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Tree Selection Guide

Cooperative Extension South Dakota State University

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Tree Selection Guide



Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

Tree Selection Guide

By: Larry L. Helwig, Extension forester

The trees shown below are the key to the geometric forms listed beside each variety. This will give you an idea of the shape your tree will produce when fully-grown.

The forms or shapes of trees vary from upright and pyramidal to vase-shaped, rounded or irregular. They may be drooping, horizontal or flat. When a tree's branches are held high they are better shade trees, because they provide a canopy of leaves and limbs for shade, while allowing passage and view underneath. Some trees have picturesque growth, giving interesting character, silhouette and winter effect.



Willow



Sugar Maple



Poplar



American Elm



Crabapple



Bur Oak



Birch



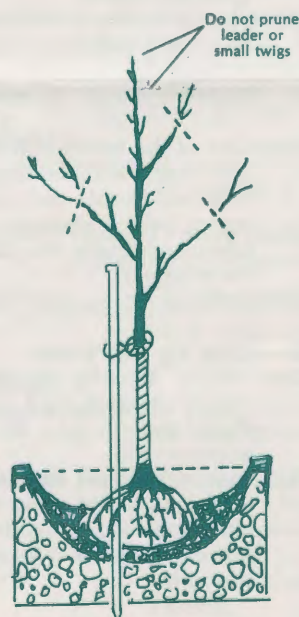
Norway Maple



Pin Oak

Considerations at Planting Time

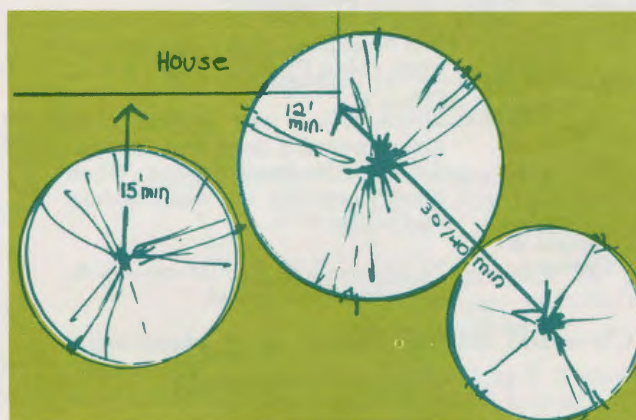
To compensate for root loss and damage, prune the tree by cutting back about one-third of the lateral growth. Remove weak or damaged branches and those that rub against other branches.



Proper spacing of trees in the landscape is very important. Whether you are locating a tree next to a building or next to other trees, it has definite space requirements. These requirements are based upon its expected mature size.

PROPER SPACING

SIZE	Spacing in plant massings	Minimum spacing from wall (one-story building)	Minimum spacing from corner (one-story building)
Height in feet			
Small trees—30 ft. or less	6-15 ft.	8-10 ft.	6-8 ft.
Medium trees—30-70 ft.	30-40 ft.	15 ft.	12 ft.
Large trees—70 ft. or more	40-50 ft.	20 ft.	15 ft.



The primary purpose of this publication is to make people aware of trees suitable for planting in South Dakota. It is much better to have a mixed population of trees than to have one made up of only 1 or 2 species. This provides an attractive, eye-appealing landscape, and lessens the chance for disease or insects to kill out a certain species and upset the landscape plan.

For instance, it has been determined that the American elm made up about 60 percent of the state's tree population. Dutch elm disease threatens to wipe out the population of elm in a short period of time, leaving the state with as few as 10 percent of this tree's population.

This publication may be used as a guide by cities when writing city tree-planting ordinances.

Create a Green Thumb

The performance of a newly-planted tree rests heavily upon planting procedures and proper maintenance after it becomes established.

