

MIN 2000
1976-80

MINNESOTA TREE LINE

Agricultural Extension Service
University of Minnesota

No. 26-1980
Jane McKinnon and
Richard Rideout

Shade Trees for Central Minnesota

Central Minnesota is a jigsaw puzzle of environments so it is difficult to make sweeping generalizations about the best trees to plant in this region. Glacial activity produced a wide variety of topography, soil textures, and drainage conditions. Everything from gravel to poorly drained clay occurs in this portion of the state. In addition, central Minnesota is the center of several transition zones. Northern coniferous forest changes to southern hardwood. Eastern forest changes to western prairie. Precipitation varies from 30 inches per year in the eastern portion to 25 inches in the western. There is, however, a fairly uniform minimum winter temperature (see hardiness zone map).

Because of the varying conditions in central Minnesota, trees must be selected carefully. There is no one all-purpose tree. The elms we are now losing were very tough and tolerated the harsh city conditions well, but the replacement trees are not as tolerant. New trees must be selected to fit the particular site or they will not do well. Site factors to investigate include soil type and drainage, exposure to wind and sun, winter temperature, presence of diseases and insects, man-made features such as over head and underground utilities, sidewalks, buildings and the presence of road salt, pesticides and other pollutants. Once you know the site characteristics you should select the tree on the basis of site tolerance, pest resistance, ease of handling and maintenance, ultimate size and shape, rate of growth and seasonal aspects such as flowers, fruit, fall color, winter form and summer foliage quality.

The following list of trees and their descriptions will help you in making decisions. This is not, however, a complete list; there are many other trees that will do well. Further information is available from Agricultural Extension Service publications, the Minnesota Landscape Arboretum, your County Extension office and experienced Minnesota nurserymen.

Cockspur Hawthorn (*Crataegus crus-galli*) and cultivar 'Inermis.' Cockspur Hawthorn is a small, native tree that provides landscape interest the year around. It has white flowers in early June, glossy dark green summer foliage and an orange to maroon fall color. Clusters of marble-sized red fruit ripen in late summer and persist into the winter. It is a wide spreading tree with a horizontal branching structure and a flat top, and reaches a maximum height and spread of 20 feet.

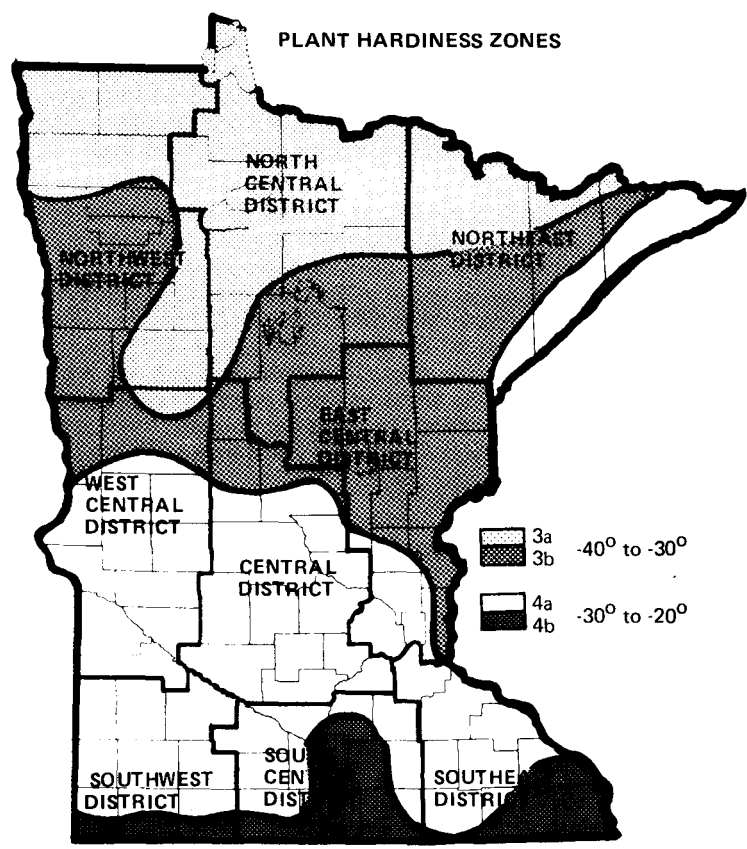
The Cockspur Hawthorn prefers full sun and is most frequently found in open fields, along stream banks, and the edge of forests. It is tolerant of a wide range of soil conditions but requires a well-drained site. Typically planted as a single specimen tree, it may also be used in hedges because it takes well to pruning. The Hawthorn's dense, thorny habit and persistent fruit make it attractive to wildlife for both food and cover. The 1½ to 3-inch thorns, however, can make the tree a hazard, especially to children. The cultivar 'Inermis,' which is thornless, should be used when thorns might present a danger.

