

Common Lilac



Common Lilac (*Syringa vulgaris*)

General Description

A medium to large hardy shrub with stout, spreading branches developing a somewhat oval to irregularly rounded crown. Spreads by suckering. Showy, fragrant flowers.

Leaves and Buds

Bud Arrangement - Opposite.

Bud Color - Green to brownish-purple with 3 pairs of scales.

Bud Size - Sessile, subglobose, large, 1/4 to 1/2 inch.

Leaf Type and Shape - Simple, cordate.

Leaf Margins - Entire, smooth.

Leaf Surface - Smooth, leathery.

Leaf Length - 2 to 5 inches.

Leaf Width - 1½ to 3½ inches.

Leaf Color - Dark green.

Flowers and Fruits

Flower Type - Perfect, fragrant, borne in large terminal panicles, singles and doubles.

Flower Color - White to purple, a variety of colors.

Fruit Type - Woody capsule. Flat tannish seeds.

Fruit Color - Smooth, brown.

Form

Growth Habit - Upright leggy shrub with irregular outline.

Texture - Medium-coarse, summer; medium-coarse, winter.

Crown Height - 8 to 12 feet.

Crown Width - 6 to 12 feet.

Bark Color - Young bark is green-brown, older bark is gray-brown.

Root System - Shallow, dense.

Environmental Requirements

Soils

Soil Texture - Adapted to a wide variety of soils.

Soil pH - pH is 5.5 to 8.0.

Windbreak Suitability Group - 1, 1K, 3, 4, 4C, 5, 6D, 6G, 7, 8, 9C, 9L.

Cold Hardiness

USDA Zone 2.

Water

Drought tolerant, does not withstand ponding.

Light

Full sun.

Uses

Conservation/Windbreaks

Medium to tall shrub for farmstead windbreaks and highway beautification. Occasionally used in field windbreaks.

Wildlife

Little value for fruit or browse. May be of value for nesting by songbirds.

Agroforestry Products

Floral design - Fragrant cutflowers.

Urban/Recreational

Good for shelter, shrub borders, massing in parks, and screen plantings.

Cultivated Varieties

Hundreds of cultivars/clones of varying flower types and colors.

Related Species

Chinese Lilac (*Syringa x chinensis*) - Excellent lavender flowers, merits use in farmstead windbreaks, 5 to 7 feet hedges or screens, or specimen shrub.

Late Lilac (*S. villosa*)

Miss Kim Lilac (*S. patula* 'Miss Kim') - Very dense, rounded form, pink flowers, slow-growing to 10 to 12 feet.

Palibin Dwarf Lilac (*S. meyeri* 'Palibin') (syn. Korean Dwarf Lilac) - Similar to Miss Kim but grows 6 to 7½ feet tall.

Pests

Common diseases include powdery mildew. Common lilac is a host of ash yellows, but the impact is not known. Common insect pests include lilac borer. Extracts from *Syringa* species are toxic to insect pests.

LILAC

Syringa vulgaris L.

Plant Symbol = SYVU

Contributed by: USDA NRCS National Plant Data Center



Conservation Trees & Shrubs for Montana
USDA, NRCS, Montana State Office

Alternative Name

common lilac

Uses

Economic: A green dye is obtained from the flowers and the leaves and a yellow-orange dye is obtained from the twigs (Grae 1974). An essential oil is obtained from the flowers and used in perfume fragrances.

Ethnobotanic: The bark and leaves has been chewed as a treatment for sore mouth (Moerman 1998).

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.

Description

General: Olive Family (Oleaceae). Lilac is an introduced, perennial, deciduous shrub that grows between twelve to sixteen feet tall. The leaves are simple, ovate to broadly ovate, and five to twelve

centimeters long. The flowers are mostly white, lilac, or purple, pleasantly fragrant in long terminal panicles (Copperrider 1995). The fruiting capsules are one to 1.5 centimeters long, with flat winged seeds (Bruggen 1976).

Distribution: Common lilac is native of Europe, introduced and naturalized in the United States, escapes from cultivation from New York to North Dakota, south to Georgia and Kansas (Steiermark 1963). For current distribution, please consult the Plant profile page for this species on the PLANTS Web site.

Adaptation

Lilac is easily grown on most soil types but prefers neutral to slightly acid soil. This species does not tolerate poorly drained soils. It performs best in a warm sunny position.

Establishment

Propagation by Seed: Lilac seeds should be sown in March, or as soon as they are ripe, in a cold frame. The seeds should be pre-treated for four weeks of warm stratification and then three weeks cold stratification to improve germination. Place the seedlings into individual pots when they are large enough to handle. If sufficient growth is made by the summer it is possible to out-plant otherwise grow seedlings in a cold frame for the first winter and out-plant in late spring the next year.

