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Nebraska Cooperative Extension Service
EC 88-1760

Trees & Shrubs For Nebraska Conservation Plantings

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"He that plants trees loves others besides himself."

— Thomas Fuller

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About This Booklet

The **NEBRASKA FOREST SERVICE** distributes tree and shrub seedlings each year for windbreaks, erosion control, wood products, Christmas trees, wildlife habitat and other conservation purposes. These trees cannot be used for ornamental purposes or resold with the roots attached.

This guide is designed to help landowners select tree and shrub species for particular plantings. Throughout the booklet you'll find pictures and descriptions of trees and shrubs suitable for growing in Nebraska.

Tables in the back help you determine which trees are most suited to the soil and precipitation zone in which you live.

Eastern Redcedar

Eastern Redcedar *(Juniperus virginiana)* is highly adapted and has the highest survival rate of any conifer planted in Nebraska. Its deep roots and small leaf surface make it very drought resistant. The foliage turns a russet color in winter.

Two foliage diseases, *Cercospora* and *Phomopsis,* can kill redcedar if not controlled. *Cercospora* blight is common and widespread.

Spider mites occasionally cause damage, and young trees may require protection.

Seed source: Merna, Nebraska.

Rocky Mountain Juniper

Rocky Mountain Juniper *(Juniperus scopulorum)* is similar in appearance to eastern redcedar. It is drought resistant, prefers slightly alkaline soils, and retains a bluish-green color throughout winter. It is best used on the north and west outside rows in windbreaks.

Rocky Mountain juniper is subject to the same insect and disease problems as eastern redcedar, but *Phomopsis* blight is very serious in eastern Nebraska, so it is not recommended for planting in Zones III and IV.

Seed source: Wasta, South Dakota.

Austrian Pine

Austrian Pine *(Pinus nigra)* closely resembles ponderosa pine, but the needles are generally stiffer and buds are silver colored in winter and early spring. Originally introduced from Europe as an ornamental, it has considerable value as a Christmas tree.

Austrian pine is best used in east or south inside rows of windbreaks. It is subject to the same insect and disease problems as ponderosa pine, but is more susceptible to pine tip moths.

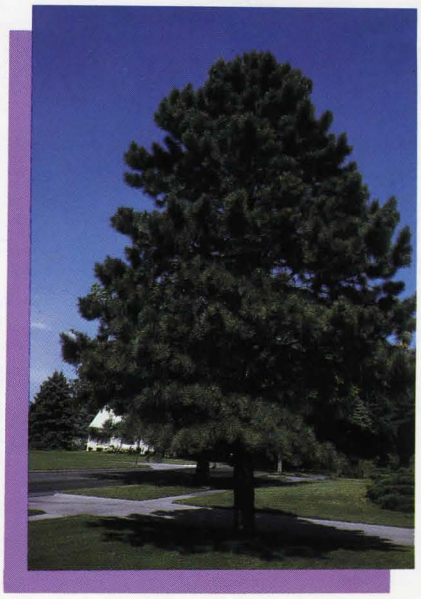
Seed source: Yugoslavia.

Ponderosa Pine

Ponderosa Pine *(Pinus ponderosa)* occurs naturally in areas of Nebraska having limited summer rainfall. It can withstand prolonged drought, and is the best pine to use on severe sites. It is best used in east and south inside rows of windbreaks.

Pine tip moths and Zimmerman pine moths are often serious pests and can kill or deform trees if not controlled. Two foliage diseases, *Diplodia* tip blight and *Dothistroma* needle blight, can damage the tree if not controlled.

Seed source: Valentine, Nebraska.



Scotch Pine

Scotch Pine *(Pinus sylvestris)*, a native of Europe, is widely planted as a Christmas tree. Older trees have orange-colored bark in the crown.

This species is not as drought resistant as ponderosa pine, Austrian pine or jack pine. It is best used in east or south inside rows in windbreaks.

Two foliage diseases, *Diplodia* tip blight and brown spot, can damage the tree severely if not controlled. It also is subject to pine tip moth and Zimmerman pine moth injury.

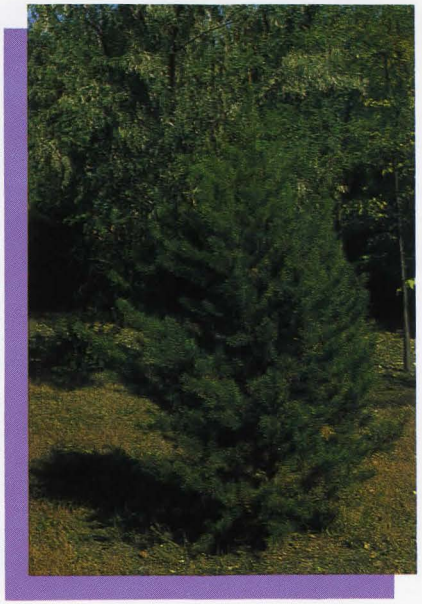
Seed source: NFS seed orchard.