Hawthorns are difficult to transplant and should be planted in the spring as balled and burlapped stock. They are subject to a number of diseases and insect pests, with fireblight being the most serious disease. The Cockspur Hawthorn is, however,

fairly resistant to cedar-hawthorn rust—a disease that affects the foliage of many hawthorns.

Norway Maple (*Acer platanoides*) and its cultivars, Cleveland, Emerald Queen, Summer Shade, and Schwedler. Norway Maples can mature to 50 feet with spreading branches, casting a dense shade. Cleveland is a fast-growing, oval, upright form. Summer Shade is a green-leaved rapidly growing selection; Emerald Queen has a deeper green summer color. Green-leaved cultivars of Norway Maple are a clear yellow in autumn, coloring somewhat later than native maples. Schwedler Norway Maple is red-leaved in the spring, with conspicuous yellow flowers. Summer color is dark green.

Norway Maple root systems are fibrous and wide spreading with many roots close to the surface. Because of this, these trees are well suited for transplanting and establishment in landscape plantings, but the shallow roots and dense shade make lawn culture difficult under mature trees. Norway Maples are suited to a wide variety of soils, provided root zones are moist but well drained. Verticillium wilt is the most serious disease of maples, but trees growing in fertile, well-watered sites are more resistant and more apt to survive than trees under stress. Young Norway Maples also should be protected from winter sunscald by wrapping trunks each fall until branches are



large enough to partially shade the main stem of the tree. Sunscald also may be avoided by planting maples where afternoon sun will not strike the trunk in winter. Areas damaged by sunscald are subject both to cankers and attacks by wood-boring insects.

Sugar Maple (*Acer saccharum*). Sugar Maple is a native Minnesota species, popular for its strong, round-headed shape, attractive green leaves in summer and yellow, orange, or red color in autumn. Sugar Maples are best planted on fertile, moist, well-drained soils. Good cultural practices and careful site selection can adapt this species to many Minnesota communities if water and fertilizer can be supplied. Trees are winter hardy but need protection from sunscald when young. Verticillium wilt may attack and kill sugar maples under stress, thus good maintenance is important. Fertilizer and water also help to keep grass growing under maple shade. Early season dropping of a few green leaves is no cause for alarm; a small insect boring into leaf petioles causes the dropping, but no important damage results.

Hackberry (*Celtis occidentalis*). Hackberry is a sturdy, oval-crowned tree with a strong central trunk. Since leaves are similar in appearance to elm foliage, Hackberry has been used as a replacement for American Elm in street plantings for many years. Hackberry leaves are light green in summer, clear yellow in fall. Its small purple fruit mature in late summer. These trees are winter hardy—if grown from northern seed stocks—drought resistant, and suited to most Minnesota soils. However, Hackberries may become established slowly after transplanting. They are best planted as small trees, 1½- to 2-inch caliper (diameter 6 inches above ground) or smaller. Newly planted Hackberries should be staked, especially in windy locations. Leaf galls and clusters of small branches (witches' brooms) are caused by psyllid insects and eriophyid mites, but this damage is not serious. Psyllids, however, may be annoying to people for a short time in late summer.

Green Ash (*Fraxinus pennsylvanica*) and its cultivars, Marshall's Seedless and Summit Ash. Green Ash is the most widely planted shade and street tree replacement in Minnesota at present, but should not be used to the exclusion of other species in a neighborhood or community. Green Ash has a strong central trunk and a sturdy opposite branching habit. These trees are not suitable for pruning to an arching shape; attempts to shape boulevard ash trees to resemble elms result in weak and broken limbs.

