



Juneberry

For Commercial and Home Use on the Northern Great Plains

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The **Juneberry or saskatoon** is a native fruitbearing shrub of the Northern Great Plains with its range extending northward through the Canadian prairie provinces into the southern Yukon and Northwest Territories. This extremely adaptable plant will grow under a wide range of climatic conditions.

Referred to as a berry, the saskatoon (*Amelanchier alnifolia* Nutt.) is actually a pome fruit. Other names given to the fruit include: serviceberry, mountain juneberry, western shadbush, and Rocky Mountain blueberry. The Juneberry is one of over 25 species of *Amelanchier* found in North America. Three plant forms are native in North Dakota, but separation is difficult.

The bush or small tree grows to a height of 18 feet (5.5 meters) at ideal sites and bears masses of white flowers in early spring. The fruit is borne in clusters of six to 12 and mature to a purple, red or almost black color. Some ornamental cultivars have cream colored fruit. Fruit size of wild Juneberries ranges from 1/4 to 3/8 (0.64-0.97

cm) inch in diameter with some cultivated varieties having fruit sizes up to 5/8 inch (1.6 cm).

Eaten fresh, the fruits are tasty and may also be used for wine, home canning, fresh frozen, in pies, jams and fruit rolls. Juneberries are attractive as an ornamental shrub or may be trimmed as a hedge. There is growing interest in the Juneberry as a commercial fruit crop for the fresh fruit market, commercial processing and freezing industries. Several *Amelanchier* species are used for game range restoration and wildlife plantings, windbreak plantings, and low maintenance or native plant landscaping.

Planting and Production

Juneberries will grow in all types of soil, except poorly drained heavy clay soils lacking in humus, and several named cultivars are available from prairie nurseries. Selections may also be successfully transplanted from the wild, if the shrub is pruned to near ground level after transplanting.

Land capable of producing a good commercial strawberry crop will be ideal for this fruit. Research has shown that sandy loam soils ccess than clay loam soils, which is consistent with the natural habitat of this plant.

Northeast slopes for planting are less subject to spring frosts, as Juneberries bloom from late April to early May. Vigorous plants about 12 to 24 inches (31-62 cm) tall are

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ideal for transplanting. Transplant the young bushes into the field when they have developed strong roots and tops, trying not to destroy the fibrous roots. Set the plants 2 to 3 inches (5-8 cm) deeper than they were grown in the propagation bed. Firm the soil around the roots and prune off about a third of the top growth. For commercial plantings, Juneberries are spaced 12-15 feet (3.7-4.6m) apart, on 3 to 6 feet (0.91-1.8m) centers, depending on cultural and yield goals. The encouragement of suckering is a desirable goal for maximum yields.

After two to four years of establishment, Juneberries will come into bearing. The fruits possess the characteristic of ripening all at once approximately 38 days after petal drop. High yields per plant are 10 pounds (4.5 kg); some years, no fruit production is realized due to spring frosts at time of flowering.

Propagation

Juneberries are propagated from suckers, by crown division, root cuttings or seed. Plants produced from seed are most economical, but up to 30 percent of bushes grown from seed differ from the parent in size and fruiting characteristics. Seedlings grow slowly and require two to four years to reach transplantable size. It is difficult to propagate Juneberries from hardwood cuttings, and softwood cuttings give only fair results. Root cuttings and suckers root readily but are difficult to obtain in sufficient quantity and their removal frequently damages the parent plant. Tissue culture techniques may assist in making superior cultivars available in the United States. These propagation methods produce own-rooted plants, which are the most desirable in commercial production of high yielding acreages. Seed propagation should be undertaken in late summer by simply sowing outdoors for about 25 percent germination next spring.

ROOT CUTTINGS – Pieces of root about the diameter and length of a pencil make the best root cuttings. Rootpieces taken in the fall should be cut and stored at 39°F (4°C) for two months. This will satisfy their dormancy requirement prior to warm treatment. Root cuttings may also be taken in the early spring when the plants are still dormant. Pretreatment of root cuttings in poly bags filled with moist peat moss and stored in the dark for three weeks at 70°F (21°C) promotes sprouting. Shoots are evident on the rootpieces in two to 4 weeks; then place them in a seeding flat and cover with light non-soil media in a greenhouse. The shoots should be allowed to grow for two weeks and then removed and rooted in a mist bed. Keep rootpieces moist and shaded from bright sunlight until additional new shoots are well developed.