Jack Pine

Jack Pine *(Pinus banksiana)* is native to Canada and the Lake States. It is drought resistant and can be planted on a wide variety of sites. It is best used on inside rows of windbreaks in central and western Nebraska, or as outside rows in eastern Nebraska.

Jack pine has no serious foliage diseases, but pine tip moths can be a serious problem.

Seed source: Wisconsin



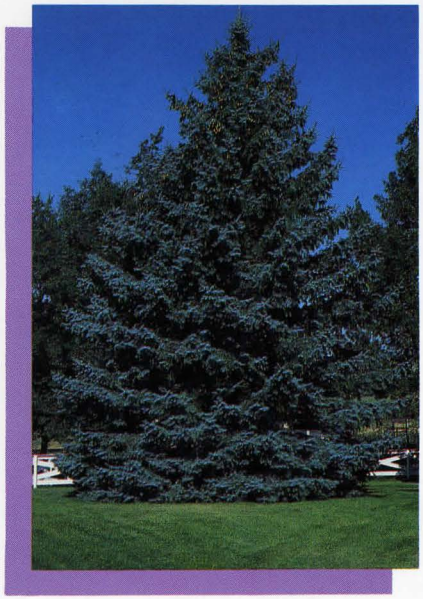
Colorado Blue Spruce

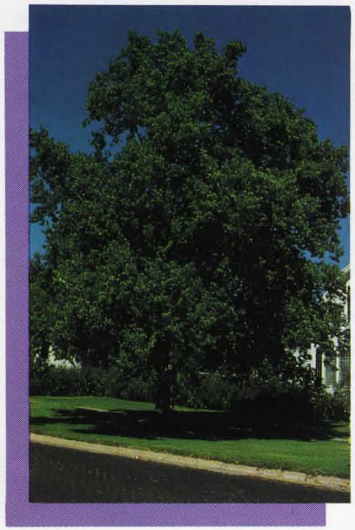
Colorado Blue Spruce *(Picea pungens)* is native to the Rocky Mountain region. The color ranges from dark green to silvery blue green.

Colorado blue spruce is best used as the inside row of farmstead windbreaks. Survival is best if the seedlings are protected from drying winds by placing wooden shingles on the south and west sides.

Spider mites can be a problem.

Seed source: southern Colorado.





Hackberry

Hackberry *(Celtis occidentalis)* is a native tree found throughout Nebraska. It has a medium to long life span. Hackberry leaves are elm shaped; the grayish bark has a warty appearance.

Once established, a moderate rate of growth and tolerance to adverse weather can be expected from the hackberry.

Witches broom on branches and nipple-galls on lower leaf surfaces can be unsightly, but cause little adverse effect.

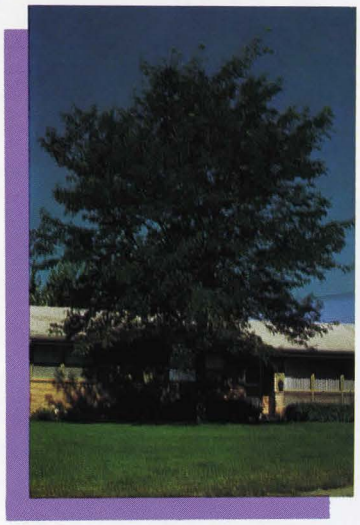
Honeylocust

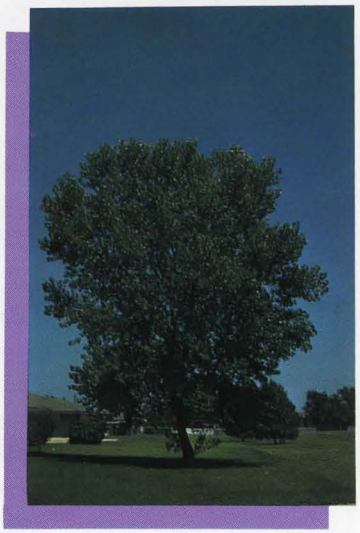
Honeylocust *(Gleditsia triacanthos)* is native to eastern Nebraska. This medium-lived, relatively fast growing tree lends itself well to windbreak plantings.

The fine-textured foliage of the honeylocust gives partial shade and turns a golden yellow in the fall.

Mimosa webworm and other insects present minor problems.

The "thornless" variety is distributed.





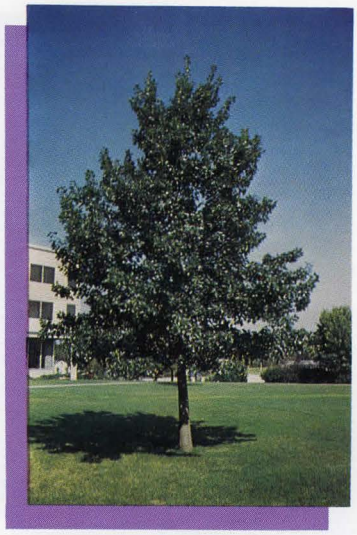
Cottonwood

Cottonwood *(Populus deltoides)* is the Nebraska state tree. It is native across the state and usually is found adjacent to rivers and streams and around lakes.