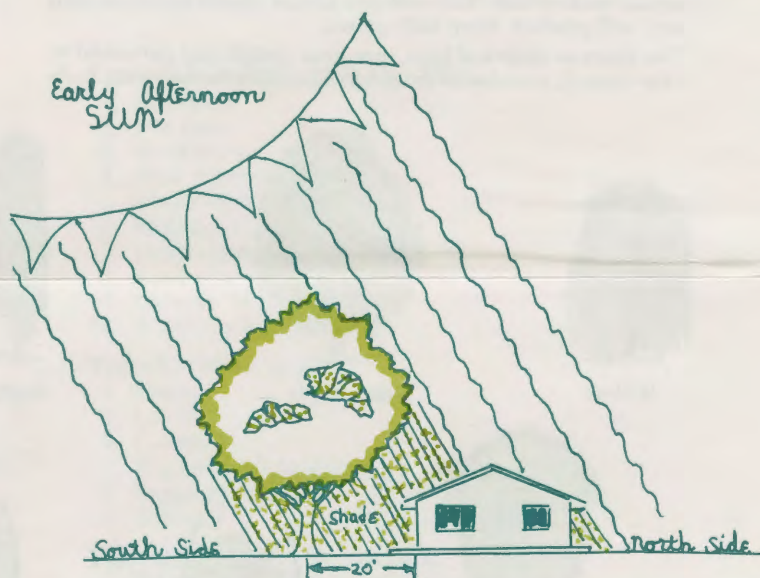
1. Select the proper tree for the space available. Check with local ordinances for species selection and placement of trees.
2. Use the saucer-shaped hole planting method. Improperly planted stock won't perform well.
3. Water the trees, making sure the water reaches depths below the 18" level.
4. Guide the tree's growth through regular pruning.
5. Be aware of particular disease and insect problems of certain trees.

Nothing is so discouraging as watching a tree struggle for several years and then die. This could be blamed on several factors, but often the tree initially had an insufficient or weak root system, and received poor maintenance after planting.

A replacement guarantee is a poor guide for buying a tree. Buy through a reputable dealer. Ask for names of last year's customers and check with them to see how well the dealer's stock performed.

For proper planting and maintenance procedures, contact your local county Extension office for these publications:

1. Pruning Shade Trees—FS 379
2. Pests of Trees and Shrubs—Fact Sheets 647, 648, 649
3. General Tree Establishment Procedures—EMC 697
4. Planting Bare Root Trees—EMC 698
5. Planting Containerized or Potted Trees—EMC 699
6. Planting Balled and Burlapped Trees—EMC 700
7. Protecting Trees from Animal and Bird Damage—EMC 707



Plant trees for a definite purpose. Select the right tree for that purpose.

Boxelder—*Acer negundo*

Likes: Native to South Dakota. Hardy in all respects.

Dislikes: Irregular growth habit. Very susceptible to 2,4-D and storm damage. Female trees attract boxelder bug.

Height &

Crown Spread: 10 years—8-12 ft. Mature—45 ft. tall with 35 ft. spread.

Norway Maple—*Acer platanoides*

Likes: Well structured. Adapts to varied soil conditions. Golden-yellow autumn color. Flowers before it leaf out.

Dislikes: Dense foliage and shallow roots makes growing grass beneath tree difficult. Hardiness declines when planted outside the southeastern part of the state.

Height &

Crown Spread: 10 years—5-10 ft. Mature—50 ft. tall with 40 ft. spread.

Cleveland Norway Maple—*Acer platanoides* 'Cleveland'

Likes: Upright oval growth habit. Dense foliated street tree.

Dislikes: Same as for Norway Maple. Same hardiness features as Norway Maple.

Crimson King Maple—*Acer platanoides* 'Crimson King'

Likes: Has purple foliage throughout the growing season.

Dislikes: Hardiness may be the big problem. Plant in a protected area.

Schwedler Maple—*Acer platanoides* 'Schwedler'

Likes: One of the better cultivars of Norway Maple with the same hardiness features. Purple-red foliage in the spring which changes to bronze-green and finally to a dark green in the summer.

Dislikes: Same as for Norway Maple.

Silver Maple—*Acer saccharinum*

Likes: Native. Usually develops into a stately vase-shaped shade tree. Rapid growth rate. Bright yellow autumn color.

Dislikes: Can become too large for crowded areas. Subject to storm damage and chlorosis. Maple bladder gall make leaves unsightly. Susceptible to drought.