Management

Common lilac should be planted in areas with good air circulation to reduce problems with powdery mildew. The first year after planting, *Syringa vulgaris* will probably not produce many, if any blooms; only after it has adapted itself to its new surroundings will it begin to produce flower clusters with vigor. Pruning should be done yearly to maintain desired height and improve form.

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

Commonly available through commercial nurseries. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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Lilac

Syringa spp.

var. villosa lilac



common lilac



Growth Form: round to irregular
Crown Density: dense
Size: 8-12 feet high
8-12 foot spread
Drought Resistance: very good
Cold Hardiness: excellent
Growth Rate: rapid
Life Span: moderate
Elevational Range: to 8,000 feet
Soil Conditions: good alkaline tolerance
Possible Insect Problems: lilac borer, leaf miners, oyster shell scale
Possible Disease Problems: lilac leaf blotch, powdery mildew, some leaf spots
Wildlife Value: moderately high: songbirds; cover value
Seasonal Color: fragrant purple or white spring flowers
Miscellany: develops into a dense barrier

Late Lilac



Late Lilac (*Syringa villosa*)

General Description

A dense tall shrub with stout ascending branches. This species blooms later than the common lilac. Lavender-pinkish flowers fade to gray-white. Does not sucker.

Leaves and Buds

Bud Arrangement - Buds are opposite.

Bud Color - Brown.

Bud Size - 1/8 to 1/2 inch.

Leaf Type and Shape - Simple, broad-elliptic to oblong.

Leaf Margins - Entire.

Leaf Surface - Usually pubescent near the midrib, rarely glabrous, veins impressed.

Leaf Length - 3 to 7 inches.

Leaf Width - 1½ to 4 inches.

Leaf Color - Medium green, glaucescent beneath.

Flowers and Fruits

Flower Type - Slightly fragrant, borne in large terminal panicles.

Flower Color - Rosy-lilac to white, fade quickly.

Fruit Type - Woody capsule.

Fruit Color - Smooth, brown.

Form

Growth Habit - Upright forming an oval to rounded outline.

Texture - Coarse, summer; coarse, winter.

Crown Height - 6 to 10 feet.

Crown Width - 5 to 10 feet.

Bark Color - Older bark is grayish-brown.

Root System - Shallow, dense.

Environmental Requirements

Soils

Soil Texture - Adapted to a variety of soils.

Soil pH - 5.5 to 8.0.

Windbreak Suitability Group - 1, 1K, 3, 4, 4C.

Cold Hardiness

USDA Zone 2.

Water

Less drought tolerant than common lilac. Performed well in drought of late 1980s. Does not withstand ponding.

Light

Full sun.

Uses

Conservation/Windbreaks

Medium to tall shrub for farmstead windbreaks and highway beautification.

Wildlife

Little value for fruit or browse, may be of value for nesting by songbirds.

Agroforestry Products

Floral design - Semi-fragrant cutflowers.

Urban/Recreational

Good for shelter, shrub borders, groups or masses in parks and screen plantings.

Cultivated Varieties

Preston Lilacs (*Syringa x prestoniae*) - Hybrid crosses between Late Lilac (*S. villosa*) and Nodding Lilac (*S. reflexa*). Three of the best cultivars are:

James MacFarlane Lilac (*S. x prestoniae* 'James MacFarlane')

Minuet Lilac (*S. x prestoniae* 'Minuet')

Miss Canada Lilac (*S. x prestoniae* 'Miss Canada')

Related Species

Common Lilac (*Syringa vulgaris*)

Japanese Tree Lilac (*S. reticulata*) - Tall, tree-like species, large creamy-white panicles.

Pekin Lilac (*S. pekinensis*) - Similar to Japanese Tree Lilac. Has attractive coppery, exfoliating bark.

Pests

Potential disease pests include several types of leaf spots and blights; insect pests include lilac borer, caterpillars, scales and leaf miners. Extracts from *Syringa* species are toxic to various insect pests.

LATE LILAC

Syringa villosa Vahl
Plant Symbol = SYVI3

Contributed by: USDA NRCS Plant Materials Center,
Bismarck, North Dakota



Photo Credit: Lincoln-Oakes Nursery, Bismarck, North Dakota

Alternate Names

Common Alternate Names: Villous lilac

Scientific Alternate Names: None

Uses

Conservation: Late lilac is recommended for windbreak plantings in fields and farmsteads. The dense growth habit is well suited for providing wind and snow protection.