Cottonwood has a fast growth rate and provides most of the lumber processed in Nebraska today.

Trees can become infested by leaf beetles, twig borers and stem canker.

Cottonless clones are distributed.



Northern Red Oak

Northern Red Oak *(Quercus rubra)* is a medium to large size tree native to eastern Nebraska. Red oak has a medium growth rate and oval shaped crown with bronze-red autumn color.

Oak wilt, a vascular disease, is a potentially serious problem.

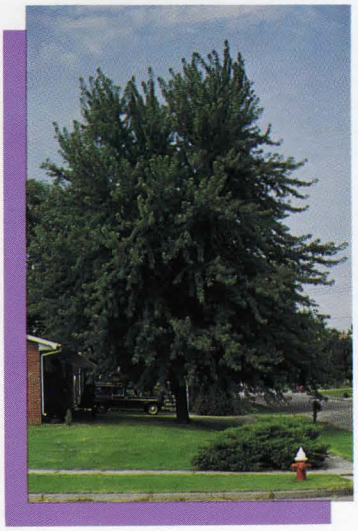
Northern red oak is not recommended for planting in the western half or extreme northern part of the state due to moisture and soil limitations.

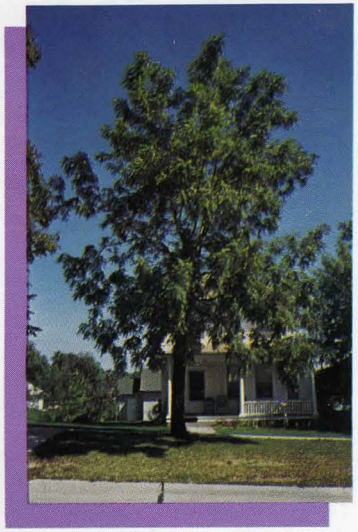
Silver Maple

Silver Maple *(Acer saccharinum)* is a fast growing, long-lived tree native to eastern Nebraska. The species is ideal for wet bottomland sites and can easily recover from extended periods of flooding. It performs well on uplands, but does not tolerate alkaline or calcareous soil conditions.

The wood of the silver maple is brittle and can break in wind, snow or ice storms.

Possible problems are multiple main stems, scale insects, green striped maple worms, and maple bladder-gall mites.





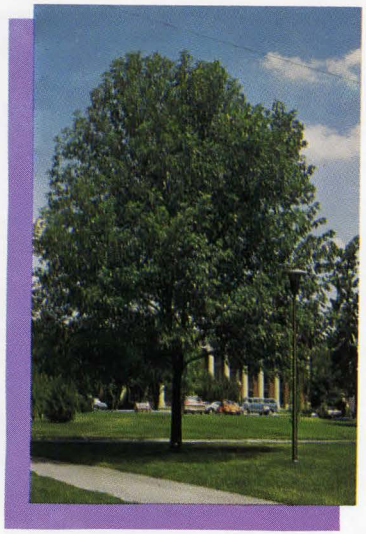
Black Walnut

Black Walnut *(Juglans nigra)* is native to Nebraska's eastern fertile bottomlands. It is highly prized for its rich, chocolate-brown wood and nut meats.

Walnut has a medium growth rate and long life span. Straight, limb-free trees are very valuable in the timber industry.

Walnut requires a deep, silty-loam soil having good internal drainage. Tent caterpillars and webworms can give the tree an unsightly appearance, but seldom do any permanent damage.

Walnut is highly susceptible to 2,4-D herbicide damage.



Green Ash

Green Ash *(Fraxinus pennsylvanica)* is native throughout the state, with its best growth in moist bottomlands.

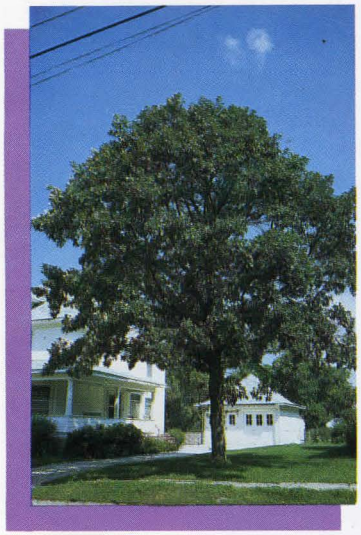
Green ash has been used as a windbreak tree throughout Nebraska because of its adaptability to soil and moisture conditions. This medium-sized tree has beautiful yellow foliage in the fall.

