

Unusual Fruit Plants for Gardens in the North Central Region



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Fruit crops such as apples, cherries, pears, peaches, raspberries and strawberries are common sights in gardens in the Midwest. Several less well known plants also produce edible fruit, and many are attractive to wildlife and have ornamental value. This bulletin provides brief descriptions of the qualities and cultural requirements of several minor fruit plants that are adapted to many areas in the North Central region.

Currants and Gooseberries — *Ribes* spp.

Black currants (*Ribes nigrum*, *R. ussuriense*) and red currants (*R. rubrum*) are the main cultivated currant species (Figures 1 and 2). White-fruited currants may be a separate species (*R. sativum*) or an albino form of the red currant. European gooseberries (*R. uva-crispa* = *R. grossularia*) and American gooseberries (*R. hirtellum*, *R. oxycanthoides*) have spines and large, globe-shaped fruits. Many cultivated gooseberries are crosses of the European and American species. Jostaberries (*R. x nidigrolaria* Bauer) are crosses of black currant and gooseberries.

Many *Ribes* serve as alternate hosts for the fungus *Cronartium ribicola*, which causes white pine blister rust (WPBR), a serious disease of white pine, an important forest and landscape tree. Many states have restricted the cultivation of some types of *Ribes*, so check with local authorities before purchasing plants. The cultivation of *R. nigrum* is prohibited in Michigan, but a special permit may be



Figure 1. Black currant mature fruit.

(Photo courtesy of E. Hanson)



Figure 2. Red currant plant and fruit.

(Photo courtesy of E. Hanson)

granted to grow WPBR-resistant black currant cultivars. In addition, a permit is needed to grow red and white currants and gooseberries within the WPBR control area (most northern counties and several southwestern counties, Figure 3). Again, a permit may be granted to grow WPBR-resistant red and white currants and gooseberries in the control areas. No permit is required to cultivate red and white currants and gooseberries outside of the WPBR con-



Figure 3. WPBR control area.

trol areas. Contact the Michigan Department of Agriculture for permits and more details.

Cultivars

Black currants

'Consort' - (*R. ussuriense*) - A WPBR-resistant, productive European type. Midsized fruit. Grows to 4 to 5 feet.

'Crandall' - (*R. odoratum*) - Actually a gold currant (section *Symphocalyx*), but it produces black fruit with a pleasant, sweet flavor. Late-season. Resistant to WPBR, powdery mildew (*Sphaerotheca mors-uvae*) and leaf spot (*Drepanopeziza ribis*).

'Titania' - (*R. nigrum*) - WPBR-immune, high-yielding type. Bred in Sweden. Resistant to powdery mildew.

Red currants

'Red Lake' - An excellent late-season red currant. Plants are vigorous, well branched and very productive. Tolerates some dryness. Resistant to powdery mildew and *Armillaria* root rot.

'Cherry Red' - Produces short, loose clusters. Very large, bright dark red, acidic berries. Vigorous, upright, productive plants. Mildew-resistant.

White currants

'White Grape' - A heavy-yielding, late-season white currant. Midsized fruit. Resistant to mildew and leaf spot, slightly susceptible to gray mold. Recommended for commercial and U-pick.

'White Versailles' - A white currant selection from France. Midseason with large fruit and a moderate yield. Resists leaf spot but is slightly susceptible to gray mold and mildew. Recommended for U-pick.

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Gooseberries and jostaberries

'Poorman' (Figure 4) - Vigorous and productive, not as thorny as some others. Fruits are small and pink and mature earlier than those of 'Downing'. Eating quality is excellent when fruit is fully ripe. Good choice for home use.

'Pixwell' - Hardy and productive, rapidly becoming the most popular cultivar. Fruits are medium in size and pink. Canes are moderately thorny.

'Jahn's Prairie' - A selection of *R. oxyacanthoides*, which is native to the northern prairies of the United States and Canada. Good resistance to powdery mildew, leaf spot, WPBR, aphids and sawflies. Fruits are dark red with excellent fresh eating quality.

'Invicta' - Perhaps the best green-fruited variety. The berries have a good flavor and are the size of small plums. Resists mildew and frost.

'Josta' - A black currant and American gooseberry hybrid. Plants are tall and thornless, tending not to branch but requiring a lot of space by maturity. Better for home than commercial use. Resistant to gray mold, mildew and WPBR.



Figure 4. 'Poorman' gooseberries.

(Photo courtesy of E. Hanson)

Site and cultural requirements

Most *Ribes* selections are hardy to USDA hardiness zones 4 to 6 (Figure 5). Currants grow best with cool summer weather and rich, moist, well drained soil. Plants tolerate a wide range of soil pH and some shade. Currants have erect, thornless stems and form compact, oval bushes that reach 3 to 5 feet in height at maturity. In general, red and white currants are self-compatible (don't require two types for pollination), and black currants and gooseberries are not. Though the degree of self-compatibility may be influenced by climate, it is recommended to plant at least two cultivars of the same species to ensure optimum fruit set.

