USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

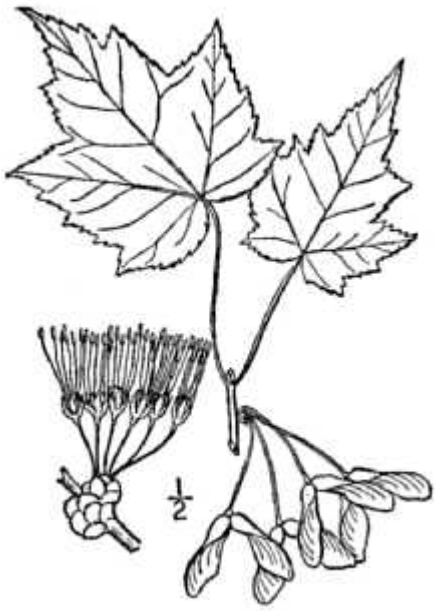
Plant Guide

RED MAPLE

Acer rubrum L.

Plant Symbol = ACRU

Contributed By: USDA NRCS National Plant Data Center & the Biota of North America Program



Britton & Brown. 1913
Illustrated flora of the northern states and Canada
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Alternate common names
Carolina red maple, Drummond red maple, scarlet maple, soft maple, swamp maple, water maple

Uses
Red maple has long been valued as an ornamental tree (shade, specimen, autumn accent, or wet site) because of its ease of establishment, rapid growth, brightly colored flowers and fruit, and fall leaf colors (ranging from clear yellow to orange to vivid red) displaying coloring during different seasons of the year. This tree is preferred over silver maple or boxelder when a fast growing maple is needed. Red maple can be planted onto many types of disturbed sites in rehabilitation projects.

The white, fine-grained wood is used for furniture, flooring, cabinetry, paneling, veneer, musical instruments, tool handles, cutting boards, butcher blocks, wooden bowls, boxes and crates, and many other uses. Red maple is an excellent wood for fuel and is also used for saw timber and pulpwood. But because of susceptibility to defects and disease and poor form of individuals of sprout-clump origin, the timber is often low in quality.

The sap of red maple is sometimes used for producing maple syrup. Although its sap has only about half the sugar content as sugar maple (*A. saccharum*), the syrup tastes good. Saponins in the sap may cause excessive frothing of the concentrate.

Native Americans used red maple bark as an analgesic, wash for inflamed eyes and cataracts, and as a remedy for hives and muscular aches. Tea brewed from the inner bark has been used for treating coughs and diarrhea. Pioneers made cinnamon-brown and black dyes from a bark extract. Iron sulphate was added to the tannin from red maple bark to make ink.

Because of the abundance and wide distribution red maple, its early-produced pollen may be important to the biology of bees and other pollen-dependent insects. Most references describe red maple as wind pollinated, but insect pollination may be important, as many insects, especially bees, visit the flowers. The seeds, buds and flowers are eaten by various wildlife species. Squirrels and chipmunks store the seeds. White-tailed deer, moose, elk browse red maple, and rabbits, which find the stump sprouts especially palatable, especially in fall and winter. Cavities in red maples in river floodplain communities are often well suited for cavity nesters such as the wood duck and others.

Status
Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values. This species has been introduced in many areas of the U.S., outside of its native range.

Description
General: Maple Family (Aceraceae). A native tree growing to 20 m tall, usually with a narrow compact

crown, single-boled, or often in clumps of stems from one stump due to prolific sprouting; bark gray and thin, becoming furrowed into long narrow scaly ridges on older trunks and branches. The leaves are deciduous, opposite, long-petioled, blades 6-10 cm long and usually about as wide, with 3 shallow short-pointed lobes, sometimes with two smaller lobes near the base, dull green and smooth above, lighter green or silvery beneath and more or less hairy. The flowers are pink to dark red, about 3 mm long, the male (staminate) flowers fascicled and the female (pistillate) flowers in drooping racemes. The flowers appear to be bisexual but they are functionally male or female, and individual trees may be all male or all female or some trees may have both types, each type on a separate branch (the species technically polygamo-dioecious), or the flowers may be functionally bisexual. Fruits: winged nutlets (samaras) in a pair, 2-2.5 cm long, clustered on long stalks, red to red-brown. The common name is in reference to the red twigs, buds, flowers, and fall leaves.

