



## *Acer saccharum* 'Endowment' 'Endowment' Sugar Maple<sup>1</sup>

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### INTRODUCTION

This cultivar of Sugar Maple is a hard-wooded tree with a moderate growth rate probably growing to 50 feet tall (Fig. 1). The crown is very narrow (10 feet) and uniform making the tree well suited for tight spaces. 'Endowment' Sugar Maple grows about 1 foot each year in most soils it is reportedly less sensitive to reflected heat, and to drought, and scorches less than the species. Nevertheless, trees planted in dry soil often are stressed in areas where the root system is restricted to a small soil area, such as a street tree planting. It is more drought-tolerant in open areas where the roots can proliferate into a large soil space.

### GENERAL INFORMATION

**Scientific name:** *Acer saccharum* 'Endowment'

**Pronunciation:** AY-ser sack-AR-rum

**Common name(s):** 'Endowment' Sugar Maple

**Family:** *Aceraceae*

**USDA hardiness zones:** 3 through 8A (Fig. 2)

**Origin:** native to North America

**Uses:** Bonsai; wide tree lawns (>6 feet wide); medium-sized tree lawns (4-6 feet wide); recommended for buffer strips around parking lots or for median strip plantings in the highway; screen; residential street tree

**Availability:** somewhat available, may have to go out of the region to find the tree

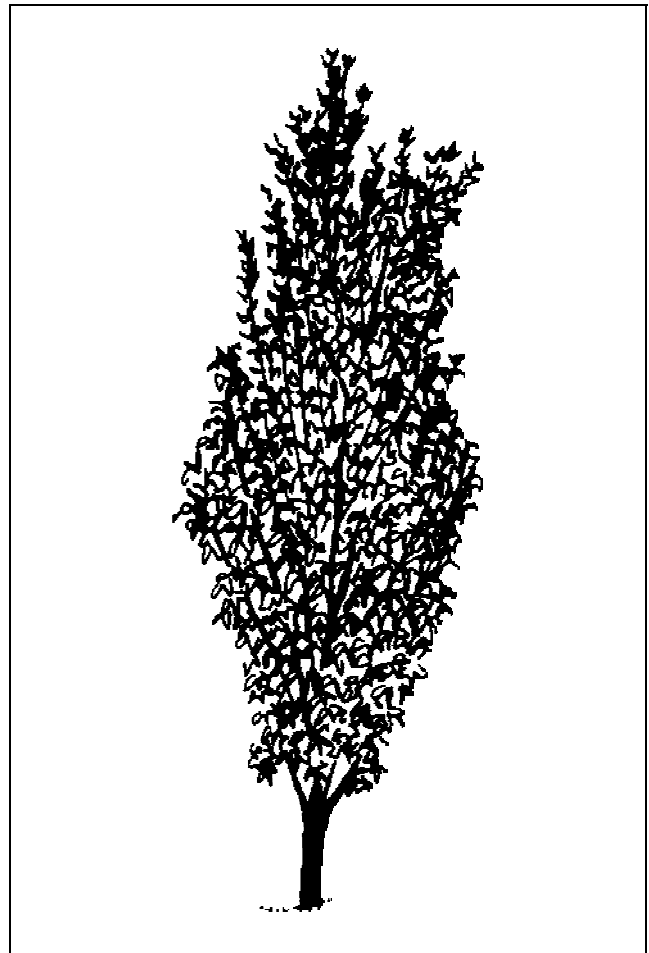


Figure 1. Middle-aged 'Endowment' Sugar Maple.

### DESCRIPTION

**Height:** 45 to 50 feet

**Spread:** 6 to 10 feet

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Figure 2. Shaded area represents potential planting range.

**Crown uniformity:** symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms

**Crown shape:** columnar; upright

**Crown density:** dense

**Growth rate:** medium

**Texture:** medium

### Foliage

**Leaf arrangement:** opposite/subopposite (Fig. 3)

**Leaf type:** simple

**Leaf margin:** lobed; undulate

**Leaf shape:** star-shaped

**Leaf venation:** palmate

**Leaf type and persistence:** deciduous

**Leaf blade length:** 4 to 8 inches; 2 to 4 inches

**Leaf color:** green

**Fall color:** red; yellow

**Fall characteristic:** showy

### Flower

**Flower color:** green

**Flower characteristics:** inconspicuous and not showy; spring flowering

### Fruit

**Fruit shape:** elongated

**Fruit length:** 1 to 3 inches

**Fruit covering:** dry or hard

**Fruit color:** brown

**Fruit characteristics:** attracts birds; attracts squirrels and other mammals; inconspicuous and not showy; no significant litter problem

