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Cercis canadensis
Eastern Redbud
Fabaceae (Pea)

Nomenclature: Royal Hort. Society

Type Tree, woody plant

- Hardy range** 4B to 9A
- Height** 15' to 25' / 4.60m to 7.60m
- Spread** 15' to 35' / 4.60m to 10.60m
- Growth rate** Fast
- Form** Rounded and vase shaped
- Exposure** Partial shade or partial sun to full sun
- Persistence** Deciduous
- Bloom Color** Lavender, pink and purple
- Bloom Time** Spring

The flowers are very showy.

- Leaf Color** Green
- Fall Color** Yellow

Native Habitat

The native habitat ranges from steep stream bank, with only occasional short duration flooding, to dry ridge in eastern US to north-central Florida. Best growth is on moist well-drained soil with a pH of about 7.5. Trees are most successful on south facing slopes where they are able to out compete other trees.

Native to the following North American locales: Alabama, Arkansas, District of Columbia, Florida, Georgia, Iowa, Illinois, Kansas, Kentucky, Louisiana, Maryland, Michigan, Missouri, Mississippi, North Carolina, Nebraska, New Jersey, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia

Crown, Branch and Twig

This plant is asymmetrical with a coarse texture and has a moderately dense crown.
This plant's bark is not showy.
Branches or twigs are of medium thickness.
This plant is often grown with multiple trunks.

Redbud, Eastern (spp.)

Leaf Identification

- Type:** Simple
- Arrangement:** Alternate
- Venations:** Brachidodrome, pinnate, palmate and reticulate
- Margins:** Entire
- Shapes:** Ovate and reniform

Fruit Color Brown

The fruit is dry and of a pod-like shape.

Environment

This plant tolerates some drought and occasional wetness.
This plant will grow in 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 more than 7.7) soil.

Landscape Uses

- Woodland garden
- Border
- Street tree
- Standard
- Specimen

Attributes and Features

- Attracts butterflies
- Persistent fruit
- Attractive fruit
- Fruit is edible by birds
- Sensitive to ozone



This plant can be trained to a single trunk.

This plant has low flammability. National champion is 44 x 33 feet in Tennessee.

Culture Notes

Eastern Redbuds grow well in full sun in the northern part of its range but will benefit from some shade in the southern zones, particularly in the lower mid-west where summers are hot. Best growth occurs in a light, rich, moist soil underlain by alkaline clay but Eastern Redbud adapts well to a variety of soil, except permanently wet and extremely dry. Trees grow fine in sandy or alkaline conditions. Tolerance to alkaline soil appears to depend on the seed source - not surprisingly those from western Texas and other areas with alkaline soil perform best on alkaline soil in urban landscapes. Trees grow exceedingly fast on moist soil that drains well in a few hours after rain.

Although a legume, nitrogen-fixing bacteria (*rhizobia*) have not been associated with the root system. This plant is considered mostly allergy free and causes little or no allergy problems in most people. Plants provide nectar for butterflies and are hosts for butterfly larvae.

Trees are often short-lived often due to trunk canker infection (*Botryosphaeria*) and included bark causing branch splitting from the tree. Injury resulting from included bark might provide entry for the canker fungi. Trees look better when they receive some irrigation in summer dry spells. Wood is considered ring porous. Weak unions make these trees very susceptible to breakage in ice storms.

This is the state tree of Oklahoma.

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.

Use as a street tree

This plant can be grown as a multi-trunk tree for use in highway median strips and in landscapes, or can be used as a street tree where there is not a need for tall-vehicle clearance beneath the crown. The small stature and low, spreading, branching habit makes pruning for vehicular clearance difficult unless it is properly trained from an early age to develop one main trunk. The effort required initially to train this tree for street tree use, however, may be offset by its advantages.

Young trees are easiest to transplant and survive best when planted in the spring or fall. Containerized trees can be planted anytime soil is not frozen.

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 attack the trunk of older and stressed trees. Scale insects can usually be controlled with horticultural sprays. Webworm can defoliate parts of the tree in summer and fall.

Disease: *Botryosphaeria* canker is the biggest problem with Eastern Redbud, especially following a period of drought. This disease is responsible for the short life of many redbuds. *Cercis chinensis* 'Don Egolf' may be more resistant but is a much slower growing smaller plant. It does not produce seed pods. *Nectria* canker can also cause problems. Leaf spots can be a problem during wet weather. *Verticillium* wilt attacks and kills Eastern Redbud. Ganoderma can kill redbuds.

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.

This genus is sensitive to fluoride air pollution, sources of which include glass and brick manufacturing plants and other facilities that heat or treat with acid materials containing fluoride. Symptoms due to fluoride injury are more prominent on the side of the plant facing the pollution source. In deciduous plants, symptoms include leaf browning along the margins of the leaves. A dark brownish band may appear along the boundary between healthy green tissue and the affected brown tissue. Eventually, the entire leaf may turn brown. In conifers, the tips of the current year's needles turn reddish brown. Older needles are typically unaffected. If you suspect fluoride has injured this plant, look in the neighborhood for gladiolus plants. They serve as indicator plants for fluoride air pollution damage because they are very sensitive to it. Other sensitive plants include ash, maple, oak, white pine, poplar, and redbud. Plants that resist injury include birch, flowering cherry, dogwood, hawthorn, American linden, juniper,



pear, spirea and sweet gum.