Height &

Crown Spread: 10 years—12-25 ft. Mature—65 ft. tall with 50 ft. spread.

Sugar Maple—*Acer saccharum*

Likes:Native. Outstanding fall color. Strong wooded. Excellent form.

Dislikes:Slow grower. Young trees subject to sunscald (wrap trunk). Grows best on cool sites. (Avoid planting in open or south or west slopes). Leaves will show scorch symptoms.

Height &

Crown Spread:10 years—8-20 ft. Mature—50 ft. tall with 30 ft. spread.

Ohio Buckeye—*Aesculus glabra*

Likes:Excellent red fall color. Quite hardy. The best of the *Aesculus* for South Dakota. Handsome round crown. Flowers in May.

Dislikes:Difficult to transplant because of taproot. (Start from nut in a container or buy container-grown). Nuts reportedly said to be slightly poisonous. Slow growing.

Height &

Crown Spread:10 years—8-12 ft. Mature—40 ft. tall with 30 ft. spread.

Horsechestnut—*Aesculus hippocastanum*

Likes:Stately and massive. Has a showy white flower.

Dislikes:Produces no fall color. Less hardy than Ohio Buckeye. Not easily transplanted.

Height &

Crown Spread:10 years—5-8 ft. Mature—40 ft. tall with 25 ft. spread.

River Birch—*Betula nigra*

Likes:Can be grown in more varied soil conditions. Has shown a higher resistance to Bronze Birch Borer. Bark is a flaky orange.

Dislikes:Restricted to southeastern part of South Dakota. Chlorosis problem. Moisture loving.

Height &

Crown Spread:10 years—10-18 ft. Mature—40 ft. tall with 20 ft. spread.

Paper Birch—*Betula papyrifera*

Likes:Native. Excellent yellow fall color. Reportedly less subject to Bronze Birch Borer attack.

Dislikes:Bark not as white or attractive as the European species. Requires a cool moist site. Bark peeling instinct by the young public requires judicious placement. Growing site limited. (Does best on cool moist sites). Suckers from the root crown.

Height &

Crown Spread:10 years—10-20 ft. Mature—45 ft. tall with 20 ft. spread.

European White Birch—*Betula pendula*

Likes:Faster growing and whiter bark than the native. Vivid yellow fall color.

Dislikes:Subject to Bronze Birch Borer attack and the same limitations as Paper Birch.

Height &

Crown Spread:10 years—10-20 ft. Mature—40 ft. tall with 20 ft. spread.

Cutleaf Weeping Birch—*Betula pendula*

'Gracilis'

Likes:Graceful pendulous ornamental tree. Deeply cut, dark green leaves.

Dislikes:Same as those for the above. The pendulous branches limit its use as a shade tree.

Northern Catalpa—*Catalpa speciosa*

Likes:White flowers are ornamental. Large leaves make it an interesting tree.

Dislikes:Limited to the southeast. Difficult to transplant. Coarse growing habit. Hardiness problem.

Height &

Crown Spread:10 years—8-12 ft. Mature—50 ft. tall with 25 ft. spread.

Shagbark Hickory—*Carya ovata*

Likes:Attractive bark. Oval crown. Large leaves. Dense crown.

Dislikes:Hardiness problem outside southeast South Dakota. Transplant problem.

Height &

Crown Spread:10 years—6-12 ft. Mature—40 ft. tall with 25 ft. spread.

Hackberry—*Celtis occidentalis*

Likes:Native. Characteristics very close to those of American Elm. Wood very strong.

Dislikes:Seed source very important. Grows slowly. Witches' broom and nipple gall make tree unsightly.

Height &

Crown Spread:10 years—8-15 ft. Mature—50 ft. tall with 35 ft. spread.

Russian-olive—*Elaeagnus angustifolia*

Likes:Adapts readily to varied soil and moisture conditions. Good growth rate. Gray foliage provides good contrast.

Dislikes:Subject to branch tip damage. Requires periodic pruning to shape into desirable tree.