ROOT SPROUTS OR SUCKERS – Remove sprouts in early spring when plants are dormant taking care to protect the fine roots. Prune the tops back to about two inches

(5 cm) above the roots. Plant the pruned sprouts in shaded rows and keep them moist until they develop strong tops.

DIVISION OF CROWNS – Division of plant crowns has been used for rapid stock increases from established plants. Plants five years or older will provide between 10 and 25 transplant divisions. Commercial application of this procedure is dependent upon an available supply of vigorous stock plants. Transplant divisions into sandy soil which will enhance the development of well rooted side shoots.

Cultivation

Shallow cultivation and hand weeding are required for weed control. Herbicides are registered for preplant and fall weed control in windbreaks. However, there are no chemical registrations available for Juneberries grown for fruit production. Deep cultivation can damage roots and encourages suckers to develop. Where the crop is grown under irrigation, grass may be seeded and maintained between rows.

Pruning

Juneberries require regular pruning to maintain healthy plantings and optimum fruit production. Flowers and fruit develop on previous years' growth and older wood. Vigorous new growth results in the highest production of quality fruit. Weak, diseased and low spreading branches should be removed annually. For commercial fruit production plant height should be maintained at 6 to 9 feet (1.8 and 2.7 m) and center branches (canes) should be thinned. Prune plants before growth begins in the spring to develop young vigorous branches.

Irrigation

Juneberries grown as yard plantings by homeowners require little if any irrigation. Irrigation in commercial plantings increases the success of establishing young suckers, but once established, irrigation is usually not necessary. One or two annual irrigations will be beneficial in drier regions. Trickle irrigation is most efficient and economical because of the wide row spacings. Once installed it can stay in place should supplemental irrigation be needed during dry periods.

Harvesting

The fruit is usually hand picked or sold "you-pick." Mechanical harvesters or vibrator-shakers efficiently harvest Juneberries causing less than 5 percent fruit bruising. Commercial blueberry harvesters have been adapted in Canada for use on large acreages of this crop.

Cultivars

- ATLAGLOW** A white fruited cultivar that is readily pollinated by blue-fruited Juneberries. A very attractive ornamental, not grown for commercial fruit production.
- FORESTBURG** This is a large-fruited cultivar. Quality is satisfactory but not as good as 'Smokey' or 'Pembina' and the fruit matures slightly later.
- NORTHLINE** Similar to 'Pembina'. High yielder.
- PALEFACE** Fruit is large, snow white and mild in flavor. The fruit is worthless for commercial purposes since the fruits turn brown from bruising a few minutes after picking rendering the product unsightly.
- PEMBINA** Large fleshy fruit, slightly oval, full flavored and sweet, grows in long clusters. Very productive. Upright, slightly spreading, vigorous.
- SMOKEY** Large, fleshy fruit, round, unusually sweet, mild-flavored fruit produced in medium sized clusters. Very productive.
- SUCCESS** Cultivar has performed well at Morden, Manitoba, and has shown fairly consistent cropping pattern. This cultivar is high yielding but its fruit is slow to ripen, has a rather bland taste and is tenaciously held to the flower pedicel.
- OTHERS** Additional varieties currently under evaluation in Canada and North Dakota include: REGENT (lacks full flavor, low yielding), HONEYWOOD (1970, shows less leaf spot, flowers early, large fruit and berry clusters), THIESSEN, STURGEON, PARK-HILL (lacks full flavor, low yielding), MOONLAKE, BEAVERLODGE 7-41, REVELSTROKE (1930 AHRC, Brooks, Alberta), WHITE SASKATOON (1932, AHRC, Brooks, Alberta) and TIMMS (1972, P.M.C., Bismarck, N D). Older varieties: ALPINA (Dwarf variety from Colorado), GARDENER, WILLIAMS and GREEN were named and released in the U.S. at the turn of the century.

