

# False Indigo



# False Indigo (*Amorpha fruticosa*)

## General Description

Native legume to North Dakota and throughout the Great Plains east to New England and south to the Gulf States. This plant has been cultivated since 1724 and grows well in moist soils. Subject to periodic dieback and regrowth which may be accentuated by drought. Similar to a sub-shrub.

### Leaves and Buds

Bud Arrangement - Alternate.

Bud Color - Brownish-gray.

Bud Size - 1/8 inch long.

Leaf Type and Shape - Pinnately-compound, 13 to 33 narrow leaflets, rounded on the ends, mucronate.

Leaf Margins - Entire, no serrations.

Leaf Surface - Finely-pubescent to smooth.

Leaf Length - 6 to 12 inches; leaflet 1 to 1½ inches.

Leaf Width - 2 to 3 inches; leaflet 1/3 to 3/4 inch.

Leaf Color - Dark green; yellow fall color.

### Flowers and Fruits

Flower Type - Clustered spikes, 3 to 6 inches long.

Flower Color - Bluish-purple.

Fruit Type - Curved pods, 1/4 to 3/8 inch long, ripen in August.

Fruit Color - Light green, becoming dark brown.

### Form

Growth Habit - Upright shrub with most foliage on upper 1/3 of the plant. Plants can spread by layering.

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

Crown Height - 8 to 12 feet.

Crown Width - 6 to 10 feet.

Bark Color - Brownish-gray.

Root System - Fibrous, spreading, holds soil from erosion, especially on sandy sites.

## Environmental Requirements

### Soil

Soil Texture - Adapted to a variety of soils.

Soil pH - 5.0 to 8.0.

Windbreak Suitability Group - 1, 1K, 2, 3, 4, 4C, 5.

### Cold Hardiness

USDA Zone 3.

### Water

Prefers above average moisture conditions.

### Light

Full sun or light shade.

## Uses

### Conservation/Windbreaks

Conservation plantings along stream banks for erosion control. Often short-lived, especially if droughty.

### Wildlife

Dense shrub form provides cover to many wildlife species near wetland and riparian areas.

### Agroforestry Products

No known products.

### Urban/Recreational

Limited uses in landscape, parks and other public areas.

## Cultivated Varieties

None.

## Related Species

Dwarf False Indigo (*Amorpha nana*)

Lead Plant (*A. canescens*)

## Pests

Diseases include rust, leaf spot, powdery mildew and twig canker. There are a few gall insect pests. Extracts of *Amorpha* species are toxic to various insect pests.

## DESERT FALSE INDIGO

*Amorpha fruticosa* L.

Plant Symbol = AMFR

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### Alternate Names

River-locust, false indigo, indigobush amorpha, indigobush

### Uses

*Ethnobotanic:* Resinous pustules on the plant contain amorpha, a contact and stomachic insecticide that also acts as an insect repellent (Huxley 1992). Desert false indigo also contains some indigo pigment that can be used to make blue dye.

*Landscape:* *Amorpha fruticosa* is an exotic species that is often planted as an ornamental. This shrub has an extensive root system and is also fairly wind tolerant; it can be planted as a windbreak and also to prevent soil erosion (Huxley 1992). According to Dayton, the early settlers used this shrub as a substitute for true indigo (McMinn 1939).

### 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:* Bean family (Fabaceae). Desert false indigo is a native, deciduous shrub growing between three to ten feet high. The leaves are four to eight inches long, with eleven to twenty-five leaflets, ovate to oblong. This species is highly variable as regards to shape of the leaf and pubescence (The Great Plains Flora Association 1986). The scented flowers are purplish blue with orange anthers and occur in three to six inch long upright spikes in June (Dirr 1997). The fruits are short, smooth or hairy, glandular legumes containing a single smooth brownish seed (Freeman & Schofield 1991).

*Distribution:* Desert false indigo occurs in the foothills of the San Bernardino and San Jacinto mountains southward in the lower mountain valleys of San Diego county in the upper Sonoran Life Zone (McMinn 1939). It extends southward to Lower California and eastward to Texas and the Atlantic Coast. This species is also found from Connecticut to Minnesota, south to Florida and Louisiana (Dirr 1997). For current distribution, please consult the Plant profile page for this species on the PLANTS Web site.