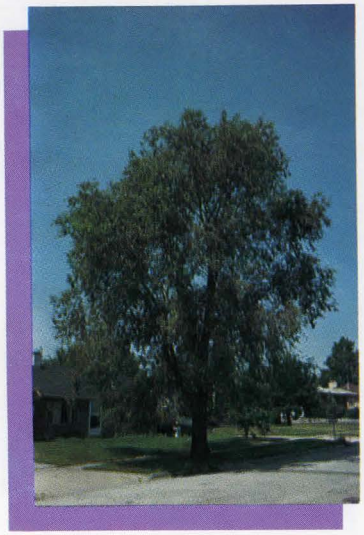
Possible problems may be caused by ash borers, oystershell scale, ash rust, leaf scorch and stem canker.

Bur Oak

Bur Oak *(Quercus macrocarpa)* is native to Nebraska. It grows on a wide variety of sites, but grows best on rich, moist bottomlands.

Bur oak has a slow to moderate growth rate. It is less susceptible to oak wilt than northern red oak and has no serious insect problems.





Siberian Elm

Siberian Elm *(Ulmus pumila)* is sometimes called Chinese elm. It is adapted to almost all soil and moisture conditions in the state, but is usually short-lived.

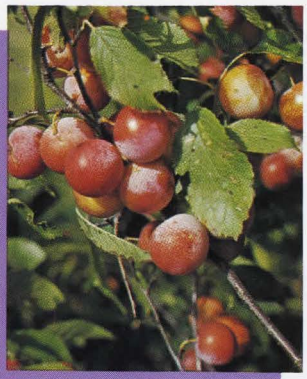
Siberian elm is resistant to Dutch elm disease. The wood is brittle and breaks in wind, snow and ice storms.

Pest problems for the Siberian elm are elm leaf beetles and slime-flux. Siberian elms should be planted only on severe sites where other species are likely to fail.

"I like trees because they seem more resigned to the way they have to live than other things do."

— Willa Cather

American Plum



American Plum *(Prunus americana)* is native to Nebraska and is well adapted to a wide variety of soil and climatic conditions. It forms dense thickets ideal for the outside rows of windbreaks and for wildlife habitat.

Birds use the thickets for nesting, feeding and resting areas. The twigs are a preferred source of browse for deer and rabbits during the winter.

White flowers bloom in May, with red to purple plums ripening during September.

The earliest ripening fruit is usually the sweetest and makes the best jelly.

Insects and diseases are not considered serious problems. Brown spot, plum pocket and tent caterpillars may cause some problems.

Seed source: Nebraska.

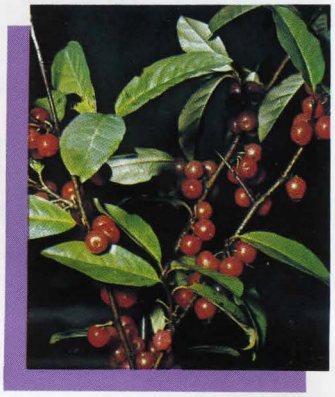
Autumn-Olive

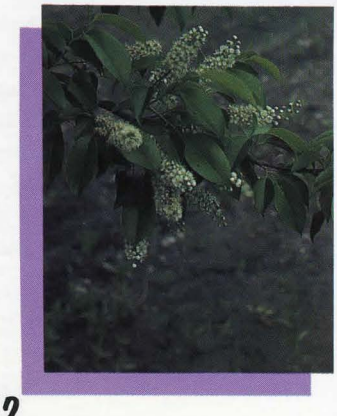
Autumn-Olive *(Elaeagnus umbellata)* is a tall shrub with a wide spreading crown. The fragrant yellow flowers are attractive to bees during May, and develop into pink to salmon-red berries in September and October. The abundant fruit and spreading form are excellent for wildlife.

Autumn-olive is best used in the outside rows of windbreaks. It may benefit other plant species near it because of nitrogen fixation.

Scale insects may be a problem.

Seed source: 'Redwing' or 'Cardinal' varieties.





Chokecherry

Chokecherry *(Prunus virginiana)* is a medium-size shrub that forms a dense thicket from root suckers. It is used for the outer row in multi-row windbreaks.

Chokecherry is good wildlife habitat, providing food and cover for birds and small mammals. Showy white flowers bloom in April or May, and the cherries ripen during July. The cherries can be used for making jelly and wine.

Chokecherry should not be planted near other stone-fruit species because of western x-disease and black knot. Tent caterpillars are often a problem.

Seed source: Nebraska.

Cotoneaster

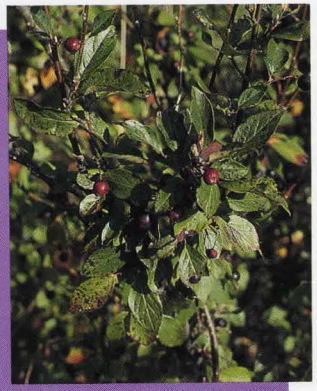
Cotoneaster *(Cotoneaster acutifolia)* is a low-growing shrub introduced from Asia. It has dark, glossy green foliage that turns orange to red during the fall.

