



©2005 Hortocopia, Inc.

Elm, Lacebark (spp.)

Leaf Identification

Type: Simple
Arrangement: Alternate
Venations: Pinnate
Margins: Serrate and serrulate
Shapes: Elliptic, obovate and ovate

Fruit Color Brown

The fruit is dry and oval.

Environment

This plant tolerates drought, occasional wetness and some salt.

This plant will grow in very dry to occasionally wet soil. Suitable soil is well-drained/loamy, sandy or clay.

The pH preference is an acidic to alkaline (less than 6.8 to

Ulmus parvifolia

Chinese Elm, Lacebark Elm

Ulmaceae (Elm)

Nomenclature: Royal Hort. Society

Type Tree, woody plant

Hardy range 5B to 10A

Height 40' to 65' / 12.20m to 19.80m

Spread 35' to 45' / 10.60m to 13.80m

Growth rate Average

Form Rounded and vase shaped

Exposure Partial shade or partial sun to full sun

Persistence Deciduous

Bloom Color Green

Leaf Color Green

Fall Color Purple, red and yellow

Native Habitat

China, Japan

Crown, Branch and Twig

This plant is asymmetrical with a fine texture and has a moderately dense crown.

This plant's bark is thin and showy.

Branches or twigs are thin.

Branches droop.

This plant typically grows with one trunk.

This plant has low flammability.

Culture Notes

Chinese Elm will grow best in full sun on a wide range of well-drained soils, adapting easily to extremes in pH and tolerates urban heat. Some trees suffer in zone 5, especially in 5A. Trees will look their best, though, when grown in moist, well-drained, fertile soil but they adapt to drought and the extremes of urban sites. Very suitable for street tree pits, parking lot islands, and other confined soil spaces.

Landscape Uses

- Street tree
- Pollarding
- Specimen

Attributes and Features

- Inconspicuous blooms
- Inconspicuous fruit



This tree may take more effort to properly train and prune when young than some other species but it is well worth the effort. It will have a long service life in urban areas with proper training and pruning early on. Seeds occasionally germinate in nearby landscapes. Roots generate sprouts when they are cut. Sometimes trees appear in landscapes because mulch made from Chinese elm roots is used at the site. Elms that are root pruned a few weeks before hand can be dug from a field nursery in summer without any problems provided irrigation is applied regularly after root pruning and digging.

The cultivar 'Frontier' has unusual red fall color. 'Kings Choice' (brittle) and 'Dynasty' are deciduous and hardier than others but lack showy bark. Bosque™ ('UPMTF') is fairly easy to train to a leader. Chinese elm is typically rooted on its own roots due to graft incompatibility problems with budding and grafting. Chinese elms reportedly produce highly allergenic pollen.

Elms are among those susceptible to summer branch drop according to surveys in California. Summer branch drop is a phenomena resulting in failure and breakage of large diameter, live branches typically on calm summer days.

Maintain adequate mulch area

Clear all turf away from beneath the branches and mulch to the drip line, especially on young trees, to reduce competition with turf and weeds. This will allow roots to become well established and keep plants healthier. Prune the tree so trunks and branches will not rub each other. Remove some secondary branches on main branches with included bark. This reduces the likelihood of the main branch splitting from the tree later when it has grown to become an important part of the landscape. Locate the tree properly, taking into account the ultimate size, since the tree looks best if it is not pruned to control size. The tree can enhance any landscape with its delightful spring flush of foliage. It can be the centerpiece of your landscape if properly located.

Can transplant any time, even in summer provided irrigation is present.

Tree establishment specifications

Choose good quality trees for planting. The most common cause of young tree failure is planting too deep. In most instances, the point where the top-most root in the root ball originates from the trunk (referred to as the root flare zone or root collar) should be located just above the soil surface. You may have to dig into the root ball to find the root flare. If there is nursery soil over this area, scrape it off. Never place ANY soil over the root ball. The planting hole should be at least twice the width of the root ball, preferably wider because roots grow best in loose soil. In all but exceptional circumstances where the soil is very poor, extensive research clearly shows that there is no need to incorporate any amendments into the backfill soil. Simply use the loosened soil that came out of the planting hole. Simply planting with the topmost portion of the root ball slightly higher than the surrounding soil might still install the tree too deep - be sure to locate the root flare.

Weed suppression during establishment is essential. Apply a 3-inch thick layer of mulch to at least a six-foot diameter circle around the tree. This area should be at least two feet in diameter for each inch of tree trunk diameter and maintained during the establishment period. Apply a thinner layer of mulch directly over the root ball but keep it at least 10 inches from the trunk. This allows rainwater, irrigation and air to easily enter the root ball and keeps the trunk dry. Placing mulch against the trunk and applying too thick a layer above the root ball can kill the plant by oxygen starvation, death of bark, stem and root diseases, prevention of hardening off for winter, vole and other rodent damage to the trunk, keeping soil too wet, or repelling water.