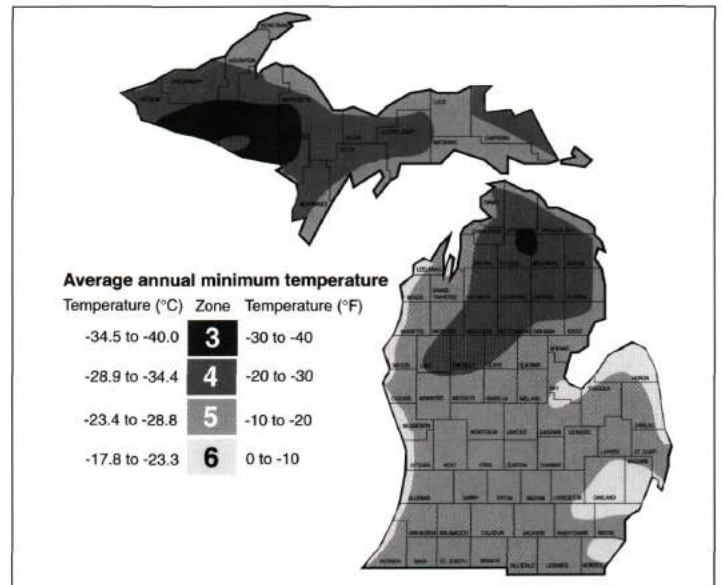


Figure 5. USDA plant hardiness zones in Michigan.

(Adapted from Agricultural Research Service, USDA)

Pests and diseases

Stem borers, currant worms and aphids can be troublesome. The four-lined plant bug can cause round, brown, sunken spots on the foliage that are sometimes mistaken for a disease. Several types of scales also infest *Ribes*.

WPBR can be a serious disease of black currants when white pines are nearby. The disease can cause early leaf drop on currants but can be lethal to white pine. Spores from the fungus infect susceptible *Ribes* leaves in the early summer. In the summer and fall, orange uredia appear on the undersides of these leaves. In the late fall, brown-black spore-producing regions appear around the edges of the orange ones. Spores from the dark region are dispersed by the wind and infect white pines.

Cluster cup rust (*Puccinia caricina*) is another disease of *Ribes* species. The rust alternates between sedges and *Ribes*. Look for yellow spores on the upper and lower surfaces of gooseberry and currant leaves and fruits (usually in May). Anthracnose (*Pseudopeziza ribis*) can cause spots on the lower leaves, followed by abscission. Powdery mildew is common, but it can be managed by pruning for good air circulation and using resistant cultivars. Black currants are susceptible to reversion virus, but a quarantine has prevented the introduction of the virus into this country. Currants are also susceptible to *Armillaria* and *Phytophthora* root rots.

Home uses

Currants are excellent in jellies, pies and sauces; they are particularly good when mixed with bland fruits. The fruits



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are also used to make wines, and the cultivar 'Noir de Borgogne' is used to produce Cassis, a French liqueur. White currants are recommended for all culinary uses as well as fresh eating. Fruits have ornamental value (particularly red currants) and are attractive to birds. Expect 1 to 4 pounds of fruit per bush, depending on the cultivar and cultural conditions.

Elderberry - *Sambucus canadensis*

Elderberries are fast-growing, spreading shrubs with multiple, pendulous branches (Figure 6). The common elder (*Sambucus canadensis*), the usual cultivated species, is native to much of the Midwest. Height reaches 5 to 12 feet. Fruits are produced in large (4 to 10 inches wide), flat clusters and are purple-black and about 1/4 inch in diameter (Figure 7). They mature in August or September. Some authorities report that people seldom consume the fresh mature fruit; drying or processing is said to increase palatability. Others report that the mature fruits are readily edible. The immature red fruits of all elderberry species should be avoided. Hydrocyanic acid and sambucine are active alkaloids in elderberries that render the immature red fruits toxic.



Figure 6. Common elder in full bloom.

(Photo courtesy of S. Berkheimer)

Best fruit set is achieved by planting several types. The wood of wild elderberries is notably "pithy" and weak. Other elderberry species that can be found in the wild or in the nursery trade in the United States are the blue elder (*S. nigra* ssp. *canadensis* = *S. caerulea*), European elder (*S. nigra*), scarlet elder (*S. pubens*) and red elder (*S. racemosa*). Future taxonomic changes are likely for this genus.



Figure 7. Elderberry fruit clusters.

(Photo courtesy of S. Berkheimer)

Cultivars

'Adams' - There are two 'Adams' selections: 'Adams #2' is later and heavier yielding than 'Adams #1'. Both have large clusters of numerous fruits. Ideal for pies, jams and wine. Grows 8 to 10 feet tall and 8 to 12 feet wide with profuse suckering and spreading. Released by the New York Agricultural Experiment Station at Geneva (1926).

'Aurea' - Wide, golden leaves, cherry-red fruit. Vigorous, handsome bush reaching 8 to 10 feet tall.

'Johns' - Excellent vigor, earlier ripening with larger flower clusters and fruits than the 'Adams' selections. Produces about the same as 'Adams #1' (much less than 'Adams #2'). Introduced in 1954 from Nova Scotia.

'Kent' - Vigorous and productive; fruit quality and size are comparable to 'Adams', but fruit matures slightly later. Plants more upright (less pendulous) than those of most varieties. Released in 1957 from Nova Scotia.

'Nova' - The large fruits mature early and uniformly and are said to resemble those of 'Kent' and 'Victoria' but are sweeter. Released in 1959 from Kentville, Nova Scotia.

'Rubra' - Red-fruited form.

'Victoria' - A late-season selection with a manageable growth habit. Introduced from Nova Scotia in 1957.

'York' - Later ripening with large fruit. Developed in New York and released in 1964. Minimal spreading; good choice for small areas.

Site and cultural requirements

Many cultivars are hardy to USDA zones 4 to 9.

