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G A R D E N I N G S E R I E S

TREES & SHRUBS

Large deciduous trees

no. 7.419

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Quick Facts...

Trees provide shade, beauty and protection from harsh winter.

Trees help moderate temperature extremes and offset poor air quality.

Plant trees on the basis of space available, soil conditions, proximity to irrigation lines and water requirements.

Plant trees that are prone to breakage in storms away from buildings, walks, driveways and utility lines.

Everyone enjoys the beauty a shade tree provides. Trees also reduce harsh winds, moderate temperature extremes and offset poor air quality.

How to Select a Tree

To select a tree, consider the following factors.

Available space. The location you choose for each tree should have enough space to allow for growth without severe pruning. Check for obstructions of buildings, overhead utility lines and tall fences. If lateral space is limited, select a tree that has a narrow upright growth habit. Refer to height, branch spread and shape in the tree list shown in Table 1. If overhead lines are near, you may want to choose small trees. (See fact sheet 7.418, *Small deciduous trees*.)

Soil conditions. Most trees perform best in well-drained soil. If you have compacted soil that is hard to work, loosen the soil and mix in organic material to a depth of at least 12 inches before planting your tree.

Irrigation lines. If you have an underground irrigation system, plant trees to allow for the tree trunk and basal root flare to expand without encroaching on an irrigation pipe. Otherwise, tree roots may eventually compress the pipe and shut off the irrigation line.

Growth rates vs. brittleness. As a general rule, fast-growing trees tend to be brittle and can be damaged by limb breakage in storms. Plant these trees away from buildings, sidewalks, driveways and utility lines.

Water requirements. Trees vary in water requirements. Do not plant trees that have low water needs in heavily irrigated lawn areas or at the bottom of slopes. Plant trees with high water requirements in locations where supplemental watering is possible and desired. For details on watering after planting, see fact sheet 7.226, *Care of young transplanted trees*.

Large Trees for Shade

Table 1 includes trees that will exceed 30 feet in height when fully grown. These trees should not be placed under or near power lines or other overhead structures. Use one-half of branch spread (diameter) indicated below to locate trees near structures.

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Description of Tree Shapes

The following tree shapes describe the general outline of the trees in the accompanying tree list. Use this chart in combination with height and branch spread to determine proper location of trees and ensure adequate clearance from obstacles.



Columnar. Sides more or less parallel. Much taller than broad.



Conical. Cone-shaped. Broad at base tapering to a narrow top.



Elliptical. Taller than broad. Widest branching at or near the middle.



Round or globe. About as broad as tall.



Broad spreading. A wide vase shape.



Upright spreading. A narrow vase shape.



Weeping. Branches tend to weep downward.

Table 1: Large trees for shade.