Wildlife and Recreation: It provides escape cover and habitat for songbirds and various small mammals. Lilac species are rated excellent for pollen availability when bees first emerge in the spring (Henderson, 1987). The attractive whitish, lavender, or rose-colored blooms add beauty to recreational plantings.

Ethnobotany: Medicinal use included a tonic made from leaves and fruit used for the treatment of sore throats. Extracts from *Syringa* species are known to be toxic to various insect pests (Herman et al., 1996).

Status

Consult the PLANTS Web site and your State Department of Natural Resources for this plants current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. It does not sucker extensively and its fruit is not desired by birds so the degree of spread is generally not a problem. Please consult with your local NRCS Field Office, Cooperative Extension Service Office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at <http://plants.usda.gov/>. Please consult the Related Web Sites on the Plant Profile for this species for further information.

Description

Late lilac is native to northern China and is a medium to large, hardy shrub with stout spreading branches. It has an oval to irregularly shaped crown. Flowers are white, or rose to pale lavender. It generally flowers 1- 2 weeks "later" than common lilac, and the color fades quickly (Eisel, 1997). Spreading branches sprout from the base. Plants of this species were 10 feet tall and 12 feet wide after 14 years on loam soils in Conservation Tree and Shrub Group 3 in central South Dakota (Knudson, 2004). This species will coppice back after a light fire or mowing. It is long-lived.

The brown buds are opposite. Buds are 1/8 to 1/2 inch long. The entire leaves are simple and broad-elliptic to oblong. The surface is usually pubescent near the midrib and wrinkled. Margins are entire. The large and deep-veined green leaves are 3 to 7 inches long and 1 1/2 inches to 4 inches wide. The flowers which are not as fragrant as common lilac, are borne in large terminal panicles. White to lavender flowers form woody capsules with smooth, brown seeds (Herman et al., 1996). There are 41,000 seeds per pound (Knudson, 2000).

The growth habit is upright with a rounded to oval profile. It has a coarse summer and winter texture. The young bark is green-brown, and older bark is gray-brown. Late lilac has a dense, fibrous and shallow root system. It does not form suckers (Herman et al., 1996).

The coarse leaves and short-lived flowers are undesirable for landscaping. This is not a good landscape plant because it lacks other good ornamental characteristics (Knowles, 1995).

Distribution

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

Late lilac is hardy to Zone 2. This plant grows best on loams, silt loams, and silty clay loams in the 14–30 inch precipitation zone. It is not as drought tolerant as common lilac in North Dakota. It is recommended in the NRCS Conservation Tree and Shrub Groups 2-4. It is not recommended for droughty or saline soils (Knudson, 2000). Plants growing in heavy sod will have fewer and poorer quality blossoms (Ball et al., 2000).

Management

Conservation grade seedlings are usually 2 years old and 1 to 3 feet tall. Late lilac is a tall shrub that should be planted in the spring 3 to 5 feet apart. Seedlings grow medium fast. Weed control improves survival and growth rates. Dry conditions will cause die-back. Pruning should be done after flowering. Cutting off decadent top growth (coppice) can rejuvenate old or damaged plantings.

Pests and Potential Problems

Unlike most lilacs, late lilac is more resistant to powdery mildew (*Blumeria graminis*) in years of higher rainfall and in areas of higher precipitation. It may be attacked by the lilac borer (*Podosesia syringae*) which is a wasplike moth. Larvae tunnel into main stems and cause loss of vigor and death. Heavily infested stems should be pruned out. Other potential disease pests include several types of leaf spots and blights; other insect pests include caterpillars, scales and leaf miners (Herman et al., 1996; Ball et al., 2000).

Environmental Concerns

Late lilac is a plant introduced to the United States from northern China. Seed ripens in a capsule not desired by birds. It has basal sprouts, but does not spread by suckers. It is not known to spread aggressively. It may spread by seed locally, but is generally not a problem.

Seeds and Plant Production

Seed ripens in a capsule by late summer and is ready to harvest in mid to late September. It should be air-dried for several weeks. Seed can be cleaned using a hammer mill and fanning mill. It requires a cold, moist stratification of 45-60 days for spring planting. Late lilac can be fall planted without stratification. Plants reach harvestable height after two growing seasons (Knudson, 2000).

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

'Legacy' a seed propagated cultivar released by the USDA NRCS Plant Materials Program from Bismarck, North Dakota. It is recommended for field windbreaks,

farmstead windbreaks, wildlife habitat plantings, and recreational plantings in the Great Plains. It does not differ significantly from the description for the species.