Elderberries grow best in moist, rich soils, but they tolerate dry sites, partial shade and alkaline to acid soils. They

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often prosper with neglect and low soil fertility. These vigorous bushes sucker profusely and require ample room and considerable attention if neatness is desired. The golden-leaved forms are sensitive to intense sunlight and may do best with some shading from the afternoon sun.

Pests and diseases

Powdery mildew, leaf spots, borers and cankers are common. At least three viruses are known to infect *S. canadensis*, including elderberry latent *carmovirus* (yellow spots on leaves; infects other *Sambucus* species), elderberry *carlavirus* (often symptomless in common elder but may exacerbate cherry leaf roll *nepovirus* in other *Sambucus* species) and cherry leaf roll virus (CLRV may be associated with poor fruit set or sterility).

Home uses

Elderberries have traditionally been harvested from the wild (the common elder grows wild in moist sites in many areas of the Midwest). The fruits are used for jellies, juices and wine, and they are excellent in pies when mixed with other fruits such as apples. Plants are excellent bird attractants. May be useful for naturalizing or roadsides because of their tolerance of a wide range of soils. Flowers, fruit and leaf color of some varieties can offer ornamental value.

Huckleberry/Bilberry/Blueberry - *Vaccinium* spp. and *Gaylussacia* spp.

These common names are used interchangeably to describe several closely related plants, and there is disagreement about the proper use of these names. True huckleberries belong to the genus *Gaylussacia*, of which the black huckleberry or crackleberry (*Gaylussacia baccata*) is perhaps the most common to Michigan. True huckleberries are borne singly (not in clusters), have about 10 hard seeds that crunch when eaten (thus the name "crackleberry"), and leaves that contain a resin that can be rubbed onto paper or between the fingers. Huckleberries are branching shrubs that grow 2 to 3 feet high and often spread to form colonies. Bilberries are members of the *Vaccinium* genus and produce fruit singly or in clusters. Bilberries have numerous, small seeds that are usually unnoticed when they're eaten. Some bilberries native to the upper Midwest include the dwarf bilberry (*V. cespitosum*), tall bilberry (*V. membranaceum*), oval-leaved bilberry (*V. ovalifolium*) and alpine bilberry (*V. uliginosum*). In the Midwest, the name "blueberry" usually refers to the highbush blueberry (*V. corymbosum*) and the lowbush blueberry (*V. angustifolium*), which can both be found growing wild in Michigan and

some other Midwestern states. The highbush blueberry is an upright, non-spreading plant that grows 3 to 10 feet tall. The lowbush blueberry is a short (6 to 24 inches), spreading shrub found in many northern forests (Figure 8). Highbush and lowbush fruits are borne in clusters, have inconspicuous seeds, and vary in size and color. "Half-high" cultivars have been developed by hybridizing highbush and lowbush blueberries (Figure 9).



Figure 8. Lowbush blueberry with fruit.
(Photo courtesy of E. Hanson)



Figure 9. Half-high blueberry cultivar 'Patriot'.
(Photo courtesy of E. Hanson)

Cultivars

"Tophat" is an excellent lowbush blueberry cultivar for home fruit production and ornamental fall color. "Northland", "Chippewa" and "Northblue" are good half-high types. Some huckleberry and bilberry selections may be available in the nursery trade.



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Site and cultural requirements

These plants are often frustrating to grow because of their soil requirements. They require acidic soils (pH 4.5 to 5) with a sandy texture or high organic content (peat or muck soils). Highbush blueberries require good drainage but a continual water supply. Lowbush blueberries and huckleberries are more drought tolerant. All grow best in full sun with a heavy mulch of leaves, pine needles, sawdust or bark. Hardy to zones 3 to 7.

Pests and diseases

Blueberry maggot fly and cranberry fruit worm can be expected to infest fruit. Several fungal diseases of fruit and branches are widespread. Bird feeding is perhaps the greatest hazard to fruit.

Home uses

Fruit of these plants is delicious fresh or used in syrups, sauces, muffins, breads, pies and pancakes. Plants also have value for naturalizing and for wildlife cover and food. Foliage can develop brilliant fall colors.

Juneberry / Saskatoon - *Amelanchier alnifolia*

Amelanchier alnifolia is closely allied with *A. florida* (= *A. alnifolia* var. *semiintegrifolia*, Pacific serviceberry) and frequently confused with that species. Several serviceberry species (*A. arborea*, *A. canadensis*, *A. laevis* and *A. x grandiflora*) are nearly impossible to distinguish without flowers or developing leaves, and they are commonly confused in the nursery trade. Serviceberry species readily hybridize with each other, resulting in many confusing, intermediate or hybrid forms. The sheer number of common names for this genus (close to 80) adds more confusion and makes a compelling case to discontinue the use of common names. "Saskatoon" and "Juneberry" are usually, but not always, reserved for *A. alnifolia*, which is the most useful species for fruit production.

The Saskatoon is a western North American species that is usually a multistemmed shrub growing 6 to 10 feet high, though the form is extremely variable. The fruit are bluish purple and 1/3 to 1/2 inch in diameter, and they ripen in July (Figure 10). The plants are also prized for their fall color.

Cultivars

'**Altaglow**' - Excellent fall color.

'**Smokey**' - Produces large fruit; flavor is considered excellent.

'**Honeywood**' - Said to produce fruit of excellent quality.

'**Regent**' - A compact form (4 to 6 feet) with very sweet



Figure 10. Saskatoon fruit.

(Photo courtesy of S. Berkheimer)

fruit and attractive foliage. May be the most desirable cultivar for southern Michigan.

