

MINN 2000
MTL-12
C 2
2,521

MINNESOTA TREE LINE

Agricultural Extension Service
University of Minnesota

Shade Trees for Southwestern Minnesota

No. 12 - 1978
Jane McKinnon

Southeast Minnesota, from Big Stone Country on the northwest to Cottonwood and Jackson Counties on the southeast, was prairie country before farmsteads and towns were built. Grasses dominated most of the land but Bur Oak, Hills Oak, Ironwood, Basswood, Green Ash, Silver Maple, Box Elder, Cottonwood, American Elm and various elm were among the trees common to waterside locations.

Gradually other species have been introduced to the area with varying success. However, a combination of the low rainfall, spots of alkaline soil, high winds, temperature extremes, and short growing season, have made a difficult environment for tree growth. Tree life spans are shorter than in milder climates, and vigor is sometimes reduced. Because the southwestern land is used largely for agricultural purposes, tree planting is often restricted, and there are few protected sites for young trees. Thus, removing broken and declining specimens to provide replanting space must be a part of Southwest Minnesota's shade tree work.

Careful planting, regular watering, mulching, staking, fertilizing, corrective pruning and pest protection are essential for successful community-wide tree programs. Newly planted trees and species with smooth, thin bark are susceptible to sunscald. So trunks of maples, honeylocusts, mountain ash and flowering crabapples may have to be wrapped for five to seven winters until outer bark becomes rough and heavy. Planting such species in places where buildings or windbreaks shade tree trunks from the west and south helps to avoid sunscald damage.

No shade tree is perfect for every site in Southwest Minnesota thus, advantages and disadvantages of each species or cultivar (cultivated variety) must be weighed. Winter hardiness, tolerance of summer heat and drought, mature size and shape, quality of summer foliage, and resistance to diseases and insects are essential considerations. However, showy blossoms, attractive fruits, interesting bark and winter effect are important extras. Several kinds of trees should be included in community planting plans to lessen chances of pest epidemics that devastate a single species. Mixed plantings also help to avoid wholesale losses from severe weather that may occur at a critical time for a particular cultivar.

Trees suggested in this publication are known to have succeeded in Southwest Minnesota. Other suggestions are available from Agricultural Extension Service publications, the Minnesota Landscape Arboretum, your County Extension office, and experienced nurserymen.

Norway Maple (*Acer platanoides*) and its cultivars Cleveland, Emerald Queen and Summer Shade. 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 dark green, rapidly growing selection. Emerald Queen also has a deep green summer color. Green-leaved cultivars of Norway Maple are a clear yellow in autumn, coloring later than the native maples.

Norway Maple root systems are fibrous and wide spreading with many roots close to the surface. This habit makes trees well suited for transplanting and quick establishment, but shallow roots and dense shade cause poor grass growth beneath mature trees. Removing lower branches or thinning the crown

will allow better light for lawn grasses. Norway Maples are suited to a variety of soils, provided root zones are moist but well-drained. Maples grown in fertile, well-watered sites are more tolerant of verticillium wilt than trees under stress. Norway Maples also should be protected from winter sunscald by wrapping trunks each fall until branches are large enough to shade the main stem. After trees have grown five years or so, bark will probably be heavy enough to discontinue protective wrapping. Norway Maples do not usually have serious insect problems, but they may support aphid populations large enough to require control measures on young trees.

Sugar Maple (*Acer saccharum*). Sugar Maple is a native Minnesota maple, popular for its strong round-headed shape, attractive summer foliage and yellow, orange, or red autumn color. Sugar Maples are suitable for street and boulevard planting on fertile, moist, well-drained soil. Careful site selection, watering and fertilizing will adapt this species to many Minnesota communities. Fertilizer and water also help to keep lawns growing under maple shade. Trees are winter hardy, but need protection from sunscald by stem wrapping when young. Verticillium wilt may kill trees under stress, thus good maintenance is important.

Ohio Buckeye (*Aesculus glabra*) is winter hardy in Minnesota, and tolerant of dry sites. It is a good choice for public or private properties because of its medium height—25 to 50 feet—strong rounded shape, and deep root system. Ohio Buckeye has showy cream-colored blossoms in spring, interesting light green compound leaves during the growing season, and yellow to apricot autumn color. The large shiny brown buckeye seeds enclosed in a leathery hull mature in fall. Not all trees fruit heavily. Ohio Buckeye may be planted from seed, but are sold by nurserymen as balled and burlapped specimens or in containers. The long tap root makes bare-root transplanting difficult.

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. Small purple fruit mature in late summer. These trees are winter hardy, drought resistant and are suited to most Minnesota soils. However, hackberries may become established slowly after transplanting. Small trees, 1½ to 2 inch caliper (diameter 6 inches above ground) or smaller, are the most suitable for planting. But 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, Marshalls 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 results 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. 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. Its seeds, do however, provide food for some winter birds and add some visual interest to the landscape during leafless months.

Green Ash transplant easily and are tolerant of poor, droughty soils, although they are more vigorous on better sites. Their rather open shade allows good lawn growth beneath. Ash plant bugs or aphids can cause distorted and discolored foliage, but do not seriously damage trees. Sometimes developing male flowers are attached by mites and the resulting flower galls harden and turn black in the fall. These trees are seldom damaged by the galls, although green foliage can be reduced. Young ash trees may be sprayed to protect against all of these pests if noticeable infestations occur.



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 the Flame Crabapple 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 fire-blight 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.

Ironwood or Hop Hornbeam (*Ostrya virginiana*). Ironwood is a medium-sized tree native to most of Minnesota. It matures to 40 feet, with medium green foliage similar in appearance to elm. Fall color is golden yellow, fruits are hoplike. Ironwood is extremely pest resistant, and adapts to many kinds of soils and sites. It is attractive when grown either as a single specimen or in clump form. Ironwood is not as yet available in large numbers in Minnesota nurseries, but transplanting small trees from the wild is a possibility.

Bur Oak (*Quercus macrocarpa*). Bur Oak is native to southwest Minnesota and many handsome specimens grow along the slopes of rivers and streams. Minnesota nurseries are beginning to offer small specimens in containers, since large oaks are difficult to transplant. Bur Oaks are hardy, resistant to weather damage, and their rugged shape and corky bark is attractive at all seasons of the year. Since oak wilt is a problem in the state, no oaks should be planted near existing oaks where the disease is present. Oaks are subject to insect-induced leaf and twig galls, but these galls rarely affect a tree's vigor.

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 with large heart-shaped leaves that are deep green in summer, and gold in autumn.

American Linden prefers moist fertile soil, but adapts to most locations in Minnesota, given reasonable care. Although American Linden are being used as elm replacements, smaller Linden species are more often being planted as street trees in the southern third of Minnesota.

Littleleaf Linden (*Tilia cordata*) and cultivars Greenspire and Chancellor. Littleleaf Linden are medium-sized trees at maturity, dense and dark green, with small leaves. Littleleaf Linden develops a rounded crown, while Greenspire grows to a dense, pyramidal shape. Chancellor is also compact and upright.

Redmond Linden (*Tilia x euchlora*). Redmond Linden has been widely planted as a street and shade tree and is proving to be a successful and useful selection. Redmond Linden has a strong pyramidal shape suited to narrow boulevard spaces. Leaves are dark green, firm, and glossy. Although the tree does not grow rapidly, its neat habit suits it to urban situations.

Young Lindens 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.