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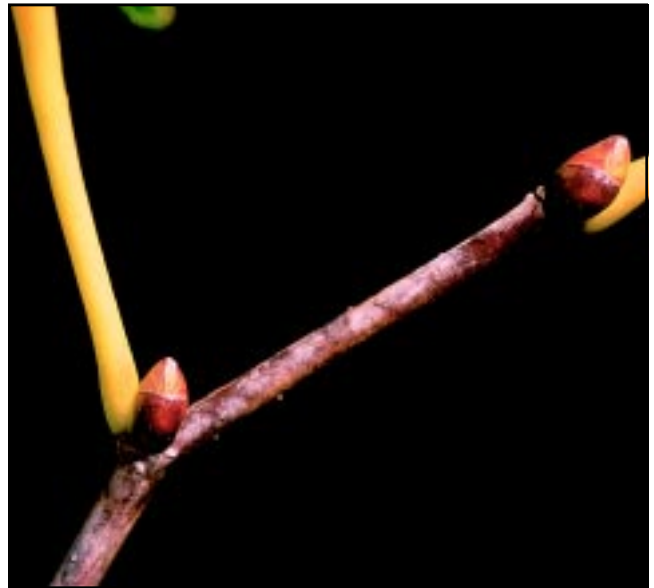
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American Linden
or Basswood



American Linden or Basswood (*Tilia americana*)

General Description

A medium to large tree native east of the Missouri River in North Dakota. Desirable as a landscape tree for its large stature, shade and aromatic flowers. Fruit with attached pale-green bract, gives tree a two-tone appearance in late summer.

The largest tree in North Dakota is 75 feet tall with a canopy spread of 64 feet.

Leaves and Buds

Bud Arrangement - No terminal buds. Lateral buds are alternate.

Bud Color - Reddish-brown in color.

Bud Size - Lateral buds are 1/8 to 2/5 inch long, somewhat flattened, lopsided, and smooth or slightly downy at tip.

Leaf Type and Shape - Simple, broad-cordate or heart-shaped, oblique base.

Leaf Margins - Coarsely-serrate with long-pointed teeth.

Leaf Surface - Leathery with tufts of hair along midrib and veins.

Leaf Length - 3 to 6 inches.

Leaf Width - 3 to 6 inches.

Leaf Color - Green above, paler below; yellow fall color.

Flowers and Fruits

Flower Type - Borne in 3 to 7 flowered pendulous cyme, attached to a large, pale greenish-yellow, leaflike bract.

Flower Color - Creamy-white to pale-yellow perfect flowers.

Fruit Type - Fruit is a pea-sized nutlet about 1/4 inch in size, thick-shelled, and without ribs.

Seed Color - Brown to tan when mature.

Form

Growth Habit - Pyramidal when young, becoming rounded when mature.

Texture - Medium-coarse, summer; medium-coarse, winter.

Crown Height - 50 to 70 feet.

Crown Width - 30 to 50 feet.

Bark Color - Gray to brown, broken into many long narrow, flat-topped scaly ridges.

Root System - Wide spreading.

Environmental Requirements

Soils

Soil Texture - Grows well on deep, fertile, well-drained loam and clay soils. Flood plain tree.

Soil pH - 5.5 to 7.5.

Windbreak Suitability Group - 1, 3.

Cold Hardiness

USDA Zone 2.

Water

Intermediate tolerance to flooding. Not drought resistant. May develop leaf scorch under drought conditions.

Light

Full sun, but will tolerate shade.

Uses

Conservation/Windbreaks

Medium to tall tree for farmstead windbreaks, and riparian plantings in eastern third of North Dakota.

Wildlife

Old hollow trees make good den trees for wildlife.

Agroforestry Products

Wood - Light, soft, and tough. Sold mainly for lumber, dimension stock and veneer; used in making drawing boards, furniture, tongue depressors, and for carving.

Food - Honey derived from linden flowers is regarded as the best in the world.

Medicinal - Used for indigestion, hysteria, nervous stomach or palpitations.

Urban/Recreational

Used as shade, boulevard, and park tree in open landscape areas due to its large size and spreading root system.

Cultivated Varieties

Boulevard Linden (*Tilia americana* 'Boulevard') - Narrow pyramidal habit, introduced by Bailey Nurseries, Inc., St. Paul, Minnesota. Same cultivar as 'Fastigiata.'

Dakota Linden (*T. americana* 'Dakota') - Hardy, pyramidal selection by the late Ben Gilbertson, Kindred, North Dakota.

Frontyard™ Linden (*T. americana* 'Bailyard') - Broadly pyramidal, symmetrical tree introduced by Bailey Nurseries, Inc., St. Paul, Minnesota.

Pyramidal Linden (*T. americana* 'Fastigiata') - Narrow, upright growing cultivar. 'Boulevard' is new cultivar name.

