

crops listed in many catalogs

BUT ARE NOT READY FOR COMMERCIAL PRODUCTION

CORNELIAN CHERRY DOGWOOD

Cornelian cherry is not a true cherry, but a slow growing, globe-shaped, ornamental species of dogwood (*Cornus mas*). The fruit is yellow to red and oblong, similar to both the fruit of the flowering dogwood of Eastern North America and the tiny bunchberry plant in the northern forests. Cornelian cherries are the only dogwood species grown for fruit. Most Cornelian cherries are hardy through USDA Zone 4, and the tree does appear to be suitable for the southern third of Minnesota, with experimental plantings further north.

Cornelian cherries were primarily grown for their fruit in Eastern Europe from Austria to Turkey. Attempts to develop a market for the fruit in North America have largely stuttered. Cornelian cherries have two traits that make the trees difficult to grow profitably. The first is that there are few varieties available in the U.S. that were selected for fruit quality. The second is that the trees grow very slowly, and a grower may have to wait a decade for the first crop. Many Cornelian cherry trees on the market are seedlings and therefore have variable fruit quality and tree hardiness.

Cornelian cherries work perfectly in edible landscaping. The trees have a great form, along with tiny fragrant blossoms that open early in the spring. The fruits are even easy to harvest. Most people put a tarp under the tree when the fruit is ripe, shake the tree and then gather the fruit off the ground to be used in jellies, juice and wine.

Note from Thaddeus:

I once visited the farm of a woman who had planted several of what she thought were true cherry trees but were, in fact, Cornelian cherry trees. After pointing out to the disappointed woman that the slow growing trees in her yard were a species of dogwood, I began referring to the plant as "Cornelian cherry dogwood."

MULBERRIES

Mulberries are rarely grown for their fruit on this continent, largely because the primary species is the white or common mulberry (*Morus alba*), a species typically grown for its leaves as food for silkworms instead of for fruit. The name white mulberry refers to wood color rather than fruit color. Mulberries are small fruit that grow on large trees, making harvest both difficult and uneconomical. Mulberries are a sweet, low-acid fruit, lacking the “zing” of our most popular fruit. In spite of these problems, mulberries have a place in the edible landscape and home garden. With their sweet taste, mulberries are a perfect fruit for small children, and they ripen in June, when little other fruit is available. Mulberries are very attractive to numerous bird species.

White mulberries are common in the southern third of Minnesota, where they grow as weeds in shelterbelts. They will grow as far north as Brainerd and Fargo, but the trees are noticeably weaker than further south. Fruit color varies from a light lavender to black, and the flowers are small and hard to see. Almost all mulberry seedlings produce edible fruit, but the fruit is very small, sometimes little over a half inch long and quarter inch in diameter, and prohibitively expensive to harvest. There are a number of large fruited cultivars listed in various garden catalogs, but those cultivars have not been tested in Minnesota.

EDIBLE MOUNTAIN ASH AND SHIPOVA

The group we call mountain ashes are trees and shrubs belonging to the genus *Sorbus*, which is related to apples and pears. The most common mountain ashes planted in the U.S. produce orange, mealy berries that nonetheless are great for attracting birds. Several varieties and species have been selected for fruit, including *S. aria* or whitebeam, and the ‘Rabinia’ cultivar of *S. aucuparia*; however the fruit has mainly been a novelty. Edible mountain ashes have variable fruit quality but work well in edible landscaping.

The Shipova is a cross between the whitebeam (*Sorbus aria*) and a European pear cultivar, making it one of the few commercially available fruit varieties that is a cross between species of different genera. The fruit is about two inches in diameter, and forms in small clusters. The fruit lacks seeds, and the flowers do not need to be pollinated to set fruit. Like a pear, shipova ripens into a soft, sweet fruit, and it is resistant to most diseases. Shipova is rated to at least Zone 4, so it is worth trying in the southern third of Minnesota as an alternative to pears.

PAWPAW

The pawpaw is a fruit native to eastern North America, south and east of Minnesota. In the deciduous forests it is generally an understory shrub. The fruit belongs to the Annonaceae family that primarily grows in the tropics. The fruit is oblong, with large seeds embedded in sweet flesh, with a unique tropical flavor similar to cherimoya. The natural range of the pawpaw extends from southeast Wisconsin to Florida. Over the years, it was called “Michigan banana” or “Hoosier banana”, but

the pawpaw is not related at all to bananas. It is only distantly related to its namesake, the tropical papaya, which in some countries is called pawpaw.