'**Success**' - Said to be a copious fruit producer, but its consistency in warmer climes may be questionable.

Other promising fruit-producing selections are '**Parkwood**', '**Northline**', '**Theissen**' and '**Pembina**'.

Site and cultural requirements

The Saskatoon tolerates a wide range of soil pH and textures and is very cold hardy. A moist, well drained, acid soil and full sun are the usual cultural recommendations for all serviceberries, and their drought tolerance is believed to be among the highest of all small fruit crops. Limited grower experiences indicate that some Saskatoons may prefer cooler summers to produce a good crop and be more suited to northern Michigan. Saskatoon is occasionally grafted onto a cotoneaster rootstock. Its fruit and foliage are eaten by many birds and mammals. Saskatoons have potential for commercial production in large plantings similar to blueberries. Hardy to zones 2 to 5.

Pests and diseases

Cytospora can cause a lethal canker disease. Cedar-serviceberry rust, *Gymnosporangium nelsonii*, can be problematic. A leaf spot caused by *Entomosporium* spp. results in disfigured leaves that abscise early. Fire blight, powdery mildews, fruit rot, witches' broom (of fungal origin), leaf miners, borers, willow scurfy scale, pear slug sawfly and pear leaf blister mite have all been reported. Many newer cultivars are reportedly free from serious diseases or pests. Check prospective cultivar choices for disease and pest resistance.

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Home uses

Serviceberry pie rivals blueberry for those in the know. To some palates, fresh juneberries are slightly bland, mealy and seedy. The fruits are often processed into jellies, jams, pies, syrups and wine. Slightly premature fruit is generally preferable for processing, while mature fruit is reserved for fresh eating or wine.

Kiwifruit - *Actinidia* spp.

There are more than 50 species in the genus *Actinidia*. The two species most suited to Midwest conditions are *A. arguta* (bower actinidia or hardy kiwifruit) and *A. kolomikta* (kolomikta actinidia). These species produce fruits about the size of grapes (Figure 11). A variant — *A. arguta* var. *purpurea* — should also be hardy through much of the Midwest. *A. deliciosa*, the large-fruited fuzzy kiwifruit, is not hardy enough to grow in the region.



Figure 11. Hardy kiwi fruit.

(Photo courtesy of B. Strik)

Hardy kiwifruit is a climbing vine that can grow 20 feet in only two or three growing seasons. It is dioecious (male and female flowers occur on separate plants), so a male plant is needed for every six to 10 females for fruit production. The fruit is greenish yellow, 3/4 inch to 1 1/4 inches long and about 3/4 inch wide, with smooth, lime-green flesh. Dormant plants tolerate temperatures to -25 degrees F. Male vines may be less hardy than females. Kolomikta actinidia is also a twining vine that is less vigorous (slower growing) and produces slightly smaller fruits than hardy kiwi, but it is hardy to -45 degrees F. Foliage is ornamental — it emerges purplish and develops a variegated pattern that's reputed to be more striking in the males. Excess shade and fertilizer may reduce leaf coloration. *A. arguta* var. *purpurea* is similar to *A. arguta* but has longer, narrower leaves. Fruits of this variant are relatively large (to 1 1/4

inches long by 3/4 inch diameter), purple and earlier than that of most *A. arguta* cultivars. Hardy kiwi males are suitable pollinizers for *A. arguta* var. *purpurea*.

A. arguta cultivars

'119-40-B' - A self-fertile selection from the Arnold Arboretum. Seemingly otherwise typical of the species and useful as a pollinizer for other hardy kiwi clones.

'Geneva 2' - Fruit matures in early fall (in Massachusetts). Selected by the Agricultural Experiment Station in Geneva, N.Y. Vigorous and reliable.

'Cornell' - A male clone suitable for other hardy kiwi varieties.

'Ananasnaja' - From Russia. Described as a reliable bearer of fairly large fruits (up to 1 inch by 1 1/2 inches). Fruits are less sweet, but the plants are less susceptible to late spring frosts.

A. kolomikta cultivars:

'Krupnopladnaya' - From Russia; low to moderate vigor; sweet fruit; large leaves that are reportedly reddish in summer; purplish stems in winter.

'Arctic Beauty' - Shade tolerant and cold hardy, with colorful foliage. Early season.

'142-38' - A female selection with variegated foliage. Prefers some shade. Small, rectangular, ribbed fruit.

'Ken's Red' - (*A. arguta* var. *purpurea*) - Smooth, red skin and flesh; shade tolerant. Use a male hardy kiwi (*A. arguta*) as a pollinizer.

Site and cultural requirements

Hardy kiwi is listed as hardy to zones 3 to 7 (*A. arguta*) and 4 to 8 (*A. kolomikta*). A sunny but protected site is essential (wind can severely damage vines and fruit). Avoid planting in low-lying, cold sites that are prone to late spring/early fall frosts. A season of approximately 150 frost-free days is required for best success. The plants tolerate some shade but prefer full sun. Somewhat acidic (pH 5 to 6.5), well drained soils are needed. Plant on raised beds to improve drainage on heavier soils. The plants are heavy water users, so water regularly during hot weather. Provide a trellis system to support the vines (Figure 12). A 6-foot

T-bar trellis (constructed of treated posts) works well. Place three to five 12-gauge horizontal wires set at 1-foot to 1 1/2-foot intervals, and plant the vines at 15- to 20-foot intervals under the trellis. A patio cover or fence may also suffice. Vines require pruning in the winter.