Redmond Linden (*T. americana* 'Redmond') - Striking pyramidal form. Believed by some authorities to be a Bigleaf Linden (*T. platyphyllos*) x Littleleaf Linden (*T. cordata*) hybrid.

Related Species

Bigleaf Linden (*T. platyphyllos*)

Mongolian Linden (*T. mongolica*)

Hybrid Lindens, eg, 'Dropmore', 'Wascana' and 'Glenleven' are derived from American Linden x Littleleaf Linden (*T. cordata*) parentage. Hardy in Northern Plains.

Pests

No serious pest problems in North Dakota.

AMERICAN BASSWOOD

Tilia americana L. var.
americana
Plant Symbol = TIAMA

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



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Vascular Plant Image Gallery
Texas A&M University

Alternate Names

Linn, American linden, white basswood (var. *heterophylla*), basswood

Uses

Ethnobotanic: Native Americans and settlers used the fibrous inner bark ("bast") as a source of fiber for rope, mats, fish nets, and baskets. Basswood is still valued for its soft, light, easily worked wood, especially for turned items and hand carving. It once was the material of choice for prosthetic limbs, but these are now made from synthetics. Other uses have

included boxes, toys, woodenware, drawing boards, veneer, venetian blinds, excelsior, and pulp.

Native Americans used fresh basswood sap, which contains moderate amounts of sugar, as a watery drink or boiled it into syrup. They also ate young basswood leaves and used the cambium for soups and breads. Various medicinal uses were made of leaf and bark extracts, and Iroquois used freshly cut bark as an emergency bandage for wounds.

Wildlife: Basswood is good browse and buds are important for birds and deer in winter. Fruits are eaten by birds and small mammals. The wood decays easily and produces many cavities (especially in trees past 120 years of age), which are used by cavity-nesting animals (wood ducks, pileated woodpeckers, other birds, and small mammals). Basswood is a prolific nectar producer and pollination by honeybees results in a choice grade of honey.

Restoration: Basswood is planted as a shade tree or ornamental. For sites of smaller size or with compacted soils, other *Tilia* species may be more suitable. Basswood is said to be a soil-enriching species, bringing calcium and magnesium up from deep in the soil profile and depositing it in leaf litter on the surface.

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.

Description

General: Basswood family (Tiliaceae). Native, large deciduous trees, the bark gray and furrowed with flat ridges. Leaves deciduous, alternate, more or less unevenly heart-shaped or the base often nearly truncate, petiolate, the blades 5-12.5 cm wide, thick and slightly leathery, with shallowly toothed margins, glabrous on both sides or with some pubescence on the lower surface. Flowers yellowish-white, 10-14 mm broad, fragrant and nectar-bearing, in drooping, 6-20-flowered clusters hanging on a stalk that diverges from near the center of an oblong, leaflike and strongly veined bract 5-10 cm long. Fruits mostly globose, 8-10 mm broad, hard and dry, indehiscent. The common name is from "bastwood,"

referring to use of the inner bark, the “bast,” for rope, baskets, etc.

Variation within the species:

North American basswoods have been separated into many species (usually three or four) or treated as several varieties within only a single species. “Given the inconstancy of most vegetative and reproductive characters [of North American basswood], the ecophenic, ecotypic, and seasonal variation in vestiture, and also the probability of introgression,” trichome morphology provides the best evidence for recognizing the component taxa (see Hardin 1990).

- a. *Tilia americana* var. *americana*
synonym: *Tilia neglecta* Spach
- b. *Tilia americana* var. *heterophylla* (Vent.) Loud.
synonym: *Tilia heterophylla* Vent.
synonym: *Tilia michauxii* Nutt.
- c. *Tilia americana* var. *caroliniana* (P. Mill.) Castigl.
synonym: *Tilia caroliniana* P. Mill.
synonym: *Tilia floridana* Small

The varieties of *Tilia americana* intergrade, but in their typical forms are separated as follows:

- a. Leaves green beneath, sometimes glaucous, glabrous or sparsely hairy with simple trichomes, sometimes with a few stellate ones. var. *americana*
- a. Leaves pale or whitish beneath from the close tomentum of dense, sessile-stellate trichomes, sometimes glabrate with age but remaining stellate-pubescent at least along the major veins. (b)
- b. Young twigs tomentose or tomentose-hirsute; clusters of hairs on leaves more than 0.5 mm wide.
var. *caroliniana*
- b. Young twigs glabrous; clusters of hairs on leaves less than 0.5 mm wide. var. *heterophylla*

Trees identified as *Tilia neglecta* may be variants of var. *americana* or they have been suggested to be introgressants between var. *americana* and var. *heterophylla*. *Tilia floridana* is often recognized as separate entity.