Pawpaws were eaten and treasured by Native Americans and European settlers, but the species remained marginally domesticated until the second half of the 20th century. Like most wild species, fruit quality in wild pawpaws varied tremendously. Some plants produced exceptional

fruit while others were marginally edible.

At the end of the 20th century, there was a big push in states like Kentucky to develop commercial pawpaw production, primarily by selecting wild plants with good fruit quality and planting seeds from those plants. Asexual propagation is difficult with pawpaw, and all of the available varieties come from seeds. As a result, there are an increasing number of varieties with good fruit quality that are rated to be hardy to Zone 4 and should grow in southeastern Minnesota or in the urban heat island

of the Minneapolis/St. Paul metropolitan area. If testing pawpaws, look for varieties that come from wild plants at the northern end of their natural range such as 'Campbell' (Ontario), 'Pennsylvania Golden', or 'Davis' (Michigan).

Minnesota lacks the climate for large scale commercial pawpaw production, with the short growing season as much of a limiting factor as the cold winters. Brave growers who want an unusual landscape plant that produces unusual but delicious fruit may want to try pawpaws.

BUFFALO BERRIES

Buffalo berries (*Shepherdia argentea*) are native to the western Great Plains, including western North Dakota; and can survive drought, alkaline soils, and harsh climates. Like the closely related Russian olive, autumn olive, and seaberry, buffalo berry plants can fix nitrogen. The plant is a woody shrub that grows as tall as 12 feet with silver leaves. Buffalo berry plants produce small red or orange berries that have long been eaten by Native Americans or made into jellies by white settlers. Recently, scientists have discovered that buffalo berries are extremely high in lycopene, the same compound that gives tomatoes both red color and health benefits. As a result, buffalo berries are being touted as a new "super fruit."

Like most wild species of fruit, buffalo berries exhibit variation in fruit quality and most plants produce berries not suitable for the modern palate. In spite of receiving favorable reviews in the national press, buffalo berries are not ready for commercial production due to a combination of low yields and extraordinarily difficult picking. They are suitable for edible landscaping, and the silver leaves will stand out in a yard.

Southern Minnesotans interested in a high lycopene fruit may be better served by the autumn olive.

AUTUMN OLIVE AND GOUMI

Autumn olives (*Elaeagnus umbellata*) are small trees that produce bright red, edible stone fruit. Autumn olives are closely related to Russian olives (*E. angustifolia*), a tree with silver leaves native to semi-arid regions of Eurasia that has become invasive in the Intermountain West. In Minnesota, Russian olives have been planted as a landscape tree in some areas, but are not as invasive in Minnesota due to competition from other trees and higher disease pressure in our climate. Russian olives have small inconspicuous yellow flowers that produce an intense aroma that many people find pleasant while others find the aroma overwhelming. Autumn olives produce larger, white flowers that have both ornamental value and a pleasant aroma that is

not as strong as Russian olive. Russian olives have edible, dry, and unappetizing fruit. Autumn olives are juicy, with a nice red color and a good sugar/acid balance. The guomi, gumi, or cherry silverberry (*E. multiflora*) produces fruit similar to autumn olives, but on a shrub rather than a small tree, and the fruit has longer stems. The autumn olive is rated as being hardy to Zone 3, while the gumi is rated to Zone 4.

In 2000, autumn olives were found to have a high concentration of lycopene, a red pigment most commonly found in tomatoes. Lycopene is a carotenoid and has entirely different health benefits than the anthocyanins that are found in most types

or blue fruit. Lycopenes help prevent some cancers⁵³ and may help prevent heart disease. Autumn olives contain five times more lycopene than fresh tomatoes, making them an alternative source of lycopene for those who are allergic to tomatoes.

There are ten registered cultivars of autumn olive, including two that have yellow or golden berries. The cultivar 'Cardinal' is grown in Japan for its fruit, and is rated as a Zone 4 plant. Cultivars rated to Zone 3 include 'Garnet', 'Red Autumn' and 'Ruby'. The goumi cultivars 'Red Gem' and 'Sweet Scarlet' were selected in Russia and Ukraine and are rated for Zone 4.