The berry-like fruit ripens to a dark red or black in early October and persists late into the winter, providing a good winter food source for birds.

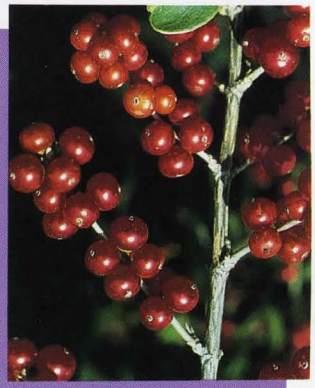
This is a sturdy shrub for the outside row of windbreaks.

Fireblight of the twigs and stems can be a serious problem.

Peking cotoneaster is the species distributed.



Amur Honeysuckle



Amur Honeysuckle *(Lonicera maackii)* is a small to medium-size shrub with spreading branches. The abundant and fragrant white to pink blossoms appear in late May to early June. The blossoms are very attractive to honey bees.

Amur honeysuckle is a good species for an outer row of a multi-row windbreak, and provides summer food for songbirds.

Leaf blight can be a problem. Amur honeysuckle is less susceptible to honeysuckle aphid than Tartarian honeysuckle.

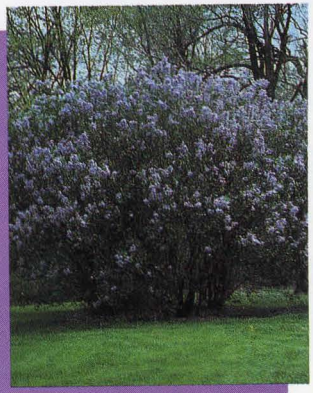
Seed source: 'Rem-Red' or 'Cling-Red' varieties.

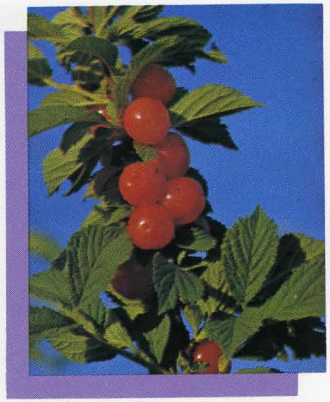
Common Lilac

Common Lilac *(Syringa vulgaris)* is a non-suckering, upright shrub that is best in the outside row of windbreaks. Fragrant white to lavender flowers bloom during May.

Lilac is rarely used in wildlife plantings since it does not form thickets and the seeds have little food value.

Powdery mildew and oyster scale are common problems.





Nanking Cherry

Nanking Cherry *(Prunus tomentosa)* is a small, upright shrub. The blossoms are white to pink and appear in late April or May.

The cherries are larger and sweeter than chokecherries, and are excellent for making jellies and wine.

The fruit is liked by wildlife, and the twigs are eaten by deer and rabbits.

Nanking cherry is best planted in the outside row on the leeward side of the windbreak. There are no major insect or disease problems. It is a relatively short-lived species.

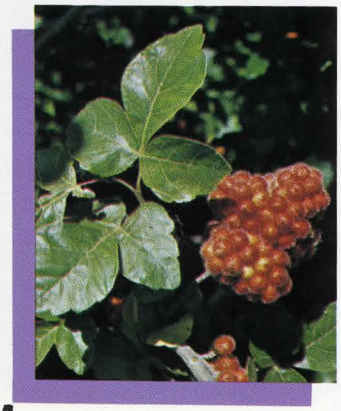
Russian Olive

Russian Olive *(Elaeagnus angustifolia)* is a large shrub/small tree tolerant of drought and alkaline conditions. It is a medium-height tree for multi-row windbreaks.

The fruit of the Russian olive persists late into winter, making it an excellent food source for birds.

Stem cankers are a major problem on this species.

Seed source: 'King Red' variety.



Skunkbush Sumac

Skunkbush Sumac *(Rhus trilobata)* is native to Nebraska. It can tolerate alkaline and drought conditions.

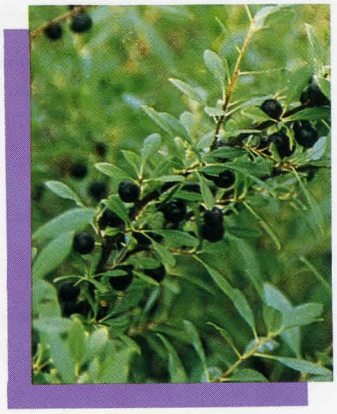
The clusters of berry-like fruit are covered with a soft, dense hair and turn a deep red in the autumn.

Skunkbush sumac is a good wildlife species, providing food for birds throughout the winter. It is best used on the inside rows of windbreaks.

Leaf spot can be a problem.

Seed source: 'Konza' variety.