Pests and diseases

Few serious diseases or pests of bower actinidia are expected. Boxelder beetles may feed on the developing flower buds, causing bud drop and malformed fruit.



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Home uses

Actinidias have been cultivated as ornamentals and for their edible fruit. The smooth-skinned fruits can be consumed fresh without peeling. The flavor of hardy kiwi is considered superior to those in the grocery store because of their higher sugar content.



Figure 12. Hardy kiwi vine on trellis.
(Photo courtesy of B. Strik)

Lingonberries - *Vaccinium vitis-idaea*

A close relative of blueberries and cranberries, lingonberries ("cowberries" and "foxberries" are synonyms) are an evergreen dwarf shrub that occurs throughout temperate northern, boreal and subarctic regions (Figure 13). The plants bear numerous small, semiwoody shoots and spread via rhizomes. Flowers are produced in May-June singly or in clusters and are self-fertile but require insects for pollination. The fruits are a bright, shiny red and less than 1/2 inch in diameter. They mature in August or September. In the past there was some disagreement about the number of lingonberry species, but now most authorities recognize the lingonberry that is native to North America as a subspecies (*V. vitis-idaea* ssp. *minus*) of the European species, *V. vitis-idaea*. *V. vitis-idaea* ssp. *minus* is shorter (rarely over 8 inches) and produces smaller fruit than the European type, which may reach 12 inches. A naturally occurring hybrid with dwarf bilberry (*Vaccinium myrtillus*) has been observed and named *V. x intermedium*.

Cultivars

'Splendor' - Vigorous growing with moderate plant spread (runnering) and height (6 to 7 inches). Fruits up to 3/8 inch in diameter, brilliant red. Ripens in mid- to late September.



Figure 13. Lingonberry growth habit and fruit.
(Photo courtesy of E. Hanson)

Has two bloom cycles per year; the second is more productive. From Wisconsin.

'Regal' - Highly vigorous and moderate spreading; reaches 7 to 9 inches at maturity. Berries are slightly smaller and darker than those of 'Splendor'. Also has two bloom periods, which occur about a week later than those of 'Splendor'.

'Sussi' - From Sweden. Has bright green foliage. Produces copious pea-sized fruits. May be best as an ornamental groundcover. Grows 4 to 7 inches.

'Sanna' - A selection from the University of Sweden. Said to consistently produce large, high-quality fruit. Spreads more slowly and grows taller (to 10 inches) than 'Sussi'.

'Red Pearl' - Very productive and easy to grow. Selected from the wild in the Netherlands. A vigorous grower and rapid spreader. Grows to 16 inches.

'Koralle' - One of the most productive and popular cultivars from Europe. Produces pea-sized fruits along the length of the stem. Has a bushy and upright growth habit and spreads slowly.

Site and cultural requirements

Cultivated types are generally hardy to USDA zones 3 to 5 (var. ssp. *minus* is hardy to zone 2). The best soils are acidic (pH 4.5 to 6) and sandy and contain at least 2 percent organic matter, but they usually prosper wherever blueberries and rhododendron do well. Lingonberries are often found growing in the wild on shallow, poorly developed mineral soils that are often high in decaying organic matter. Mulching is beneficial. Fertilizer requirements are

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quite low; excess nitrogen may decrease flower bud formation and result in needless vegetative growth. Take care not to disturb runners/rhizomes during cultivation. Full sunlight is needed for optimum growth and fruit production.

Pests and diseases

A number of pests that attack lingonberry have been observed, but it is unknown whether any of them occur in the United States.

Home uses

Lingonberry fruits have a tart flavor similar to that of the American cranberry. Typical uses include juice, sauce, preserves, candy, syrup, jelly, wines and liqueurs. The fruit is high in anthocyanins and tannins. The plants are often sold as an "edible groundcover."

Medlar - *Mespilus germanica*

The medlar is a small, self-fertile, deciduous tree that has been cultivated for perhaps 3,000 years. The Greeks and Romans were familiar with it, and the Babylonians and Assyrians may have cultivated medlars. Medlar is closely related to hawthorn (*Crataegus* spp.) and pear (*Pyrus* spp.). Trees can reach heights of 25 feet but may also occur as large shrubs or form dense thickets (Figure 14). The plants are frequently more broad than they are tall. Wild plants are thorny, but thorns are reduced or lacking in the cultivated forms. Growth rate can be up to 1 foot a year under favorable conditions.



Figure 14. Young medlar tree.
(Photo courtesy of L. Taylor)

Medlars produce white to blush-pink flowers on spurs in the spring. The fruit has been variously described as a berry, a "turbinate" berry, a drupe, a haw and, most frequently, a pome (Figure 15). Baird and Theiret (1989) feel that it is best termed a drupe because of seed-containing stones. The fruits need to be "bled" before they are palatable. Bletting involves leaving the fruit on the tree for one or more hard frosts, harvesting and then leaving the fruit in a cool, dark area for up to several weeks before consuming. The bletting process improves palatability by reducing tannin, asparagine and acid levels, increasing the sugar content and softening the fruit. Bletted fruit tastes similar to spiced applesauce and may have a pleasant vinous character.



Figure 15. Medlar fruit: drupe or pome?
(Photo courtesy of S. Berkheimer)

Cultivars

- 'Dutch' - Vigorous, with a near-weeping growth habit. Bears large fruits, about 2 to 3 inches across.
- 'Nottingham' - An old selection with an upright growth habit and small, tasty fruit. Growth form tends toward that of a small tree.
- 'Royal' - Said to possess some of the traits of 'Dutch'.
- 'Walters' - More of a shrub form, growing 4 to 6 feet tall.