Variation within the species: Red maple is highly variable and many varieties and forms have been identified. The following varieties are commonly recognized:

Var. *drummondii* (Hook. & Arn. ex Nutt.) Sarg.
Var. *trilobum* Torr. & Gray ex K. Koch

Red maple forms natural hybrids with silver maple (*A. saccharinum*): *Acer* X *freemanii* E. Murray.

Distribution: Red maple is one of the most widely distributed trees in eastern North America, extending from Newfoundland and Nova Scotia west to southern Ontario, Minnesota, Wisconsin, and Illinois, then south through Missouri, eastern Oklahoma, and southern Texas, and east to southern Florida. Its distribution has been increased past its native range through broad cultivation and naturalization of the cultivated forms.

Adaptation
Red maple is also one of the most successful and abundant species in the Eastern Deciduous Forest, arguably the most abundant, reproducing aggressively by seeds and sprouts after fire, logging, and abandonment of farmland. It is most abundant on bottomlands and is tolerant of waterlogged soils and flooding, but it is a "supergeneralist," growing on the widest variety of sites and in the greatest range of conditions (sunny or shady, high or low nutrients, dry or moist) of any North American species, from 0-900 meters. Because red maple grows well in shade, is a key late-successional species, but it also is a successful early successional invader of disturbed sites. "It will probably continue to increase in dominance in the overstory during the next century, causing widespread replacement of the historically dominant trees of the forests of the eastern United States" (Abrams 1998, p. 355). Fire suppression has contributed greatly to the spread of red maple (the thin bark makes it highly susceptible to fire damage) but no single trait is responsible for its success.

Flowering: (February-)March-April, before the vegetative buds, one of the first trees to flower in the spring; fruiting: April-June, before leaf development is complete.

Establishment
Red maple is a prolific seed producer and trees as young as four years may begin to bear seeds. Good seed crops are usually produced in alternate years. Seedbed requirements are minimal and up to 95% of viable seeds germinate in the first 10 days; some survive in the duff and germinate the following year. Because the mature seeds are dispersed in spring and can germinate immediately, seedlings can become established with a 3-4 month advantage over most associated woody species. A bank of persistent seedlings often accumulates beneath a forest canopy.

Seedlings can survive 3-5 years of moderate shade, but establishment and early growth are best after disturbance. Male (staminate) trees may grow faster than female ones. Average longevity for red maple is about 80-100 years, but trees are known to reach 200 years of age.

Vegetative reproduction under natural conditions is common from sprouts from the stump or root crown or root suckers after fire or mechanical damage. Buds located at the base of stems commonly sprout 2-6 weeks after the stem is cut.

Management
Red maple is easily transplanted and is one of the easiest trees to grow. It is abundantly available in commerce, in ball-and-burlap and in container, but where other fertile trees grow in the area, volunteers usually are common. Propagation of cultivars is by budding onto seedling understock or rooted stem cuttings – the species form (although rarely propagated) by rooted stem cuttings or by seeds. Softwood cuttings are propagated under mist, using 1000-3000 ppm IBA, in about four weeks.

Despite its value and wide use (even to the point of over-planting in some areas), red maple has some

drawbacks as a lawn and street tree. As a street tree, it often becomes too large, and it does not respond well to some urban stresses, particularly protracted drought because of the planting site or long spells of hot dry weather. One of the "soft maples," red maple branches are weak and somewhat brittle and are subject to storm damage. The bark is thin and easily damaged by mechanical impact (including lawn mowers, weed eaters, and even increment boring) as well as fire, allowing entry of various damaging fungi and insects – butt rot, trunk rot fungi, heart rot, and stem diseases are common in damaged trees, although pests and pathogens otherwise are relatively few. As in some other maples, feeder roots develop close to the surface and turf and other shallow-rooted plants must compete directly with the tree for water. Turf beneath the canopy often is stunted and mowing may be difficult because of the protruding roots.

Growth in alkaline soils may lead to leaf chlorosis and a weakly growing tree, especially among the cultivars. Fertilization in spring can help overcome this. Graft incompatibilities have appeared between some cultivars of red maple and their rootstock, the trees often breaking off at the union between scion and rootstock, but propagation by softwood cutting has circumvented this problem.

Cultivars, Improved and Selected Materials (and area of origin)

Many cultivars of red maple have been developed. Selections have been made for color tints and brightness, timing of onset of coloration, crown shape and branching pattern, cold hardiness, leaf size, only male flowers (no seeds or seedlings), and leafhopper resistance.

References

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