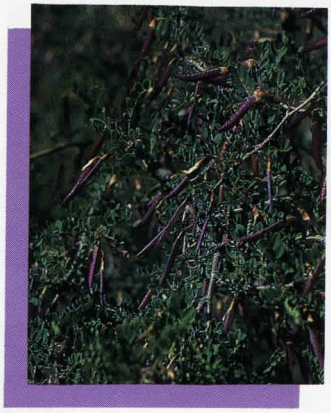
Sandcherry



Sandcherry *(Prunus besseyi)* is a low growing shrub native to Nebraska. It has showy white flowers in May and produces sweet, purplish-black cherries in July.

Sandcherry can tolerate hot, dry conditions, and prefers well-drained soils. It will sucker to form small, four to six foot wide thickets.

The cherries are especially good for making jelly or jam.



Caragana

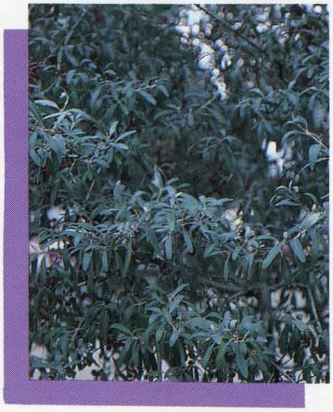
Caragana *(Caragana arborescens),* also called Siberian peashrub, is a large spreading shrub. It provides dense cover for wildlife and is ideal for the shrub row in a windbreak.

Caragana is adaptable to conditions of extreme cold and wind. It tolerates a wide range of soil types, including alkaline and saline soils.

Grasshoppers can be a problem, but very rarely kill an established plant.

Seed source: Colorado.

Silver Buffaloberry



Silver Buffaloberry *(Shepherdia argentea)* is a native species of western Nebraska.

This thorny, tree-like shrub is drought tolerant and adaptable to alkaline soils.

The persistent, fleshy berries provide food for birds during the winter. The tart berries also are used in jellies.

Seed source: Western Nebraska.

Which Trees Are Most Suited to Your Home? Read On!

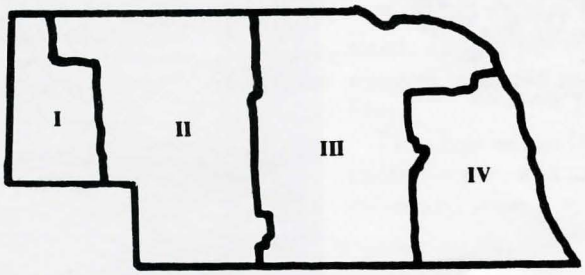


Figure 1. Nebraska Precipitation Zones

Nebraska Precipitation Zones

Annual precipitation has a direct influence on rate of growth, life span and space requirements of trees. Nebraska is divided into four precipitation zones as indicated in *Figure 1,* at the left.

Soil Suitability Groups

The soil suitability groups are numerical soil classifications based on soil characteristics. *Table 1* lists characteristics of each soil suitability group. Only species recommended for a particular soil should be planted. Your local Soil Conservation Service can help determine your correct soil suitability group.

Table 1. Soil Suitability Groups

Soil Suitability Group No.	*Soil Characteristics*
1.	Soils receive beneficial moisture from favorable landscape position, flooding or runoff from adjacent land, or they have a seasonal high water table during the spring.
2.	Soils are excessively wet or ponded during the spring or overflow periods.
3.	Soils are deep, well-drained loamy and silty with moderate and moderately slow permeability on uplands.
4.	Soils are moderately deep to deep, loamy and clayey with slow or very slow permeability on uplands.
5.	Soils are loamy and sandy with moderate to high available water capacity.
6.	Soils are well-drained, loamy and silty, moderately deep over sand and gravel or bedrock. They have low or moderate available water capacity.
7.	Soils are deep, excessively drained, sandy with low or very low available water capacity.
8.	Soils are calcareous at or near the surface. They do not receive beneficial moisture from run-in, flooding or seasonal high water. Calcareous soils contain calcium.
9.	Soils are affected by salinity and/or alkalinity.