Height &

Crown Spread:10 years—8-12 ft. Mature—25 ft. tall with 20 ft. spread.

Autumn Purple Ash—*Fraxinus americana*

'Autumn Purple'

Likes:Good fall color. Oval crown. Easily transplanted.

Dislikes:May be adapted to southeast South Dakota only. Needs more evaluation.

Height &

Crown Spread:10 years—10-15 ft. Mature—45 ft. tall with 30 ft. spread.

Green Ash—*Fraxinus pennsylvanica*

Likes:Native. Easily transplanted. Very adaptable. Brilliant yellow fall color is common.

Dislikes:Certain clones exhibit irregular growth habits. May have borer problems.

Height &

Crown Spread:10 years—12-20 ft. Mature—50 ft. tall with 25 ft. spread.

Marshall's Seedless Ash—*Fraxinus*

***pennsylvanica* 'Marshall's Seedless'**

Likes:Seedless. Foliage attractive glossy green.

Dislikes:Isn't as well adapted as native. Requires more maintenance. Needs more evaluation. Lacks central leader.

Summit Ash—*Fraxinus pennsylvanica*

'Summit'

Likes:Believed to be seedless. Symmetrical. Good central leader.

Dislikes:Needs more evaluation.

Honeylocust—*Gleditsia triacanthos*

Likes:Native. Fine textured. Leaves not as bothersome in the fall. Select from variety list below.

Dislikes:Seed source important to reduce adaptability problems. Thorny. Large seed pods. May not be a good shade tree. Exhibits canker and insect problems.

Height &

Crown Spread:10 years—12-22 ft. Mature—40 ft. tall with 25 ft. spread.

Thornless Honeylocust—*Gleditsia*

triacanthos* var. *inermis

Likes:This botanical variety is naturally thornless. It's numerous clones listed below have become quite popular. Drought and alkaline tolerant. Grass grows well in shade of this tree.

Dislikes:Doesn't always have fall color.

Imperial Honeylocust—*Gleditsia*

***triacanthos* var. *inermis* 'Imperial'**

Likes:Full crown development. Straight trunk with strong branches. Dark green and dense foliage.

Dislikes:Same as the variety *inermis* except it produces more shade.

Shademaster Honeylocust—*Gleditsia*

***triacanthos* var. *inermis* 'Shademaster'**

Likes:Strong trunk, symmetrical ascending branches. Reputedly rapid in growth, few disease problems and dark green foliage.

Dislikes:Same as the variety *inermis*.

Skyline Honeylocust—*Gleditsia triacanthos*

var. *inermis* 'Skyline'

Likes:Stately, upright pyramidal-shaped tree. Coarse textured. Strong structure. Hardy.

Dislikes:Same as the variety *inermis*. More susceptible to canker than the other varieties.

Kentucky Coffeetree—*Gymnocladus dioica*

Likes:Tolerant to drought and relatively pest free. Sturdy rustic winter appearance. Quite hardy. Dense crowned picturesque tree.

Dislikes:Large compound leaves. Slow grower. Coarse brown seed pods. Difficult to transplant.

Height &

Crown Spread:10 years—8-10 ft. Mature—45 feet tall with 25 ft. spread.

Butternut—*Juglans cinerea*

Likes:Has a wide spreading crown. Strong structure.

Dislikes:Coarse foliage that appears late and drops early. Performance questionable north of Highway 14. Prefers the richer, deep soils, or it will be subject to drought problems.

Height &

Crown Spread:10 years—9-18 ft. Mature—35 ft. tall with 25 ft. spread.

Black Walnut—*Juglans nigra*

Likes:Native. When grown in the open, crown very much like American Elm. Good fall color.

Dislikes:Not easily transplanted. Seed source important. Prefers the richer, deeper soils. Otherwise, drought problems will result.

Height &

Crown Spread:10 years—8-15 ft. Mature—50 ft. tall with 30 ft. spread.

European Larch—*Larix decidua*

Likes:Hardy in most of South Dakota except alkaline soils. Golden fall color.

Dislikes:Without wide spreading crown. Transplant problems.