Regular irrigation after planting encourages rapid root growth that is essential for tree establishment. Trees provided with regular irrigation through the first growing season after transplanting require about 3 months (hardiness zones 9-11), 6 months (hardiness zones 7-8), or one year or more (hardiness zones 2-6) per inch of trunk diameter to fully establish roots in the landscape soil. Trees in desert climates may take longer to establish. Trees that are under-irrigated during this establishment period (and most trees are) often require additional time to establish because roots grow more slowly. Be prepared to irrigate through the entire establishment period, especially during periods of drought.

Irrigation also helps maintain and encourage the desirable dominant leader in the tree canopy on large-maturing trees. Instead of a dominant leader, trees that are under-irrigated during the establishment period often develop undesirable, low, co-dominant stems and double leaders that can split from the tree later.

Unlike established plants, which do best with deep, infrequent irrigation, research clearly shows that recently transplanted trees and shrubs establish quickest with light, frequent irrigation. For trees planted in spring or summer, provide one (cooler hardiness zones) to three irrigations (warmer hardiness zones) each week during the first few months after planting. Daily irrigation in the warmest hardiness zones provides the quickest establishment. Following the initial few months of frequent irrigation, provide weekly irrigation until plants are fully established. With every irrigation, apply one (cool climates) to two (warm climates) gallons of water per inch trunk diameter (e.g. 2 to 4 gallons for a 2-inch tree) over the root ball only. In most landscapes that receive more



than 30 inches of rain or irrigation annually, if the mulch area is maintained weed-free, irrigation does not need to be applied outside of the root ball. Never add water if the root ball is saturated.

In cooler hardiness zones, in all but the driest years, irrigation of spring- and summer-planted trees usually can be discontinued once fall color has begun. Irrigation of fall planted trees, however, should be continued until foliage has dropped from the deciduous trees in the region. In warmer climates, irrigate fall-and winter-planted trees as described for the spring- and summer-planted trees.

In drier, desert climates there is benefit to be gained from applying additional irrigation outside of the root ball area. This is best done by making a large diameter berm four to six inches high, then filling it with water so it percolates into the soil. For the first two years, irrigate twice each week through the spring, once per week in summer provided monsoons arrive, and twice each week again in fall if it remains warm. Taper off watering to once or twice each month in winter and resume twice weekly next spring. For years three to five, water twice per month in spring, summer, and fall and once or twice per month in winter. During years five through seven, water once every three weeks in warm weather and once every six weeks in winter. After this, the drought-tolerant desert trees should be able to survive on natural rainfall.

Trees with good, strong structure need no pruning at planting, except to remove broken twigs. Do not remove branches to compensate for root loss - research has shown that this can be detrimental to establishment.

Pests, Diseases and Damaging Agents

Pests: Borers, chewing insects. Shows considerable resistance to elm leaf beetle and Japanese beetle. In fact it is one of the least preferred hosts for elm leaf beetle. Mistletoe can be troublesome in certain regions and has been reported to be a problem in Florida and Texas. Lacebugs can cause leaf stippling, bronzing and defoliation.

Asian long-horned beetle, a new pest in certain regions of the country since 1996, attacks and kills trees. Tunneling by beetle larvae girdles tree stems and branches. Potentially resistant trees include *Metasequoia* (Dawn Redwood), *Taxodium* (Baldcypress), *Corylus colurna* (Turkish Hazelnut), *Quercus* (Oak), *Gleditsia* (Honeylocust), *Tilia* (Linden), *Ginkgo*, and *Gymnocladus dioica* (Kentucky Coffee Tree).

Diseases: Considered mostly resistant to Dutch Elm Disease and phloem necrosis (elm yellows). Cankers may develop on young trunks where soil is excessively wet, and in other situations. These have been blamed on cold temperatures in winter. *Phytophthora* fungi have been isolated from some of these cankers. Cankers occur on nursery and landscape trees but landscape trees are rarely affected to the point of becoming a problem. Trunks on nursery trees can become completely girdled and trees killed by the problem. Twig blight can be an occasional problem.

Although considered mostly resistant, elm yellows can reportedly affect this tree. It is caused by a phytoplasma and is transmitted by a leafhopper. The phytoplasma enters the phloem through the leafhopper mouth parts and moves to the leaves and twigs. In winter, the phytoplasma moves to the root tips, and fine roots begin dying followed by larger root death. Foliar symptoms follow. These include sparse foliage of the canopy with green leaves followed by leaf yellowing and curling, with discoloration of the phloem. Wood may smell of winter green. Several branches may die in the canopy then the entire crown is affected and dies. Trees take from one to several years to die.

This plant is sensitive to damage from ozone air pollution. Damage can occur in urban or rural areas because ozone can travel long distances away from where it is formed. Typical symptoms on deciduous trees are a flecking or stippling only on the upper side of the foliage between large veins. The small spots or flecks are white, tan or orange-red. Spots or flecks from one-eighth to one-quarter inch long appear on needles of sensitive conifers. Yellow bands that girdle the needle may form, eventually causing the tips of the needles to die and/or needles to drop from the plant. If you suspect ozone is causing damage on this plant, locate White Pines (*Pinus strobus*) in the area to see if they are damaged. White Pines are very sensitive to ozone damage and can serve as indicators of the presence of ozone in concentrations high enough to cause plant damage.

Special Notes

This plant has aggressive roots.