Table 2. Species Recommendations

Species	Precip. Zone	Height (Ft) at Age: 5 Yr.	10 Yr.	20 Yr.	Maturity	Life Span (Yrs.)	Suggested Spacing (Ft.): Within Rows	Between Rows	Soil Suitability Group
	I	2-4	6-8	10-20	20-25	80	4-8	14	123456789
Eastern	II	3-5	6-9	10-22	20-25	100	4-8	12	123456789
Red-	III	3-5	7-10	12-24	25-35	100	4-8	12	123456789
Cedar	IV	4-6	8-12	15-25	30-40	100	4-8	12	123456789
	I	2-4	4-7	10-20	15-25	100	4-8	14	123456789
Rocky	II	2-4	4-7	10-20	15-25	100	4-8	12	123456789
Mountain	III	Not Recommended in this Zone				— —	— — —	—	— — — —
Juniper	IV	Not Recommended in this Zone				— —	— — —	—	— — — —
	I	2-3	8-12	14-24	30-50	150	10-12	14	123456789
Ponderosa	II	3-5	8-12	16-28	30-55	150	10-12	12	123456789
Pine	III	3-6	10-15	18-30	35-55	200	10-14	12	123456789
	IV	5-8	14-18	20-34	40-60	200	10-14	12	123456789
	I	2-3	8-12	14-24	30-50	80	10-12	14	123—567—
Austrian	II	3-5	7-12	16-28	30-55	80	10-12	12	1234567—
Pine	III	4-7	10-16	18-30	35-55	100	10-14	12	1234567—
	IV	5-8	12-16	20-34	40-60	100	10-14	12	1234567—
	I	2-3	7-10	12-22	25-35	60	10-12	14	123—5— —
Scotch	II	3-5	8-10	16-26	30-40	60	10-12	12	123—5—7—
Pine	III	5-8	10-14	18-30	35-45	70	10-14	12	12345—7—
	IV	6-10	16-20	20-32	40-50	80	10-14	12	12345—7—
	I	2-3	7-10	15-17	30-40	50	10-12	14	1—3—5—7—
Jack	II	3-5	8-10	18-20	35-45	60	10-12	12	1—345—7—
Pine	III	5-8	10-14	18-30	35-45	80	10-14	12	1—345—7—
	IV	6-10	12-16	20-32	40-50	120	10-14	12	1—345—7—
	I	2-3	6-8	15-17	25-35	70	12-14	14	12— — —
Colorado	II	2-4	6-8	16-20	30-40	80	10-14	12	1234— —
Blue	III	3-5	7-10	18-26	30-45	100	10-16	12	12345— —
Spruce	IV	4-6	8-14	18-30	40-60	150	10-18	12	12345— —
	I	2-4	6-10	16-22	30-40	60	10-14	16	123456—8
Hackberry	II	3-5	8-12	20-26	40-50	60	12-16	16	123456—8
	III	4-8	10-14	22-28	45-55	80	12-16	16	123456—8—
	IV	4-8	10-14	22-30	50-60	80	12-18	16	123456—8—
	I	6-10	12-14	16-26	30-40	40	10-14	16	123456—8—
Honey-	II	6-10	14-16	20-28	30-40	60	12-16	16	123456—8—
locust	III	8-12	15-18	24-32	35-45	60	12-16	16	123456—8—
	IV	8-12	16-20	25-34	40-50	60	12-18	16	123456—8—
	I	8-14	16-28	30-55	60-80	80	12-16	20	12— — —9*
Cotton-	II	9-14	18-28	30-55	65-85	80	14-18	20	12— — —9*
wood	III	10-15	20-30	45-55	65-85	100	14-18	20	12— — —9*
	IV	12-16	24-32	48-60	70-90	100	14-18	20	12— — —9*

*Wet Sites Only

Species	Precip. Zone	Height (Ft) at Age: 5 Yr.	10 Yr.	20 Yr.	Maturity	Life Span (Yrs.)	Suggested Spacing (Ft.): Within Rows	Between Rows	Soil Suitability Group
	I	Not recommended in this zone				— —	— — —	—	— — — —
Red	II	Not recommended in this zone				— —	— — —	—	— — — —
Oak	III	5-10	12-16	20-28	40-50	150	12-16	16	1— — — —
	IV	6-10	14-18	24-28	40-50	150	12-18	16	1234— —
	I	Not recommended in this zone				— —	— — —	—	— — — —
Silver	II	6-10	10-20	26-30	35-45	60	12-18	20	12— — —
Maple	III	8-13	14-24	30-34	40-50	60	12-18	20	12— — —
	IV	10-14	20-28	34-38	50-60	80	12-18	20	123— — —
	I	Not recommended in this zone				— —	— — —	—	— — — —
Black	II	4-8	8-14	24-26	30-40	80	12-16	16	1— — — —
Walnut	III	4-8	8-16	26-28	35-45	80	12-16	16	1— — — —
	IV	6-10	12-20	26-30	40-50	100	12-16	16	123— — —
	I	4-8	10-14	14-22	25-35	60	10-14	16	123456—89
Green	II	6-10	10-16	18-26	30-40	60	12-16	16	123456—89
Ash	III	6-10	12-18	22-28	35-45	80	12-16	16	123456—89
	IV	8-12	16-20	24-32	40-50	80	12-18	16	123456—89
	I	4-8	10-14	14-20	25-35	150	10-14	16	123— — —
Bur	II	5-10	12-15	18-24	30-40	150	12-16	16	12345— —
Oak	III	5-10	12-16	20-26	35-45	150	12-16	16	123456—8
	IV	6-10	14-18	24-28	40-50	150	12-18	16	123456—8—
	I	8-12	12-25	14-32	16-34	25	10-14	20	123456—89
Siberian	II	8-14	14-28	16-36	18-38	30	12-16	20	123456—89
Elm	III	10-16	16-30	24-40	26-42	30	12-16	20	123456—89
	IV	10-18	18-35	26-40	55-60	40	12-18	20	123456—89
	I	—	—	—	5-7	50	3-4	16	123456—
American	II	—	—	—	5-8	40	3-4	14	123456—
Plum	III	—	—	—	5-8	50	3-4	14	123456—
	IV	—	—	—	6-10	50	3-4	12	123456—8—
	I	Not Recommended in this Zone				—	— —	—	— — — —
Autumn-	II	—	—	—	8-10	50	4-6	14	1234— —
Olive	III	—	—	—	8-12	50	4-6	14	12345— —
	IV	—	—	—	10-14	50	4-6	12	123456—
	I	—	—	—	5-8	50	3-4	16	123456—
Chokecherry	II	—	—	—	6-12	50	3-4	14	123456—
	III	—	—	—	6-12	50	3-4	14	123456—
	IV	—	—	—	8-14	50	3-4	12	123456—
	I	—	—	—	4-5	50	3-4	16	123456—
Cotoneaster	II	—	—	—	5-6	50	3-4	14	123456—
	III	—	—	—	5-8	50	3-4	12	123456—
	IV	—	—	—	5-10	50	3-4	12	123456—