Site and cultural requirements

Medlar grows best in full sun and seems to do well in a variety of soils. A fertile, moist, well drained loam should work best, however. There is little published data regarding medlar's cold tolerance; 15 degrees F to -5 degrees F is believed to be the minimum range, but some medlars at the Morton Arboretum near Chicago survived temperatures as low as -30 degrees F. Medlar appears to be adapted to zones 5 to 7. Most medlar selections are grafted or budded on various rootstocks: pear, medlar, serviceberry, quince, hawthorn and cotoneaster. It is frequently recommended to



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plant the graft union about 2 inches below ground because the graft union is weak and can break when the tree grows older. Fruit size of the grafted plants is usually larger than that of non-grafted medlars.

Pests and diseases

Medlar attracts some of the same pests that attack apples, but damage is usually not serious enough to warrant control measures.

Home uses

Bletted medlars may be eaten fresh, pickled or skinned. They can be stewed or roasted with butter and cloves or roasted over an open fire like chestnuts. Medlars may provide variety when native fruits are scarce. They may be used for jams, marmalade and jelly; in vinegar, tarts and cakes; for wines (juice yield is small) and other alcoholic beverages; or in mousses.

Mulberry - *Morus* spp.

Morus alba (white mulberry) and *M. rubra* (red mulberry) are found in Michigan. Both are deciduous trees of varying sizes, but the white mulberry is the larger (up to 80 feet) and more variable in form (Figure 16). Red mulberry is native to the United States. The white mulberry ("white" because the fruits appear whitish during early development, though they are often red to purplish at maturity, Figure 17) is native to China. It was brought to Virginia by early European settlers in hopes of starting a silk industry (*M. alba* is a known food source for silkworm caterpillars). Two other species have become naturalized in this country: *M. nigra* (black mulberry) and *M. australis* (aino mulberry). White mulberry "escaped" soon after being introduced and has hybridized with red mulberry in the wild. Breeders have also hybridized these two species in hopes of developing superior cultivars. Birds relish the fruit and readily spread the seeds. Many people dislike mulberry trees because of their aggressive, "weedy" nature and high maintenance requirements (pruning, mess cleanup, etc.). Cultivars are preferable to the species. Use male or non-fruiting types for ornamental purposes (birds and fruit can create quite a mess). Staining will not occur with a white-fruiting form.

Cultivars

'**Belaire**' - A multitrunk male selection.

'**Illinois Everbearing**' - Said to be a hybrid between *M. alba* and *M. rubra*. Fruit is black and nearly seedless, large and very long. Vigorous, productive and hardy.

'**Silk Hope**' - Sweet, large (about 1 1/2 inches long), black fruits. Possibly a hybrid between *M. alba* and *M. rubra*.

var. tatarica - "Russian mulberry"; reputedly the hardiest of all mulberries.

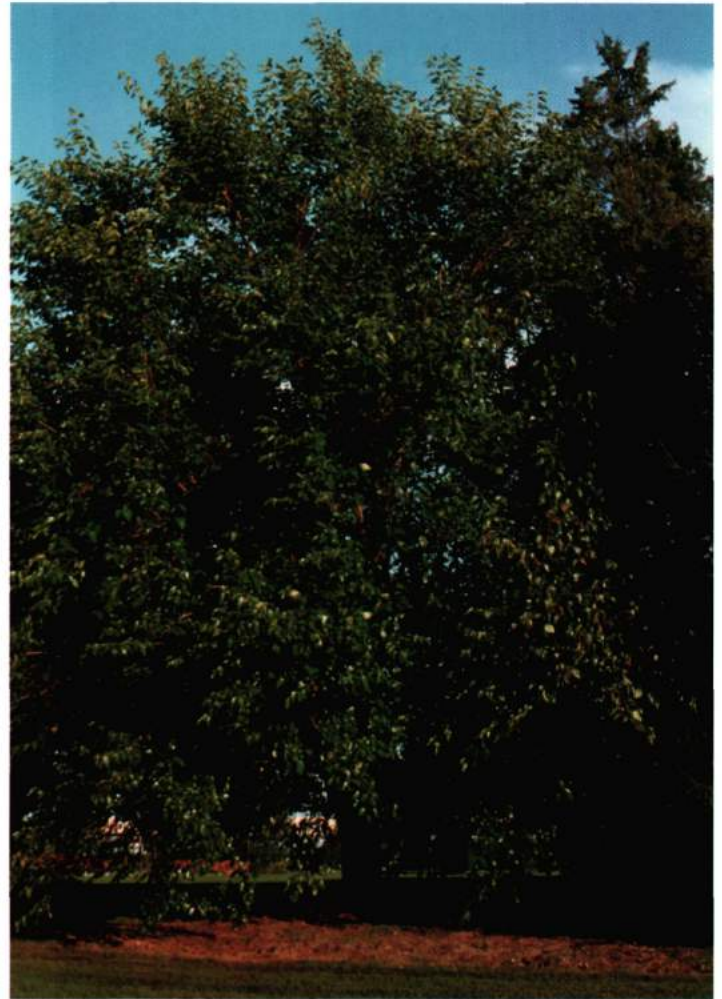


Figure 16. White mulberry tree habit.
(Photo courtesy of S. Berkheimer)



Figure 17. White mulberry fruit.
(Photo courtesy of E. Hanson)

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Site and cultural requirements

Tolerant of a wide variety of soils and conditions. Very adaptable, withstands urban and drought conditions, and is quite salt tolerant. Grows best in moist, fertile, well drained soils. Accepts a wide range of soil pH. Full sun is best for rapid growth and fruit production. Hardy to zones 5 to 8, possibly 4 to 9.