Green Ash leaves are compound, smooth, and green on both surfaces. Fall color is brilliant yellow. Summit Ash is a straight-trunked erect form, usually seedless, and nurserymen report it may be hardiest for locations in Zone 3A (see map). Marshall's Seedless Ash is broader than other Green Ash, and has darker green, glossier leaves, which are especially clean and attractive throughout the growing season. Marshall's Seedless Ash is a male, budded selection and does not produce the winged seeds of female Green Ash trees. The seeds do, however, provide food for some winter birds and add some visual interest to the landscape during leafless months.

Thornless Honeylocust (*Gleditsia triacanthos inermis*) and its cultivars Imperial, Shademaster, and Skyline. These cultivars of Honeylocust are graceful, wide-spreading trees; Skyline is narrower than Imperial or Shademaster. All three are maple selections without seed pods. Leaflets of the compound foliage are small; leaf canopy is open and airy. With normal maintenance, lawns grow well in the dappled shade of mature trees.

Honeylocusts transplant readily in a wide range of landscape sizes, and grow rapidly. They can adapt to sandy soils if water can be supplied in dry seasons. They are less subject to tip kill in winter when grown over turf and allowed to harden off in fall by decreasing waterings. Because plant bugs damage the foliage early in the growing season, timely insecticide applications are useful for young trees. Honeylocusts may be seriously

affected by bruising or wounding in handling or transporting or by careless use of lawn mowers and gardening tools. Storm damage should be repaired as quickly as possible. Fungus diseases and insects may invade damaged trunks or limbs, and cankers on main trunks can kill trees.

Because of the spreading shapes of the Honeylocusts listed, these trees are best suited to landscape plantings in large spaces. They are good shade trees for sitting areas and lawns particularly where they are protected by buildings from afternoon sun in winter.

Kentucky Coffeetree (*Gymnocladus dioica*). Kentucky Coffeetree is native to Southwest Minnesota, maturing to 50 feet or over, with a handsome, wide-spreading crown. Leaves and leaflets are pinnately compound, giving a graceful, feathery effect. Female trees produce a wide bean-like pod. Kentucky Coffeetrees have so far been free of serious disease or insect problems. Because Coffeetrees have taproots, container-grown, or balled and burlapped trees should be bought for planting. They are not available in large numbers at Minnesota nurseries, but the species is worth including in community plantings because of its exceptional vigor and sturdy growth habit.

Flame and Red Splendor Flowering Crabapples (*Malus* hybrids). These two varieties of Flowering Crabapples grow to a height of 25 feet, and are large enough to serve as small shade trees. Flame blooms white in spring, Red Splendor is purplish-pink. Fruit of both is bright red, but Flame produces a larger crabapple than does Red Splendor, whose small red apples hang through the winter until eaten by birds. Fruits of Flame drop in the fall, thus it should not be planted near a sidewalk.

When used as shade trees, Flowering Crabapples should be interspersed with other species to reduce the risk of fireblight infection, cankerworms and other apple pests. Cultural practices to reduce damage from diseases and insects affecting apples should be followed. Young crabapple trees must also be protected from sunscald and animal damage.

Showy Mountainash (*Sorbus decora*). Showy Mountainash is native to the North Shore of Lake Superior. The tree reaches medium height—25 to 35 feet—often growing with multiple stems. Large clusters of white flowers appear in spring, followed by bright red fruit—the tree's most striking feature. Fruit colors in August and usually persists into the winter until eaten by birds. Mountainash succeeds best on cool, moist, slightly acid sites. Trunks must be protected from sunscald. Fireblight, a bacterial disease affecting apples and crabapples as well, is the most serious pest of mountainash. Because of the danger of spread infection, mountainash and flowering crabapples should not be planted in large numbers or without an intermixture of non-susceptible species.

American Linden, Basswood (*Tilia americana*). American Linden is a winter-hardy, native tree, growing to a mature height of 50 to 75 feet. American Linden may develop with several stems, or single trunk specimens can be maintained by pruning when young. Mature American Linden are often strongly columnar in shape. Leaves are large, heart-shaped, deep green in summer, turning gold in autumn.

American Linden prefers moist, fertile soil, but adapts to most locations in Minnesota, given reasonable care. Young trees must be protected from sunscald. Cankerworms and spiny elm caterpillars are common insect pests. Neither causes substantial harm, although cankerworms can cause spring defoliation. In hot dry summers, leaf scorch is common on small trees.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Roland H. Abraham, Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55108. The University of Minnesota, including the Agricultural Extension Service, is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. 5 cents