Species	Precip. Zone	Height (Ft) at Age 5 Yr.	10 Yr.	20 Yr.	Maturity	Life Span (Yrs.)	Suggested Spacing (Ft.) Within Rows	Between Rows	Soil Suitability Group
	I	—	—	—	5-7	50	3-4	16	123— — —
Honeysuckle	II	—	—	—	5-8	50	3-4	14	123456—
	III	—	—	—	5-8	50	3-4	14	123456—
	IV	—	—	—	5-10	50	3-4	12	123456—
	I	—	—	—	5-6	50	3-4	16	12345—89
Lilac	II	—	—	—	5-6	50	3-4	14	123456—89
	III	—	—	—	5-8	50	3-4	14	123456—89
	IV	—	—	—	6-10	50	3-4	12	123456—89
	I	Not Recommended in this Zone				—	— —	—	— — — —
Nanking	II	Not Recommended in this Zone				—	— —	—	— — — —
Cherry	III	—	—	—	4-5	15	3-4	14	1—345— —
	IV	—	—	—	5-7	15	3-4	12	1—345— —
	I	—	—	—	12-18	25	8-10	18	123456—89
Russian	II	—	—	—	14-18	25	8-10	16	123456—89
Olive	III	—	—	—	14-18	25	8-10	16	123456—89
	IV	—	—	—	16-18	25	8-10	14	123456—89
	I	—	—	—	3-5	50	3-4	16	123456—89
Skunkbush	II	—	—	—	4-6	50	3-4	14	123456—89
Sumac	III	—	—	—	4-6	50	3-4	14	123456—89
	IV	—	—	—	4-8	50	3-4	12	123456—89
	I	—	—	—	2-3	50	3-4	16	1— —56—
Sand	II	—	—	—	2-3	50	3-4	14	1— —56—
Cherry	III	—	—	—	2-4	50	3-4	14	1— —56—
	IV	—	—	—	3-6	50	3-4	12	1— —56—
	I	—	—	—	6-8	50	3-4	16	123456—89
Caragana	II	—	—	—	6-8	50	3-4	14	123456—89
	III	—	—	—	8-10	50	3-4	14	123456—89
	IV	—	—	—	8-10	50	3-4	12	123456—89
	I	—	—	—	5-8	50	3-6	16	123456—89
Silver	II	—	—	—	10-12	50	3-6	14	123456—89
Buffalo-	III	—	—	—	10-12	50	3-6	14	123456—89
berry	IV	—	—	—	10-12	50	3-6	12	123456—89

Ordering Procedure

Trees and shrubs can be ordered direct from the Nebraska State Forester's office at 101 Plant Industry Building, University of Nebraska-Lincoln, Lincoln, NE 68583-0814. Order forms also are available from District Extension Foresters and County Extension offices.

Orders are accepted year-round. Trees are shipped during late March and April, depending on weather conditions.

All Natural Resources Districts have tree planting programs available. You may wish to contact your local Natural Resources District office concerning their tree sales and tree planting services.

Additional Information

Additional information and assistance is available from your local Nebraska Forest Service, Cooperative Extension Service, Soil Conservation Service and Natural Resources District offices. The following publications are available from the Nebraska Forest Service or Cooperative Extension Service offices.

G74-102 How to Design a Snow, Wind Barrier
G77-383 Marketing Your Timber
G79-443 Firewood Plantations
G81-549 Windbreak Management
EC81-1747 Forestry for Wildlife Habitat Improvement

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