Height &

Crown Spread:10 years—8-15 ft. Mature—65 ft. tall with 20 ft. spread.

Siberian Larch—*Larix siberica*

Likes:Quite hardy.

Dislikes:Narrow crown. Transplant problem.

Height &

Crown Spread:Same as European Larch.

Siberian Crabapple—*Malus baccata*

Likes:Hardest of the *Malus*. Attractive during all seasons. Relatively disease free. White flowers and bright red fruit.

Dislikes:Needs guidance by pruning. Fruits may be messy.

Height &

Crown Spread:10 years—8-12 ft. Mature—30 ft. tall with 25 ft. spread.

Hopa Crabapple—*X Malus* 'Hopa'

Likes:Size lends itself to being a shade tree with ornamental features. Withstands city conditions very well.

Dislikes:Not as ornamental as most other rosy-bloom crabs. Susceptible to scab. Nearly all crabapples subject to fireblight.

Height &

Crown Spread:10 years—8-12 ft. Mature—25 ft. tall with 20 ft. spread.

Selkirk Crabapple—*X Malus* 'Selkirk'

Likes:Large round crown. Foliage reddish in spring changing to bronze-green. Shows only slight susceptibility to apple scab and fireblight.

Dislikes:Recent introduction with very little history. Needs more evaluation.

Height &

Crown Spread:Same as Hopa Crabapple.

Russian Mulberry—*Morus alba* var. *tatarica*



Likes: Hardest of mulberries. Attractive medium textured foliage. Male tree best for landscape purpose. Adapted to different soil conditions.

Dislikes: Limited to the area south of Highway 14. Fruit messy. With careful seed selection it could be grown in the northern part of the state.

Height &
Crown Spread: 10 years—8-12 ft. Mature—30 ft. tall with 25 ft. spread.

Ironwood—*Ostrya virginiana*



Likes: Native. Disease and insect problems minimal. Shreddy bark. Good fall color. Long lived.

Dislikes: Slow grower. Difficult to transplant.

Height &
Crown Spread: 10 years—5-8 ft. Mature—25 ft. tall with 20 ft. spread.

Amur Cork-tree—*Phellodendron amurense*



Likes: Picturesque tree. Broad spreading crown. Deeply fissured bark. Easily transplanted.

Dislikes: Availability a problem. Irregular branching habit.

Height &
Crown Spread: 10 years—10-18 ft. Mature—30 ft. tall with 25 ft. spread.

Poplar spp.—*Populus* spp.



Likes: Several species to choose from. Fast grower. Consider the Quaking and Bigtooth Aspen.

Dislikes: Choose only those trees from cuttings of male trees. White poplars should not be planted in towns because of root-suckering habits. Canker and borer problems. Most are moisture loving.

Height &
Crown Spread: 10 years—18-30 ft. Mature—60 ft. tall with 40 ft. spread.

Manchurian Apricot—*Prunus mandshurica*



Likes: Very hardy. Fruit of fair quality. Foliage is glossy with good autumn color.

Dislikes: Early flowers very often frost-kill.

Height &
Crown Spread: 10 years—10-15 ft. Mature—25 ft. tall with 20 ft. spread.

Mayday-Tree—*Prunus padus* 'Commutata'



Likes: Early fragrant flowers. Early leaf out.

Dislikes: Some root-suckering. Subject to black knot disease. Prune tree to one stem.

Height &
Crown Spread: 10 years—10-15 ft. Mature—28 ft. tall with 25 ft. spread.

Ussurian Pear—*Pyrus ussuriensis*



Likes: Extremely hardy. Considered a good ornamental tree.

Dislikes: May need pruning to be of any value as a shade tree. Messy fruit. Thorny.

Height &
Crown Spread: 10 years—7-12 ft. Mature—25 ft. tall with 15 ft. spread.

Northern Pin Oak—*Quercus ellipsoidalis*



Likes: Quite drought resistant. Better for this area than Pin Oak.

Dislikes: Shows chlorosis. Plant in southeast for best performance. Not readily available.