Distribution: *Tilia americana* is native to the Northern Deciduous and Great Lakes - St. Lawrence forest regions of North America. It also extends into grassland areas along river courses in Manitoba and the mid-western United States, where it forms a component of riverine gallery forests. In Canada, it is found from western New Brunswick into southern and central Québec and Ontario, extending as far west as north-western Ontario (along the U.S. border) and southern Manitoba. In the United States, the species occurs as far south as the mountainous

regions of North Carolina, Tennessee, and northern Arkansas. The western limit for the species is south-central Manitoba and North Dakota, and along the Niobrara River in north-central Nebraska. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Adaptation

Basswood occurs on rich, mesic sites (coves, lower slopes, river bottoms), usually on deep, well-drained soils. It rarely occurs in pure stands but is usually mixed with other forest species. Var. *americana* is codominant in the sugar maple-basswood cover type and all varieties are a common component of many other rich forests. Basswood occurs up to 1500 meters elevation in the southern Appalachian Mountains. Flowering May-June (-July), usually 1-4 weeks after the leaves appear in mid-May. Seeds are dispersed in October.

Establishment

Seed production begins in basswoods about 15 years old (or as early as 8 years) and continues until the trees reach at least 100 years. Heavy seed crops are irregular but good quantities of seed are produced at 1- to 3-year intervals. Germination in the first year or two is often poor, apparently because of an impermeable testa, but seeds may remain dormant and viable in seed banks for up to three years. Few established seedlings are found where the species forms a major component of the canopy, apparently because seedling loss from herbivory by rabbits and deer.

Seedlings can establish in as little as 25% of full sunlight, but heavy shade limits subsequent growth and development. Seedling growth begins slowly, but established young trees are fairly fast-growing. The typical life of a basswood is about 100 years but some are known to live 140-200 years.

Basswood stump sprouts are often very common, and this may produce trees growing in close clusters. Stump sprouts arise from the main stem after its death, fire or logging injury, or aging, or even after disturbance of the surrounding stand. Almost all basswoods 10 cm or less d.b.h. will sprout from the stump, and sprouts have been obtained from basswoods over 100 years old.

Management

Basswood stump sprouts can be managed for saw timber. The number of sprouts declines with the age and size of the cut trees. Since sprouts originating at or below the ground line are more resistant to butt rot, stumps should be cut very close to the ground or

burned. Early thinning of sprouts is needed to ensure good quality and rapid growth.

Over-browsing by high densities of white-tailed deer can result in basswood seedling height growth reduction or even complete loss of basswood from the stand. Mice and voles on oldfield sites may often girdle the stems, and rabbits also feed heavily on seedlings and small saplings. Seed predators include mice, squirrels, and chipmunks. Basswood is easily decayed by fungi, and butt rot is an important factor in loss of merchantable timber.

Basswood is most common in forests with long fire-free intervals, because the thin bark and shallow roots are easily damaged by fire and basal fire wounds increase susceptibility to butt rot. Prescribed fire is not recommended for established stands of hardwoods in which basswood occurs, as too-frequent fire intervals eliminate basswood or restrict it to the most mesic sites. In some places, however, these trees are encroaching onto former grasslands since fires have been suppressed.

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

These plant materials are readily available from commercial sources. Cultivars of *Tilia americana* have been selected for mature shape, fall leaf color, and rust resistance. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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Tilia americana (American linden, Basswood)



Hardiness Zones: 1 2 3 4 5 6 7 8 9 10 11

Botanical Name: *Tilia americana* TIL-ee-ah ah-mer-ih-KAH-nah **Common Name:** American linden, Basswood

Genus: *Tilia*

This deciduous tree with dense foliage and a stately habit produces hanging clusters of fragrant yellow flowers in mid-summer. It grows in a broadly columnar shape and has dark green leaves that are glossy underneath. Basswood makes a good specimen or street tree, although it doesn't tolerate pollution. It can grow as tall as 80 feet with a width of 50 feet. It attracts bees; basswood honey is a sought-after gourmet food.

Noteworthy characteristics: Fragrant flowers and dense foliage.

Care: Provide moist but well-drained soil in full sun or part shade. Protect from very dry conditions and strong winds. It prefers alkaline to neutral soil, but can tolerate acidic soil.

Propagation: Sow seed as soon as ripe in a seedbed in fall. Or stratify for several months and sow in spring in a cold frame. (Garden-collected seed may yield hybrids of variable quality.)