### Trunk and Branches

**Trunk/bark/branches:** grow mostly upright and will not droop; not particularly showy; should be grown with a single leader; no thorns

**Pruning requirement:** needs little pruning to develop a strong structure

**Breakage:** resistant

**Current year twig color:** brown

**Current year twig thickness:** medium; thin

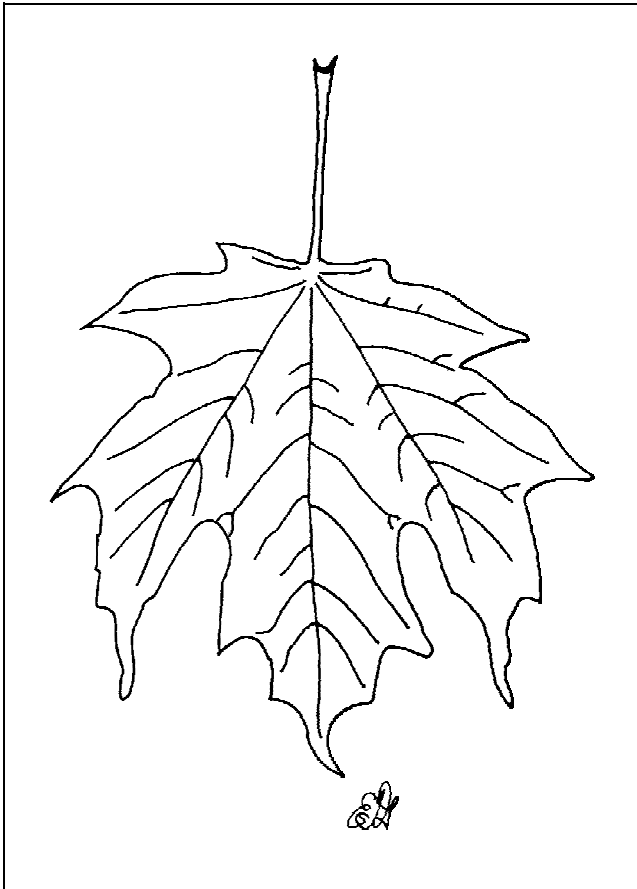


Figure 3. Foliage of 'Endowment' Sugar Maple.

**Wood specific gravity:** 0.63

### Culture

**Light requirement:** tree grows in part shade/part sun; tree grows in the shade; tree grows in full sun

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

**Drought tolerance:** moderate

**Aerosol salt tolerance:** none

**Soil salt tolerance:** poor

### Other

**Roots:** surface roots are usually not a problem

**Winter interest:** tree has winter interest due to unusual form, nice persistent fruits, showy winter trunk, or winter flowers

**Outstanding tree:** not particularly outstanding

**Invasive potential:** little, if any, potential at this time

**Verticillium wilt susceptibility:** susceptible

**Pest resistance:** long-term health usually not affected by pests

## USE AND MANAGEMENT

Branches are usually well-attached to trunks resulting in a low branch failure rate. The main ornamental feature of the tree is the brilliant red to yellow (occasionally orange) fall color that develops in the cooler part of its range. The yellows are more prominent in the south. The tree transplants fairly easily but may develop girdling roots which can reduce growth, or in extreme cases kill the tree.

The limbs of Sugar Maple are usually strong and not susceptible to wind damage. The bark forms attractive bright gray plates which stand out especially during the winter. Roots are often shallow and reach the surface at an early age, even in sandy soil. Plant in an area where grass below it will not need to be mowed so the roots will not be damaged by the mower. A variety of birds use the tree for food, nesting and cover and the fruits are especially popular with squirrels. About 40 gallons of sap are required to produce 1 gallon of maple syrup.

Growing in full sun or shade, Sugar Maple will tolerate a wide variety of soil types (except compacted soil) but is not salt-tolerant. Established trees look better when given some irrigation during dry weather, particularly in the south. In the south, many leaves remain in the central portion of the canopy for much of the winter, giving the tree a somewhat unkempt appearance. Sugar Maples are not recommended for the Dallas area, in many cases due to alkaline soils causing chlorosis. Sensitivity to compaction, heat, drought and road salt limit usage of the Sugar Maple species for urban street plantings, but it is still recommended for parks and other areas away from roads where soil is loose and well-drained. Black Maple, a similar species, is more tolerant of heat and drought than the species.