Plant name	Height (ft)	Branch Spread (ft)	Shape	Growth Rate	Soil Moisture	Aesthetic Value/Cultural Hints
Ash, American <i>Fraxinus americana</i>	60	50	elliptical	m	M	Yellow fall color. Street tree.
'Autumn purple'	50	50	round	m	M	Reddish-purple fall color. Seedless.
Ash, Green <i>Fraxinus pennsylvanica</i>	50	30	round	m	M	Yellow fall color. Adapts to wide range of soils.
'Marshalls' Seedless'	50	30	elliptical	m	M	Yellow fall color. Street tree. Seedless.
'Summit'	50	20	conical	m	M	Female will produce seed. Yellow fall color.
'Patmore'	50	30	elliptical	m	M	One of the hardiest. Seedless.
Birch, Cutleaf Weeping <i>Betula Pendula 'Gracilis'</i>	50	30	weeping	m	H	Yellow fall color. Plant where soil stays cool and moist. Avoid south and west exposures. White bark.
Birch, Paper <i>Betula papyrifera</i>	40	25	elliptical	m	H	Yellow fall color. Peeling bark.
Buckeye, Ohio <i>Aesculus glabra</i>	35	20	broad, columnar	m	M	Reddish-orange fall color. Light yellow flowers in terminal clusters in late spring. Nut-like fruit.
Catalpa, Northern <i>Catalpa speciosa</i>	50	25	narrow, columnar	s	M	Showy, white orchid-like flowers in early summer. Bean-like pods often remain on trees all winter.
Cottonwood, Lanceleaf <i>Populus x acuminata</i>	50	40	elliptical	f	H	Yellow fall color. Shiny, willow-like leaves.
Cottonwood, Narrowleaf <i>Populus angustifolia</i>	50	40	columnar	f	H	Yellow fall color. Root suckers, thus should be used where it can be allowed to spread in groves.
Cottonwood, Plains <i>Populus sargentii</i>	90	50	upright	f	H	Native of the plains along rivers. Cottonless (male) selections available.
Cottonwood, 'Siouxland' <i>Populus deltoides</i>	75	40	elliptical	f	H	Cottonless. This selection is very prone to cytospora canker.
'Siouxland'						
Hackberry, Common <i>Celtis occidentalis</i>	65	50	broad,	s-m	L	Adapts to most soils. Yellow fall color. Corky bark. Street tree. spreading
Honeylocust, Thornless <i>Gleditsia triacanthos inermis</i>	65	40	variable	m	M	Seedling selection. Not always thornless.
'Imperial'	40	40	rounded	m	M	Foliage is fern-like and bright green. Thornless. May produce pods.
'Shademaster'	70	50	broad,	m	M	Dark green, ferny foliage. Podless and thornless. Street tree.
			spreading			
'Skyline'	45	40	broad,	m	M	Compact, dark green foliage.
			conical			
'Sunburst'	35	45	variable	m	M	Yellow-tipped foliage. May be more prone to diseases.
Hornbeam, columnar <i>Carpinus betulus 'Fastigiata'</i>	35	15	narrow,	s	H	Dark green, glossy foliage much like elm. Plant where soil stays cool. Avoid south or west exposures.
Horsechestnut <i>Aesculus hippocastanum</i>	60	45	columnar	s	M	Large clusters of white flowers in late spring. Best used in large, open lawn areas.
Japanese Pagodatree <i>Sophora japonica</i>	50	40	broad,	m	M	Creamy flowers in mid-summer. Bean-like pods in late fall. Street tree.
Kentucky Coffeetree <i>Gymnocladus dioica</i>	45	25	conical	s	L	May be male or female. Female has leathery pods. Interesting winter form.
Linden, American <i>Tilia americana</i>	60	50	variable	m	M	Heart-shaped leaves. Fragrant flowers in early summer.
			broad,			
			conical to			
			columnar			
Linden, Littleleaf <i>Tilia cordata</i>	45	30	conical	m	M	Dense foliage. May sucker near base. Street tree.
'Greenspire'	45	25	conical to	m	M	Near formal appearance. Glossy, dark green leaves. Street tree.
			oval			
Linden, Redmond <i>Tilia x euchlora</i>	45	40	broad,	m-f	M	Striking reddish bark/twigs. Narrow crotch branch habit may result in storm breakage.
'Redmond'			conical			
Maple, Norway <i>Acer plantanoides</i>	50	40	rounded	m	M	Dark green, dense foliage. Yellow fall color.
'Columnar'	50	20	narrow,	m-f	M	Good for tight, narrow locations. Street tree.
			columnar			
'Emerald Queen'	50	40	rounded	m	M	Dark green foliage with dense branching habit.
'Jade Glen'	50	40	rounded	m	M	Good yellow fall color.
'Royal Red'	40	30	rounded	m	M	Dark, glossy red foliage all summer. Similar to Crimson King but more cold hardy.
'Schwendler'	50	40	rounded	m	M	Red foliage in spring changing to bronze and dark green in summer. Street tree.
Maple, Red <i>Acer rubrum</i>	45	40	conical	f	H	Red flowers in early spring. Red fall color. Avoid very alkaline soils.
'Armstrong'	50	30	narrow,	m	H	Red fall color. Street tree. Avoid very alkaline soils.
			columnar			
'Red Sunset'	45	40	broad,	f	H	Red flowers in early spring. Red fall color. Avoid very alkaline soils.
			conical			

Table 1: Large trees for shade (continued).

Plant name	Height (ft)	Branch Spread (ft)	Shape	Growth Rate	Soil Moisture	Aesthetic Value/Cultural Hints
Maple, Silver <i>Acer saccharinum</i>	65	50	variable	f	H	Bright green foliage with silvery undersides. Tends to be brittle. Yellow fall color. Avoid very alkaline soils.
'Cutleaf'	50	40	rounded	f	H	Deeply cut, feathery leaves. Branches tend to weep in graceful arch. Yellow fall color. Avoid very alkaline soils.
Oak, Bur <i>Quercus macrocarpa</i>	60	50	broad, spreading	s	L	Tolerates alkaline soils and drought.
Oak, English <i>Quercus robur</i>	50	50	rounded	m	M	Broad, stout, spreading branches. Glossy, dark green, thick-textured leaves. Street tree.
Oak, red <i>Quercus rubra</i>	40	50	broad, spreading	m	M	Often broader than tall. Fall color usually red. Avoid very alkaline soils. Street tree.
Oak, Swamp White <i>Quercus bicolor</i>	50	45	upright, spreading	m-f	M	Adapts best of all oaks to clay soils and irrigated lawns. Fall color usually yellow. Street tree.
Poplar, Silver (white) <i>Populus alba</i>	75	60	broad, spreading	f	H	Leaves green above and silvery white below. Greenish-white bark. May sucker from roots.
Poplar, Bolleana (white)	45	15	narrow, columnar	f	H	Good for fast screen planting. Short-lived due to diseases. Silvery, lobed, maple-like leaves.
Poplar, Lombardy <i>Populus nigra</i> 'Italica'	60	15	narrow, columnar	f	H	Use as temporary screen planting. Short-lived due to diseases.
Poplar, Upright European <i>Populus tremula</i> 'Erecta'	60	15	upright, spreading	f	H	Use as screen planting. More disease-resistant and long-lived than Lombardy.
Willow, Navajo Globe <i>Salix matsudana</i> 'Navajo'	35	35	globe	f	H	Formal globe shape. Brilliant green foliage in spring. May suffer reeze injury in some areas. Widely used on Western Slope.
Willow, Niobe Weeping <i>Salix alba tristis</i>	35	40	weeping	f	H	Brittle. Allow plenty of space.

Key: Growth rate: f = fast
m = moderate
s = slow

Soil moisture: L = low water needs. Can withstand drought.
M = moderate water needs. Normal lawn watering.
H = heavy water needs. More than normal lawn watering.

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