Problems: Anthracnose, butt rot, canker, powdery mildew, bacterial leaf spot, caterpillars (including gypsy moth larvae), lace bugs, aphids, borers, Japanese beetles, mites. Verticillium wilt is infrequent, but fatal.

| | |
|--------------------------|---|
| Height | Over 30 ft. |
| Spread | Over 30 ft. |
| Growth Pace | Moderate Grower |
| Light | Full Sun to Part Shade |
| Moisture | Medium Moisture |
| Maintenance | Moderate |
| Characteristics | Attracts Butterflies; Fragrant Flowers; Showy Flowers; Showy Foliage; Showy Fruit |
| Bloom Time | Summer |
| Flower Color | Yellow Flower |
| Uses | Roadside, Specimen Plant/ Focal Point |
| Style | Woodland Garden |
| Seasonal Interest | Summer Interest |
| Type | Trees |

Littleleaf Linden



Littleleaf Linden (*Tilia cordata*)

General Description

Medium-sized tree native to Europe, with a strikingly dense pyramidal to rounded crown. Desirable specimen tree in the landscape. The flowers are highly fragrant and attractive to bees. The largest tree in North Dakota is 35 feet tall with a canopy spread of 32 feet.

Leaves and Buds

Bud Arrangement - No terminal buds. Lateral buds are alternate.

Bud Color - Reddish-brown in color.

Bud Size - Lateral buds are about 1/8 inch long.

Leaf Type and Shape - Simple, cordate or heart-shaped, oblique base.

Leaf Margins - Finely serrate.

Leaf Surface - Glabrous and slightly lustrous above, glabrous beneath with axillary tufts of brown hairs.

Leaf Length - 1¼ to 3 inches.

Leaf Width - 1¼ to 2½ inches.

Leaf Color - Dark green, bluish-green beneath; yellow fall color.

Flowers and Fruits

Flower Type - Borne in 5 to 7 flowered pendulous cymes, bearing pale greenish-yellow, leaflike bracts.

Flower Color - Creamy-white to pale yellow perfect flowers.

Fruit Type - Fruit is a small 1/5 inch nutlet, thin shelled, and without ribs.

Fruit Color - Brown to tan when mature.

Form

Growth Habit - Pyramidal when young, becoming rounded when mature.

Texture - Medium, summer; medium, winter.

Crown Height - 30 to 45 feet.

Crown Width - 20 to 30 feet.

Bark Color - Gray to brown, ridged and furrowed on older trees.

Root System - Wide spreading.

Environmental Requirements

Soils

Soil Texture - Grows well on deep, fertile, well-drained loam and clay soils.

Soil pH - 5.5 to 7.5.

Windbreak Suitability Group - 1, 3.

Cold Hardiness

USDA Zone 3.

Water

Intermediate tolerance to flooding. Not drought resistant. May develop leaf scorch under drought conditions.

Light

Full sun, but will tolerate some shade.

Uses

Conservation/Windbreaks

Medium height tree for farmstead windbreaks in eastern third of North Dakota.

Wildlife

Of little documented value.

Agroforestry Products

Wood - Light wood for carving, inner bark used in making baskets.

Food - Honey derived from flowers highly desired.

Medicinal - Used for indigestion, hysteria and nervous stomach.

Urban/Recreational

Used for specimen, boulevards and public parks. Its medium size permits using it on sites with limited space.

Cultivated Varieties

Bicentennial Linden (*Tilia cordata* 'Bicentennial') - Dense pyramidal and conical form.

Corinthian® Linden (*T. cordata* 'Corzam') - Compact pyramidal form.

Greenspire Linden (*T. cordata* 'Greenspire') - Most commonly planted cultivar, straight trunk and pyramidal form, patented.

June Bride Linden (*T. cordata* 'June Bride') - Introduced by Manbeck Nurseries, Inc., New Knoxville, Ohio. Handsome dense, pyramidal tree.

Morden Linden (*T. cordata* 'Morden') - Has performed well in NDSU trials. Released by Morden Research Station in Manitoba.

Norlin™ Linden (*T. cordata* 'Ronald') - Hardy hybrid with rapid growth and larger leaves introduced at Jeffries Nursery Ltd., Portage la Prairie, Manitoba.

Rancho Linden (*T. cordata* 'Rancho') - Dense upright-oval selection.

Shamrock™ Linden (*T. cordata* 'Bailey') - A stouter-branched, larger-leaved and faster growing hybrid introduced by Bailey Nurseries, Inc., St. Paul, Minnesota.

Related Species

American Linden (*Tilia americana*)

Harvest Gold Linden (*T. x* 'Harvest Gold') - A new Littleleaf Linden x Mongolian Linden (*T. mongolica*) hybrid with exfoliating bark introduced by Jeffries Nursery, Ltd., Portage la Prairie, Manitoba.