Nurseries may offer one or several cultivars of Sugar Maple: 'Bonfire' - brilliant orange-red fall color; 'Globosum' - a slow grower with a dense round crown and a mature height of about 10 feet; 'Goldspire' - dense, compact, pyramidal form, gold fall color; 'Green Mountain' - upright oval crown and scarlet fall color, may be more resistant to sun scorch; 'Majesty' - ovate form, resistant to frost crack and sun scald. 'Newton Sentry' - upright growth habit; 'Sweet Shadow' - cut leaves; 'Temple's Upright' - an upright growth habit.

## Pests

Leaf stalk borer and petiole-borer cause the same type of injury. Both insects bore into the leaf stalk just below the leaf blade. The leaf stalk shrivels, turns black, and the leaf blade falls off. The leaf drop may appear heavy but serious injury to a healthy tree is rare.

Gall mites stimulate the formation of growths or galls on the leaves. The galls are small but can be so numerous that individual leaves curl up. The most common gall is bladder gall mite found on Silver Maple. The galls are round and at first green but later turn red, then black, then dry up. Galls of other shapes are seen less frequently on other types of maples. Galls are not serious, so chemical controls are not needed.

Crimson erineum mite is usually found on Silver Maple and causes the formation of red fuzzy patches on the lower leaf surfaces. The problem is not serious so control measures are not suggested.

Aphids infest maples, usually Norway Maple, and may be numerous at times. High populations can cause leaf drop. Another sign of heavy aphid infestation is honey dew on lower leaves and objects beneath the tree. Aphids are controlled by spraying or they may be left alone. If not sprayed, predatory insects will bring the aphid population under control.

Scales are an occasional problem on maples. Perhaps the most common is cottony maple scale. The insect forms a cottony mass on the lower sides of branches. Scales are usually controlled with horticultural oil. Scales may also be controlled with well-timed sprays to kill the crawlers.

If borers become a problem it is an indication the tree is not growing well. Controlling borers involves keeping trees healthy. Chemical controls of existing infestations are more difficult. Proper control involves identification of the borer infesting the tree then applying insecticides at the proper time.

## Diseases

Anthraxnose is more of a problem in rainy seasons. The disease resembles, and may be confused with, a physiological problem called scorch. The disease causes light brown or tan areas on the leaves. Anthraxnose may be controlled by fungicides sprayed on as leaves open in the spring. Additional sprays

may be needed. The disease is most common on Sugar and Silver Maples and Boxelder. Other maples may not be affected as severely. Sprays may need to be applied by a commercial applicator having proper spray equipment.

Verticillium wilt symptoms are wilting and death of branches. Infected sapwood will be stained a dark or olive green but staining can't always be found. If staining can not be found do not assume the problem is not verticillium wilt. Severely infected trees probably can't be saved. Lightly infected trees showing only a few wilted branches may be pulled through. Fertilize and prune lightly infected trees. This treatment will not cure the problem but may allow the tree to outgrow the infection. Girdling roots will cause symptoms which mimic verticillium wilt.

Girdling roots grow around the base of the trunk rather than growing away from it. As both root and trunk increase in size, the root chokes the trunk. Girdling roots are detected by examining the base of the trunk. The lack of trunk flare at ground level is a symptom. The portion of the trunk above a girdling root does not grow as rapidly as the rest so may be slightly depressed. The offending root may be on the surface or may be just below the sod. The tree crown shows premature fall coloration and death of parts of the tree in more serious cases. If large portions of the tree have died it may not be worth saving. Girdling roots are functional roots so when removed a portion of the tree may die. When the girdling root is large the treatment is as harmful as the problem. After root removal, follow-up treatment includes watering during dry weather. The best treatment for girdling roots is prevention by removing or cutting circling roots at planting or as soon as they are detected on young trees.

Some scorch may occur during periods of high temperatures accompanied by wind, but this cultivar is said to be resistant. Trees with diseased or inadequate root systems may show scorching. When trees do not get enough water they scorch. Scorch symptoms are light brown or tan dead areas between leaf veins. The symptoms are on all parts of the tree or only on the side exposed to sun and wind. Scorching due to dry soil may be overcome by watering. If scorching is due to an inadequate or diseased root system, watering may have no effect.

Nutrient deficiency symptoms are yellow or yellowish-green leaves with darker green veins. The most commonly deficient nutrient on maple is

manganese. Implanting capsules containing a manganese source in the trunk will alleviate the symptoms. Test soil samples to determine if the soil pH is too high for best manganese availability. Plants exposed to weed killers may also show similar symptoms.

Tar spot and a variety of leaf spots cause some concern among homeowners but are rarely serious enough for control.