Pests and diseases

Powdery mildew can affect the leaves. Scales and two-spotted mites can be a problem, as is a bacterial blight on shoots and leaves. Incidence of occurrence of these pests in Michigan is unknown.

Home uses

Berries are soft, have a sweet, mild flavor, and can be eaten fresh or used in pies, pudding and jams/jellies, or sweetened and pureed as a syrup. The fruit can be of several colors at maturity, from white to red to purplish black, and homeowners may use this property to their advantage (coloring foods, etc.). The weedy nature of mulberry soon becomes annoying to many homeowners, and its use should be tempered because of this. Mulberry fruit is very attractive to birds, and the trees may be planted strategically to lure birds away from a high-value fruit crop.

Pawpaw - *Asimina triloba*

The pawpaw is a deciduous native tree known for producing large edible fruits. Nine *Asimina* species are native to the United States, but only *A. triloba* extends into northern states such as Michigan. Wild plants occur as small understory trees with gangly, spreading branches. In full sun, pawpaws assume a narrow to broad, conical shape and grow to 20 feet or more (Figure 18). Pawpaws often produce suckers a few feet from the trunk, which will establish a "pawpaw patch" if left to grow. The leaves are large (up to 12 inches long) and a lush dark green, and turn an attractive yellow in the fall.

Pawpaw flowers are protogynous — the stigma is receptive to pollen before the pollen is shed. This usually results in poor fruit set. Hand pollination with an artist's paintbrush can help overcome this, however. The natural (and unreliable) pollinators of pawpaws are believed to be flies and beetles. A little perseverance may be required to locate a desired cultivar.

Cultivars

'Convis' - Produces large fruits (to 1 pound) with yellow flesh that mature in Michigan in the first week of October.
'Davis' - Selected from the wild in Michigan in 1959. Fruit are up to 5 inches long and weigh about 4 ounces. They



Figure 18. Pawpaw growth habit.

(Photo courtesy of D. Layne)



Figure 19. Pawpaw fruit cluster.

(Photo courtesy of D. Layne)

have green skin, yellow flesh and small seeds. Fruits mature in early October in Michigan and are said to keep well in cold storage.

'IXL' - A hybrid between 'Overleese' and 'Davis'. Fruits weigh approximately 12 ounces and ripen about the second week of October.

'Sunglo' - Yellow skin and flesh. Fruits weigh up to 12 ounces and ripen around the first week of October in Michigan.



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Most pawpaw cultivars are hardy to zone 5 to 8 but require a growing season of at least 160 frost-free days. Pawpaw seedlings are very sensitive to full sun and so should be provided partial shade for the first year or two. After this, full sun is preferred. Deep, well drained, fertile, moist, slightly acidic (pH 5 to 7) soils are best. They may be sensitive to dry winds, low humidity and cool summers. The foliage may be damaged by strong wind. Transplanting seedlings or suckers from the wild is difficult because the plants have long taproots with few root hairs or lateral roots. Move the tree with roots and soil intact, and transplant in the spring after bud break. Containerized plants are easier to handle.

Pawpaws are not self-fertile, so more than one cultivar is needed for fruit production. Hand pollination may help ensure adequate fruit set. Trees on suitable sites require little maintenance.

Pests and diseases

Pawpaws are relatively pest and disease free. Raccoons and squirrels relish the fruit. Larvae of the pawpaw peduncle borer (*Talponia plummeriana*) burrow through the receptacle, causing the flower to wither and drop. This can result in the loss of many flowers in a bad year.

Home uses

Pawpaw fruits are fragrant with the texture of a banana and a taste resembling mango, pear and banana (Figure 19). It is excellent eaten fresh and also useful in cookies, pies, puddings, breads and ice cream. They are relatively high in essential fatty acids and can go rancid quickly if the skin is damaged. The nutritional value of pawpaw is extremely high.

Persimmon - *Diospyros* spp.

The American persimmon, *Diospyros virginiana*, is native to the lower Midwest, and selected cultivars may be adapted to areas north of the native range (to USDA zone 5). The native common persimmon is listed as hardy from USDA zones 4 to 9. Trees may be hardy enough to survive northern winters, but the short growing season may not allow the fruit to mature. Though fruits of the American persimmon have been collected and consumed for centuries, its cultivation and improvement through breeding have received little attention.

American persimmon is a small, rounded tree that can reach heights of 40 to 50 feet. The primary commercial species is the kaki or Japanese persimmon (*Diospyros kaki*). It is hardy only to USDA zones 7 to 10 and so is not suited to most of the Midwest.

American persimmon is dioecious — i.e., trees are either male or female. Most cultivars require a male plant as a pollinizer to produce fruit. Persimmon pollinators are unknown insects. Plant only known male cultivars if your sole desire is the ornamental contributions of persimmon (avoid the messy fruit!).

The fruit is round or oval, reminiscent of some plum cultivars, and variable in size from 1/2 inch diameter to up to 2 inches (Figure 20). The skin is orange to black and usually has a heavy glaucous bloom. Fruit flavor and quality are variable, from good and sweet to flat and insipid. The flesh is usually very pungent and bitter until the fruit is soft ripe. Fully ripe persimmons lose this astringency. Frost apparently is not required for persimmon fruits to become edible. Numerous selections have been named and introduced, but regional testing of cultivars is limited. Below are some good choices for the Midwest.