Hybrid lindens, e.g., 'Dropmore', 'Wascana' and 'Glenleven' are derived from American Linden (*T. americana*) x Littleleaf Linden parentage. Hardy in Northern Plains.

Mongolian linden (*T. mongolica*)

Pests

No major pest problems known.

BLACK LOCUST

Robinia pseudoacacia L.
Plant Symbol = ROPS

Contributed by: USDA NRCS New York State Office



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Department of Botany, Smithsonian Institution

Alternate Names

False acacia, yellow locust

Uses

Since the wood of black locust is strong, hard, and extremely durable, it is extensively utilized for fencing, mine timbers, and landscaping ties. This tree also serves as a good erosion control plant on critical and highly disturbed areas, due to its ease of establishment, rapid early growth and spread, and soil building abilities. It has limited value in wildlife food plots, but provides excellent cover when planted in spoil areas. Due to its showy aromatic flower, it has often been planted as an ornamental, but this practice should be discouraged due to the potential for spread by root suckers. This species has been planted outside its natural range, and can crowd out other plants, particularly in sandy soils.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

This plant is considered noxious and/or invasive in some states. This plant may become weedy or

invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, or state natural resource or agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at plants.usda.gov.

Description

Black locust has a shallow, aggressive root system. The bark of black locust is deeply furrowed and is dark reddish-brown to black in color. It has an alternate branching pattern, which creates a zigzag effect. A pair of sharp thorns grows at each node. They are 1/2 to 3/4 inches long, and very stout.

The pinnately compound leaves are 8 to 14 inches long, with 7 to 19 short stalked leaflets. These dull green leaflets are ovoid or oval, 1 to 2 inches long, thin, scabrous above and pale below.

The separate male and female plants have sweetly fragrant flowers that are creamy white with five petals (bean-like) arranged in a pyramidal spike. They usually bloom in May or June. Heavy seed production can be expected annually or biannually. The legume type seed is produced in a flat, brown to black pod, which is 2 to 4 inches long. There is an average of 25,500 seeds per pound. Although black locust is a good seed producer, its primary means of spread is by both rudimentary and adventitious root suckers.

Adaptation and Distribution

Black locust's native range follows the Appalachian Mountains from Pennsylvania to Alabama, and a secondary population exists primarily in the Ozark Mountains. Black locust is adapted to a wide variety of soil types, but grows best on sites that are deep, well drained, and derived from limestone. This tree tolerates a pH range of 4.6 to 8.2. It is commonly found on south and west slopes in West Virginia.

For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment

Due to the ease of vegetative reproduction, black locust is seldom grown from seed. If seedling production is desirable, the hard seed coat must first

be reduced or broken to allow germination; this can be done with sulfuric acid or hot water. Once treated, the seed can be sown on raised nursery beds or directly on to field sites. Black locust seed combined in grass and legume mixtures can be broadcast, drilled, hydroseeded, or aircraft dispersed. Limit locust to 3 pounds per acre in such mixtures.

Black locust is easily propagated from softwood, hardwood, and root cuttings. Preparing 6 to 12 inch hardwood cuttings, collected while dormant is often the most effective procedure. This form of cutting responds well to root-inducing chemicals. Grafting is also a viable propagation option to maintain varietal integrity.

Management

During establishment, protection from weeds and deer are the main management priorities. Due to the rapid early growth, two years of protection are usually sufficient. Pre-plant site preparation to control weeds with tillage or herbicides is recommended, with continued weed control after planting. Where exceptional deer pressure exists, tubes or mesh sleeves may be required. Once established this species will not require active management unless straight trunks are desired for fence posts- see Pests for information about controlling locust borers.

Pests and Potential Problems

There are 2 primary insects inflicting damage on black locust: locust leaf miner and black locust borer. The leaf miner attacks the tree in spring, turning the leaves brown by mid-summer or early fall. Overall tree growth is impacted, but not seriously. The larvae of the locust borer carve tunnels through the trunk of the tree, weakening it enough for wind breakage. Planting on good quality sites or in conjunction with other hardwood species and shading trunks will discourage infestation by locust borers. Heart rot is the only noteworthy disease effecting black locust.

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

Ornamental varieties have been developed which are available from commercial nurseries. The Steiner group black locust was selected and released by the NRCS Plant Materials Program, for critical area re-vegetation in the Appalachian region. The three cultivars in the Steiner group, 'Appalachia' (VA), 'Allegheny' (WV), and 'Algonquin' (WV) are clonally propagated.

Control

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA, NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

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