Diseases

Juneberries are subject to a number of diseases, few of which are of significance to the homeowner. Commercial Juneberry production requires careful disease monitoring and prevention measures. Diseases are more prevalent in areas of higher rainfall than in dryer regions. Control recommendations emphasize cultural methods such as pruning since no chemicals presently are registered for Juneberries. Pruning tools should be disinfected after each cut in order to prevent infection of healthy tissue. A good disinfectant solution for pruning tools is Lysol at 3/4 cups/gallon (50 ml/l) or household bleach at 1½ cups/gallon (100 ml/l) of water.

MUMMYBERRY – (American Brown Rot – *Monilina amelancheris*). To minimize losses from this disease, remove and destroy all mummified berries, fallen berries, leaves, infected twigs and pedicels.

JUNIPER RUST – (Cedar-Apple Rust--*Gymnosporangium juniperi-virginianae* and other *Gymnosporangium* species). Spores are windborne to junipers, the alternate host, where woody galls are formed on the branches. Removal of all junipers up to a distance of 1/2 mile reduces disease incidence to a tolerable level.

APIOSPORIA WITCHES' BROOM – (Black leaf – *Apiosporina collinsii*). To control blackleaf, rogue and destroy infected seedlings, cuttings and root sprouts. On established bushes prune all twigs, shoots and branches exhibiting symptoms of witches broom about 8 inches below the site of brooming. This may be done in early spring, prior to bud break, but is more easily done in fall immediately following leafdrop, since infected leaves tend to persist. Plants with infected root crowns must be rogued and destroyed.

FIREBRIGHT – (A Bacterium – *Erwinia amylovora*). The affected leaves usually remain on the bush well into winter. Fruits on infected shoots become leathery and turn brown, dark brown or black. The shrivelled fruit usually remains attached to the bush. Pruning of diseased twigs and branches is the only effective method of control. During the dormant season (late fall to early spring) prune out and destroy all diseased branches, being sure to cut significantly below the diseased area.

During the growing season prune and burn all infected twigs or branches in the same manner cutting below the infected area. Make regular inspections during the summer to detect and remove new infections. Juneberries that are severely infected with large cankers in the trunk should be removed and burned immediately.

Insects

No insecticides are currently registered in the United States for use in Juneberry fruit production. Some common insects are:

APPLE CURCULIO – (*Tachypterellus quadriggibus*), **COLEOPTER-
OUS LARVAE, FRUIT MAGGOTS** – (*Rhagoletis* sp.)

Bird Damage

Bird damage can be a serious problem in growing Juneberries. Some researchers report that this is a grave obstacle as many birds in the region will help harvest the fruit. Screens and netting may be used and will effectively protect covered fruit. Noise guns, radio and bird distress signals are noted as deterrents to fruit predators. A bird management program should be planned before a Juneberry acreage comes into production.

Nutrition and Use

Juneberry fruit has been analyzed for nutritional content. Fruits have been found to be higher in levels of protein, fat, fiber, calcium, magnesium, manganese, barium, and aluminum when compared with blueberries or strawberries. Juneberries are also a source of manganese, magnesium, and iron for the human diet.

In food products such as jams, pie fillings, and fruit leathers which incorporate the entire Juneberry fruit, the seeds within the berry are part of the finished product. Research in Alberta suggests that from a processing point of view, cultivars such as 'Moonlake' and 'Northline' should be selected for these products as their seed size and weight are significantly lower than other cultivars. Commercial Juneberry growers should keep this in mind when selecting cultivars for production and sale to the processing market.

Economics

The major problems confronting the development of a Juneberry industry are: difficulties in obtaining plants on a significantly large scale; the length of time from planting to production; lack of sufficient data on management, especially weed control; fertilization and irrigation; labor; and opportunities for marketing and processing of this native fruit crop.

The Alberta Horticultural Research Center estimates that it will take eight to 12 years to turn a profit in a commercial operation. This is a longterm commitment. A private grower estimated that a 40-acre planting is needed to make an economic operation. Detailed enterprise budgets for annual cultural practices, yield goals, harvesting and marketing must be developed before planting a Juneberry orchard.

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