### Adaptation

*Amorpha fruticosa* is commonly found on wet ground along rivers, streams, ponds, and ditches and occasionally in open wet woods (Freeman & Schofield 1991). It requires well-drained soil and can grow in nutritionally rich soil. This plant prefers acid, neutral or basic soils. It is adaptable to infertile, dry and sandy soils. Once planted, it remains for life (Dirr 1997). Utilize in dry soil and full sun where precious few plants will prosper.

### Establishment

*Propagation by Seed:* *Amorpha fruticosa* seeds should be presoaked for twelve hours in warm water and sown in the early spring in a greenhouse. The seeds normally germinate at 20°C in one to two months. When the seedlings are large enough to handle place them into individual pots and grow them in the greenhouse for their first winter. Plant them in their permanent position in the late spring or early summer.

### Management

Desert false indigo has a symbiotic relationship with certain soil bacteria. These bacteria form nodules on the roots and fix atmospheric nitrogen. The growing

plant utilizes some of this nitrogen but other plants growing nearby can also use some (Huxley 1992).

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

Materials are available through native plant seed sources within its range.

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# Ironwood or American Hop-hornbeam



# Ironwood or American Hop-hornbeam (*Ostrya virginiana*)

## General Description

Also known as American Hop-hornbeam. A small, slow-growing tree, found in pockets along rivers in eastern North Dakota. Leaves resemble elm but this tree is a member of the Birch family. The largest tree in North Dakota is 33 feet tall with a canopy spread of 34 feet.

### Leaves and Buds

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

**Bud Color** - Glabrous, or finely downy, slightly gummy, with scales longitudinally striate.

**Bud Size** - Small, 1/8 to 1/4 inch long, narrowly-ovate and pointed.

**Leaf Type and Shape** - Simple, oval-lanceolate, acuminate-tipped.

**Leaf Margins** - Sharply and doubly-serrate, veins forked at ends.

**Leaf Surface** - Leaves are thin, but tough in texture.

Hairy along midrib and veins, pubescent below.

**Leaf Length** - 2 to 4 inches.

**Leaf Width** - 1 to 2 inches.

**Leaf Color** - Green above, and light yellow-green beneath; yellow to orange fall color.

### Flowers and Fruits

**Flower Type** - Monoecious, male catkins usually grouped in threes.

**Flower Color** - Greenish.

**Fruit Type** - Nutlet, enclosed in a hop-like sack.

**Fruit Color** - Brownish-tan.

### Form

**Growth Habit** - Pyramidal when young. Broader crown with horizontal to drooping smaller branches when mature.

**Texture** - Medium-fine, summer; medium-fine, winter.

**Crown Height** - 15 to 30 feet.

**Crown Width** - 12 to 25 feet.

**Bark Color** - Grayish-brown, with narrow rectangular strips which are free on each end. Bark has a shreddy appearance reminiscent of shagbark hickory.

**Root System** - Root spread is less than height, good for planting on boulevards with narrow berms.

## Environmental Requirements

### Soils

**Soil Texture** - Prefers moist, fertile, well-drained rocky or sandy soils along ridges and edges of forested areas.

**Soil pH** - 5.0 to 7.5. Intolerant of salt.

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

### Cold Hardiness

USDA Zone 3.

### Water

Prefers moist area.

### Light

Full sun to partial shade.

## Uses

### Conservation/Windbreaks

Small to medium tree used for farmstead windbreaks and riparian plantings.

### Wildlife

Winter food for pheasants, grouse, rabbits, deer and squirrels.

### Agroforestry Products

Wood - Used for posts, tool handles, and mallets.

### Urban/Recreational

Landscaping and along boulevards. Shapely tree which often retains coppery-tan leaves well into or through winter.

## Cultivated Varieties

None.

## Related Species

None, but in same family as Birch (*Betula spp.*) and American Hazelnut (*Corylus americana*).

