely from the nut

Fruit color: green to brown when mature

Fruit characteristics: attracts squirrels/mammals; showy; fruit/leaves a litter problem

Fruiting: matures in early fall



Figure 5. Fruit—*Carya illinoensis*: Pecan

Trunk and Branches

Trunk/branches: branches don't droop; showy; typically one trunk; no thorns

Bark: light to medium gray, smooth, and becoming narrowly fissured and distinctly scaly with age

Pruning requirement: little required

Breakage: susceptible to breakage

Current year twig color: brown, gray

Current year twig thickness: thick

Wood specific gravity: 0.66



Figure 6. Bark—*Carya illinoensis*: Pecan

Credits: Gritta Hasing

Culture

Light requirement: full sun to partial shade

Soil tolerances: clay; sand; loam; alkaline; acidic; wet to well-drained

Drought tolerance: high

Aerosol salt tolerance: none

Other

Roots: can form large surface roots

Winter interest: no

Outstanding tree: no

Ozone sensitivity: unknown

Verticillium wilt susceptibility: susceptible

Pest resistance: sensitive to pests/diseases

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 that 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 that 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' is an old selection widely planted, has a vase-shaped form and 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 and 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.

A large number of fungi cause leaf spots on pecan. Severe infections can cause defoliation. Many of the fungi overwinter on diseased leaves, so dispose of infected leaves when they fall.

Powdery mildew causes a white powdery growth on the leaves. If the disease occurs late in the season, no chemical control will be needed.

Try to prevent cankers by keeping trees healthy through watering during dry weather and regular fertilization. Avoid wounding the trees unnecessarily and prune out weak or dead branches.

Verticillium wilt kills individual branches or sometimes entire sections of the tree. Foliage on affected branches wilts and later turns brown. Keep trees healthy and prune out small infected branches.

Minor element deficiencies, especially zinc, are evident on alkaline soils.

Reference

Koeser, A. K., Hasing, G., Friedman, M. H., and Irving, R. B. 2015. *Trees: North & Central Florida*. Gainesville: University of Florida Institute of Food and Agricultural Sciences.