

Liriodendron tulipifera: Tuliptree¹

Edward F. Gilman, Dennis G. Watson, Ryan W. Klein, Andrew K. Koeser, Deborah R. Hilbert, and Drew C. McLean²

Introduction

Tuliptree grows 80 to 100 feet tall and maintains a fairly narrow oval crown, even as it grows older. Trunks become massive in old age, becoming deeply furrowed with thick bark. The tree maintains a straight trunk and generally does not form double or multiple leaders. Older trees have several large-diameter major limbs in the top half of the crown. Tuliptree has a moderate to rapid (on good sites) growth rate at first but slows down with age. The soft wood reportedly is subject to storm damage but the trees held up remarkably well in the south during hurricane 'Hugo'. It is probably stronger than given credit for. The largest trees in the east are in the Joyce Kilmer Forest in NC, some reaching more than 150 feet with seven-foot diameter trunks. The fall color is gold to yellow being more pronounced in the northern part of its range. The scented, tulip-like, greenish-yellow flowers appear in mid-spring but are not as ornamental as those of other flowering trees because they are far from view.

General Information

Scientific name: *Liriodendron tulipifera*

Pronunciation: leer-ee-oh-DEN-drawn too-lih-PIFF-er-uh

Common name(s): tuliptree, tulip-poplar, yellow-poplar

Family: *Magnoliaceae*

USDA hardiness zones: 5A through 9A (Figure 2)



Figure 1. Full Form - *Liriodendron tulipifera*: tuliptree
Credits: UF/IFAS

1. This document is ENH-522, one of a series of the Environmental Horticulture Department, UF/IFAS Extension. Original publication date November 1993. Revised December 2018. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.
2. Edward F. Gilman, professor emeritus, Environmental Horticulture Department; Dennis G. Watson, former associate professor, Department of Agricultural and Biological Engineering Department; Ryan W. Klein, graduate assistant, Environmental Horticulture Department; Andrew K. Koeser, assistant professor, Environmental Horticulture Department, UF/IFAS Gulf Coast Research and Education Center; Deborah R. Hilbert, graduate assistant, Environmental Horticulture Department, GCREC; and Drew C. McLean, biological scientist, Environmental Horticulture Department, GCREC; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

Origin: native to the eastern United States and southern Ontario

UF/IFAS Invasive Assessment Status: native

Uses: shade



Figure 2. Range

Description

Height: 80 to 100 feet

Spread: 30 to 50 feet

Crown uniformity: symmetrical

Crown shape: oval

Crown density: moderate

Growth rate: moderate

Texture: coarse

Foliage

Leaf arrangement: alternate



Figure 3. Leaf - *Liriodendron tulipifera*: tuliptree
Credits: UF/IFAS

Leaf type: simple

Leaf margin: lobed, entire

Leaf shape: orbiculate

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 4 to 8 inches

Leaf color: bright green on top, paler green underneath

Fall color: yellow

Fall characteristic: showy

Flower

Flower color: greenish yellow with orange blotches

Flower characteristics: showy; resembles a tulip

Flowering: late spring to early summer



Figure 4. Flower - *Liriodendron tulipifera*: tuliptree
Credits: UF/IFAS

Fruit

Fruit shape: elongated; cone-like aggregate of samaras

Fruit length: 2 to 3 inches

Fruit covering: dry or hard

Fruit color: brown

Fruit characteristics: attracts birds; not showy; fruit/leaves a litter problem



Figure 5. Fruit - *Liriodendron tulipifera*: tuliptree
Credits: UF/IFAS

Trunk and Branches

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

Bark: light gray and slightly roughened when young, becoming furrowed with deep brown crevices and tan or white flat-topped ridges with age

Pruning requirement: little required

Breakage: resistant

Current year twig color: brown

Current year twig thickness: medium

Wood specific gravity: 0.42

Culture

Light requirement: full sun

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

Drought tolerance: moderate

Aerosol salt tolerance: none

Other

Roots: not a problem

Winter interest: no

Outstanding tree: no

Ozone sensitivity: sensitive

Verticillium wilt susceptibility: susceptible

Pest resistance: resistant to pests/diseases



Figure 6. Bark - *Liriodendron tulipifera*: tuliptree
Credits: Gitta Hasing, UF/IFAS

Use and Management

Although a rather large tree, tulip-poplar could be used along residential streets with very large lots and plenty of soil for root growth if set back 10 or 15 feet. Not generally planted in large numbers and probably best for a specimen or for lining commercial entrances with lots of soil space. Trees can be planted from containers at any time in the south but transplanting from a field nursery should be done in spring, followed by faithful watering. Plants prefer well-drained, acid soil. Drought conditions in summer can cause premature defoliation of interior leaves which turn bright yellow and fall to the ground, especially on newly-transplanted trees. The tree may be short-lived in parts of USDA hardiness zone 9, although there are a number of young specimens about two feet in diameter in the southern part of USDA hardiness zone 8b. It is usually

recommended only for moist sites in many parts of Texas, including Dallas, but has grown in an open area with plenty of soil space for root expansion near Auburn and Charlotte without irrigation where the trees are vigorous and look nice.

There are several cultivars: 'Aureo-maculatum' -- leaves with yellow blotches, 'Aureo-marginatum' -- leaves edged with yellow, 'Fastigiatum' -- columnar growth, 'Pyramidale' -- narrow growth habit. None are commonly available.

Pests

Aphids, particularly Tuliptree aphid, can build up to large numbers, leaving heavy deposits of honeydew on lower leaves, cars, and other hard surfaces below. A black, sooty mold may grow on the honeydew. Although this does little permanent damage to the tree, the honeydew and sooty mold can be annoying.

Tuliptree scales are brown, oval and may be first seen on lower branches. Scales deposit honeydew which supports the growth of sooty mold. Use horticultural oil sprays in spring before plant growth begins.

Tuliptree is considered resistant to gypsy moth.

Diseases

Tuliptree is attacked by several cankers. Infected, girdled branches dieback from the tip to the point of infection. Keep trees healthy and prune out infected branches.

Leaf spots are usually not serious enough to warrant chemical controls. Once leaves are heavily infected the opportunity for chemical control is lost. Rake up and dispose of infected leaves. Leaves often fall during summer and litter the ground with yellow, spotted leaves.

Powdery mildew causes a white coating on the leaves and is not usually harmful.

Sooty mold makes a black coating on leaves and stems. The fungus grows on the honeydew left by insects, particularly aphids. Control sooty mold by preventing the build up of insects populations.

Verticillium wilt causes wilting and death of leaves on infected branches. Severe infections kill trees. Keep trees vigorous with a regular maintenance program, including fertilizer.

During hot, dry weather interior leaves turn yellow and fall off. This condition is due to the weather and is not a disease. The problem is most common on newly transplanted trees, but also develops frequently on established trees. Yellowing may be preceded by small, angular, brown spots on the leaves.

Reference

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