## Pests

Occasionally leafspots, mildew or scorch may be of minor importance.

Juneberry or  
Saskatoon  
Serviceberry



# Juneberry or Saskatoon Serviceberry (*Amelanchier alnifolia*)

## General Description

A hardy, medium to tall, suckering shrub, native to prairie hillsides and woody draws. Also called Saskatoon and Serviceberry. Fruits are highly prized for food. Selected cultivars are used in commercial production.

### Leaves and Buds

Bud Arrangement - Alternate.

Bud Color - Chestnut-brown to purplish.

Bud Size - Medium, 1/4 to 3/8 inch.

Leaf Type and Shape - Simple, broad-oval.

Leaf Margins - Sometimes serrate-dentate, mostly above the middle, with rounded tips and bases.

Leaf Surface - Pubescent, becoming smooth.

Leaf Length - 1 to 2 inches.

Leaf Width - 3/4 to 1½ inches.

Leaf Color - Young leaves at first grayish-pubescent, soon becoming smooth and dark green; yellow fall color.

### Flowers/Fruits

Flower Type - Erect racemes, at the tips of branches.

Flower Color - White.

Fruit Type - Berry-like pomes, with 4 to 10 small seeds.

Fruit Color - Purplish to black, with a leathery coat.

### Form

Growth Habit - Upright.

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

Crown Height - 6 to 15 feet.

Crown Width - 5 to 12 feet.

Bark Color - Light brown to gray on older stems.

Root System - Shallow.

## Environmental Requirements

### Soils

Soil Texture - Prefers loam to sandy loam soil high in organic matter.

Soil pH - 5.5 to 7.5.

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

### Cold Hardiness

USDA Zone 2.

### Water

Needs adequate moisture to bear fruit. Limited drought tolerance, does not withstand ponding.

### Light

Full sun to partial shade.

## Uses

### Conservation/Windbreaks

Large shrub for farmstead windbreaks, and riparian plantings.

### Wildlife

High quality plant for wildlife cover and food. Stems, twigs, and leaves are browsed by deer and fruits are eaten by a variety of birds.

### Agroforestry Products

Wood - Used as arrow shafts by Native Americans.

Food - Nutritious fruit used fresh, frozen or processed.

Medicinal - Crude extract used in cancer research.

### Urban/Recreational

Good for naturalizing, screen plantings and landscape borders.

## Cultivated Varieties

Superior quality, larger fruiting cultivars include:

Honeywood Juneberry (*Amelanchier alnifolia* 'Honeywood')

Northline Juneberry (*A. alnifolia* 'Northline')

Pembina Juneberry (*A. alnifolia* 'Pembina')

Smokey Juneberry (*A. alnifolia* 'Smokey')

Success Juneberry (*A. alnifolia* 'Success')

## Related Species

Alleghany Serviceberry (*Amelanchier laevis*) - Taller growing species with potential windbreak and landscape value for the Northern Plains.

## Pests

Intermittent flower or fruit loss may be caused by insects or late frosts.



## SASKATOON

*Amelanchier alnifolia* (Nutt.)

Nutt. ex Roemer

Plant Symbol = AMAL2

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### Alternate common names

Saskatoon service-berry, service-berry, juneberry, shadbush

### Uses

Saskatoon is planted as an ornamental and to produce commercial fruit crops. Many cultivars are commercially available, selected for desirable plant and/or fruit characteristics. Much research and literature details the development of cultivars and cultivation techniques.

The fruits are used in pies, jams, and fruit rolls and for making jelly and syrup. Saskatoon wine is a regional specialty. Native Americans ate the berries fresh and dried, often mixed with other foods for sweetening and flavor. Dried and rehydrated berries were added to dried vegetables and cooked into soups and puddings.

Native Americans boiled branches to make a tea for treating colds. A drink was made from the bark for

stomach problems. Bark and twigs provided a medicine for recovery after childbirth. In

combination with other plants, it was used to make a contraceptive. The strong and straight-grained wood was used to make arrows, digging sticks, spear shafts, tool handles, and seed beaters. Young branches were twisted into a type of rope.