In spite of claims that autumn olive is exceptionally hardy, it does not do well in northern Minnesota. By

contrast, autumn olives appear to thrive in southern and southwestern Minnesota. There is a feral grove of autumn olive at Hole in the Mountain County Park near the town of Lake Benson in Southwest Minnesota (Figure 48). The fruit on these feral trees are about the size of peas, with yields too low for commercial production. Like most seedlings, the taste of the fruit is variable, ranging from astringent to quite good. Autumn olives show a good potential for edible landscaping. The flowers have a more universally appealing smell than Russian olive and the fruit is juicy and sweet. Both autumn olive and goumi have green leaves with a silver tint that work well in landscapes. Goumi may not be hardy enough for most parts of Minnesota.



Figure 48. Wild autumn olive at Hole in the Mountain County Park, Lake Benson Minnesota.

⁵³ Giovannucci, E. 1999. Tomatoes, Tomato-Based Products, Lycopene, and Cancer: Review of the Epidemiologic Literature. *JNCI: Journal of the National Cancer Institute*. 91(4):317–331. <https://doi.org/10.1093/jnci/91.4.317>

COMMON BARBERRY AND MAHONIA

The common barberry (*Berberis vulgaris*) is perhaps the most unknown of all the emerging fruits.

Barberries are small, thorny shrubs that produce pretty yellow flowers and red, edible fruit. In Europe, barberry was grown both for fruit and medicine, and was so popular that European settlers brought seeds to North America in the 1600s. By the end of the 19th century, white settlers in Minnesota were growing barberries on their homesteads.

Common barberries are the alternate host for wheat stem rust. Wheat growers noticed the correlation between barberries and crop failures centuries before the fungus was identified. Farmers in New England had pushed legislation to ban barberries as early as the 18th century. After major rust outbreaks in 1915 and 16, Minnesota joined several other states in eradicating barberries. Eradication efforts continued until 1980. The barberry commonly seen in yards and garden centers in Minnesota is the Japanese barberry (*B. thunbergii*), but its fruit are not edible. The Japanese barberry is not a host for wheat rust and has never been outlawed.

The state of Minnesota forbids the common barberry (*B. vulgaris*) from being "transported, propagated or sold." Wheat rust can survive without barberries,

but the fungus needs to grow in barberries in order to complete its sexual lifecycle. Current control strategies for wheat rust work best when the fungus cannot go through its sexual stage⁵⁴.

Barberries contain a series of medicinal compounds that have been used for centuries. Those who wish to grow barberries for their health benefits may want to try a close relative, *Mahonia repens* or *Mahonia aquifolium*, which are called by a number of names, including Oregon grape, grape holly, and creeping Mahonia. All *Mahonia* species produce blue berries in small clusters, but have evergreen leaves similar to holly. There are several species of *Mahonia* native to the western U.S. Creeping Mahonia (*M. repens*) is more of a groundcover, rarely growing taller than a foot, and grows in Zone 3 areas of Montana. Some cultivars of *M. aquifolium*, or the upright Oregon grape, are hardy to Zone 4. *M. aquifolium* is a small shrub that grows up to five feet tall in Zone 4 areas of northern Idaho and is frequently planted as a hardy alternative to holly trees. Both *Mahonia* species produce fragrant yellow flowers that closely resemble barberry flowers. *Mahonia* berries of both species are sour and pungent, and easier to pick than barberries. Most of the medicinal compounds in barberry are also present in *Mahonia*.

Note from Thaddeus:

According to some sources, creeping Mahonia is found in parts of Minnesota, but I have yet to find it in our forests. Because mahonia have evergreen leaves that resemble holly leaves, some people think they are related to holly trees. Mahonia are so closely related to barberries that many taxonomists have put Mahonia into the same genus as barberries. In some guidebooks, M. repens is called "creeping barberry." I have never heard that name in spoken conversation.

⁵⁴ Minnesota Department of Agriculture. Prohibited – Control Noxious Weed Common Barberry – *Berberis vulgaris* L. <http://www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist/commonbarberry.aspx>