Height &
Crown Spread: 10 years—7-10 ft. Mature—40 ft. tall with 35 ft. spread.

Bur Oak—*Quercus macrocarpa*



Likes: Native. Very hardy. Drought resistant. Long lived. Attractive bark. Grows and persists under difficult conditions. Grows to a large stately tree under good conditions, and rugged and picturesque under poor conditions.

Dislikes: Difficult to transplant. Slow growth rate. No fall color.

Height &
Crown Spread: 10 years—5-10 ft. Mature—60 ft. tall with 40 ft. spread.

Northern Red Oak—*Quercus rubra*



Likes: Growth more rapid than bur oak. Round crown. Easier to transplant. Good fall color.

Dislikes: Hardiness problem outside southeast South Dakota.

Height &
Crown Spread: 10 years—8-10 ft. Mature—40 ft. tall with 35 ft. spread.

Black Locust—*Robinia pseudoacacia*



Likes: Fragrant flowers. Hardy. Fairly fast grower.

Dislikes: Thorny. Do not plant in parks. Disease and insect problems. Sometimes suckers.

Height &
Crown Spread: 10 years—10-18 ft. Mature—35 ft. tall with 20 ft. spread.

Weeping Golden Willow—*Salix alba* 'Tristis'



Likes: Hardest and most reliable of the Weeping Willows. Most attractive in both the winter and summer. Should be considered when Weeping Birch has problems.

Dislikes: Requires a moist situation. Branchlet breakage.

Height &
Crown Spread: 10 years—15-30 ft. Mature—45 ft. tall with 30 ft. spread.

Laurel Willow—*Salix pentandra*



Likes: Attractive dark green lustrous foliage. One of the better ornamental willows.

Dislikes: Requires guidance by pruning. Moist sites preferred. Has leaf spot disease problems.

Height &
Crown Spread: 10 years—12-24 ft. Mature—35 ft. tall with 20 ft. spread.

European Mountain-ash—*Sorbus aucuparia*



Likes: Most popular of the Mountain-ash species. Very ornamental with attractive seasonal features. For maximum height, grow tree with single trunk. Slightly alkaline soils acceptable.

Dislikes: Thin barked (requires early life trunk wrapping). Susceptible to fireblight. Fruit can become arsenal for youngsters.

Height &

Crown Spread: 10 years—10-15 ft. Mature—35 ft. tall with 20 ft. spread.

American Basswood—*Tilia americana*



Likes: Native. Excellent for park shade trees. Capable of good autumn color.

Dislikes: Requires a moist site. Produces trunk sprouts.

Height &

Crown Spread: 10 years—8-12 ft. Mature—60 ft. tall with 40 ft. spread.

Littleleaf Linden—*Tilia cordata*



Likes: Attractive pyramidal shaped crown makes it an outstanding street tree. Dense crown with attractive small leaf foliage. Relatively pest-free. Has several cultivars (i.e. Green-spire Linden).

Dislikes: Slow growing. Very little autumn color. Requires a moist site.

Height &

Crown Spread: 10 years—7-12 ft. Mature—40 ft. tall with 25 ft. spread.

Redmond Linden—*Tilia X euchlora* 'Redmond'



Likes: Pyramid shape makes it a good street tree. Good growth rate. Quite adaptable. Dense dark green foliage.

Dislikes: Same as Littleleaf Linden.

Height &

Crown Spread: 10 year—7-12 ft. Mature—45 ft. tall with 20 ft. spread.

Trees Able to Withstand Dry Sites

1. Boxelder
2. Bur Oak
3. Hackberry
4. Most Crabapples
5. Green Ash and cultivars
6. Mayday-Tree
7. Honeylocust and cultivars
8. Kentucky Coffeetree
9. Russian Mulberry
10. Northern Red Oak

Trees for Moist Sites

1. Birches
2. Larches
3. Lindens
4. Poplars and Aspens
5. Sugar Maple
6. Willows

Trees That Can Be Bothersome

1. White poplar (root suckers)
2. Cottonwood (female trees release cotton)
3. Boxelder (Boxelder bugs)

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