Saskatoon is attractive as an ornamental shrub or may be trimmed as a hedge. It is an important species for reclamation, wildlife, watershed, and shelterbelt plantings. It can be started from seed or vegetative cuttings.

### 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:* Rose Family (Rosaceae). Native shrubs or small trees growing to 7 meters high, variable in growth form, forming thickets, mats, or clumps, the underground portions including a massive root crown, horizontal and vertical rhizomes, and an extensive root system; bark: thin, light brown and tinged with red, smooth or shallowly fissured. Leaves are deciduous, simple, alternate, ovate to nearly round, 2.5-3 cm long, with lateral, parallel veins in 8-13 pairs, the margins coarsely serrate or dentate to below middle or sometimes entire or with only a few small teeth at the top. Flowers are in short, dense, 5-15-flowered, upright racemes, the petals white, 1-2 cm long and strap-like, sepals more or less long-hairy on the inside, reflexing in age, stamens about 20, styles 5, ovary persistently tomentose at the top. Fruit are 6-11 mm long, smooth, purple-black, slightly gray-blue waxy, the pulp fleshy and sweet; seeds 4-10. The common name refers to the city in Saskatchewan, Canada, in the heart of the species' range.

*Variation within the species:* Considerable variation is recognized. Var. *alnifolia* occurs over the whole range of the species, except for California, where only var. *semiintegrifolia* is found. Other varieties include the following: var. *cusickii* (Fern.) C.L. Hitchc. and var. *humptulipensis* (G.N. Jones) C.L. Hitchc.

### Distribution

Saskatoon is distributed along the Pacific coast from Alaska to California, eastward to Utah, Colorado, Iowa, and Minnesota, and Ontario and Quebec, north through the plains and prairies into the Northwest Territories (Keewatin and Mackenzie) of Canada. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

### Adaptation

Saskatoon is common in lower-elevation coniferous forests but grows sporadically up to timberline. It also occurs in montane chaparral, mountain shrub, and the upper limits of pinyon-juniper communities. In grasslands, it mostly occurs in wooded draws, woodland interfaces, and riparian zones. It occurs in open to lightly shaded disturbed sites such as thickets, fencerows, clearings, and edges of woods, and it is conspicuous after disturbances such as fire, logging, or insect outbreak. Found at elevations of 50-3000 meters; flowering April-June; and fruiting (June-)July-August.

### Establishment

Saskatoon reproduces from seed but more commonly by sprouting from the root crown and rhizomes and by layering. Seedlings can take up to 5 years before they start to produce fruit, but other starts may begin at 2-4 years old and with proper management can yield 8-10 tons of fruit per hectare. Flowers are produced almost every year, but good seed crops may be produced only every 3-5 years because of drought, spring frost, and/or juniper rust. Seeds require cold stratification to break dormancy and may remain viable for 10 or more years. Natural dispersal is by birds and mammals. One individual of saskatoon is known to have reached 85 years but the average age apparently may be closer to 20 years.

### Management

Saskatoon in forests is fire-dependent, occurring in forests with fire regimes varying from frequent, low-severity fire (low-elevation forests) to infrequent, severe fire. It may persist in the understory for decades but eventually dies out with fire exclusion and canopy closure. After top-kill by light- to moderate-severity fire, saskatoon sprouts usually arise from the root crown or from shallowly buried rhizomes; sprouts arise from deeply buried rhizomes after even the most intense fire. Saskatoon cover and biomass production in western Montana may generally increase after fires in Douglas-fir/ninebark habitats, but browsing pressure from big game may slow the recovery. Seed production may resume soon after fire.

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

Saskatoon has been artificially crossed with other species of serviceberry, and similar hybridization and intergradation also occurs in the field, particularly between saskatoon and low serviceberry (*Amelanchier humilis* Wieg.). Cultivars sold as *Amelanchier alnifolia* may actually be hybrids between *A. alnifolia* and other species of *Amelanchier*. *Amelasorbus jackii* is a hybrid of saskatoon and Cascade Mountain-ash (*Sorbus scopulina*).

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