Figure 20. Kaki persimmon fruit.

(Native persimmon fruit unavailable; it is similar in color and size except that it is more rounded.) (Photo courtesy of S. Berkheimer)

Cultivars

'Even Golden' - An early-ripening variety with excellent quality and firmness. Productive with medium fruit size. It has been observed that the fruit will usually mature in southern Michigan. (The plant will grow in northern Michigan, but the fruit generally won't ripen.)

'John Rick' - Ripens later than **'Even Golden'**, but fruits are larger with excellent quality.

Others worthy of a try include **'Woodbridge'**, **'Miller'**, **'Killen'** and **'Ennis'**.

Site and cultural requirements

Persimmons require minimal care. The trees can tolerate a wide range of soil conditions, but they reportedly prefer a

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well drained, deep loam with a pH range of 6.5 to 7.5. Plant in areas with full sun and at least some air movement. The plant will tolerate partial shade. Where they are grown in cooler areas, ensure full sun with protection from cool breezes. The trees are drought tolerant, albeit for brief periods (extended droughts will result in premature fruit and leaf drop). Most persimmons do best with minimal fertilizing — excess nitrogen can result in fruit drop. An application of a balanced fertilizer (e.g., 10-10-10) may be necessary if mature leaves are not a deep green and shoot growth is less than vigorous. It has been recommended that fertilizer be applied at the rate of 1 pound per inch of trunk diameter at ground level, spread evenly under the canopy in late winter/early spring. Prune young trees to develop a strong framework of main branches. This may be the only pruning that is required.

Pests and diseases

Persimmons are relatively disease and insect free. Mealybugs and scale in association with ants can be problems. Controlling the ant population may take care of the other pests. Occasional pests also include whiteflies, thrips (which can cause blemishes on the fruit) and a mite that has been blamed for the “brown lace collar” near the calyx. Poorly drained soils may result in root rot. Deer, squirrels, rats, opossums, birds and coyotes are fond of the fruits.

Home uses

Persimmons may be eaten fresh, but the pulp may also be used in cookies, cakes, puddings, sherbets and custards. Use the pulp only from fully ripened persimmons that have had the calyx removed; prepare it by crushing the fruit through a colander or food mill to separate the skin and seeds from the pulp. Use the pulp immediately or freeze for later use.

Quince - *Chaenomoles* spp. and *Cydonia oblonga*

Chaenomoles and *Cydonia* are in the same subfamily as apples (*Pomoideae*). *Chaenomoles* spp. are round shrubs growing 6 to 10 feet or greater in size. *Chaenomoles speciosa*, common flowering quince, is considered more ornamental than *Chaenomoles japonica*, Japanese flowering quince. Hybrids between the two *Chaenomoles* species have been designated as *Chaenomoles x superba* and grow 3 to 5 feet. Many cultivars are available that should be chosen on the basis of disease resistance as well as flower color. ‘**Cameo**’, with peach-colored flowers and some resistance to leaf blight, and ‘**Texas Scarlet**’, widely considered the best red-flowered form, are but two cultivars of *C. speciosa* that are often available in nurseries. The fruits of flowering

quince are yellow or pink and hard and thus not usually recommended for fresh eating (Figure 21). They mature in October and weigh approximately 4 ounces.



Figure 21. Quince fruit. Note brown pubescence.

(Photo courtesy of S. Berkheimer)

Cydonia oblonga, common quince, differs from the aforementioned species in that it is a large, multistemmed shrub growing 15 to 20 feet high with fuzzy (pubescent) fruit. Because of its awkward size, it will probably never become common in the urban landscape. Cultivars include ‘**Pineapple**’, with large, gold-yellow and white-fleshed fruits and an aroma reminiscent of pineapples; and ‘**Jumbo**’, with large, white-fleshed fruits.

Site and cultural requirements

Flowering quince is adapted to a wide range of soil conditions, though chlorosis can occur on high pH soils. A deep, well drained, loamy soil with a pH between 6 and 7 is ideal. Quince tolerate drought and partial shade, but flowers and fruit develop best in full sun. Research has shown *C. japonica* to be the most winter-hardy species and quite resistant to late spring frosts.

Pests and diseases

Fire blight (*Erwinia amylovora*) can be a serious disease of flowering quince, so select a disease-resistant cultivar. Quince rust (*Gymnosporangium clavipes*) primarily attacks the fruit and succulent stem growth. Branch dieback can occur through stem-girdling twig galls. Leaf spots can result in premature leaf drop, and Dirr (1998) reports that abundant rainfall in spring and early summer can result in 50 to 75 percent defoliation by July. Scales, aphids and mites can be a problem periodically. Crown gall (*Agrobacterium tumefaciens*) causes warty growths on the stem near the soil line.



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Home uses

The fruits of flowering quince make excellent jellies, jams and preserves. Fruits of *C. japonica* are particularly high in acids and have a tart flavor. Quince fruit are also noted for their high vitamin C content. Quince flowers provide an attractive bloom display. Be aware that the natural growth habit tends toward a tangled, twiggy mass. Rejuvenation pruning — cutting the plant down to approximately 6 inches above the ground — will correct this, resulting in more spectacular flowering. Regular pruning after flowering will help maintain a desirable form. Quince branches are thorny and make effective barrier hedges. Quince is also popular for use in bonsai.

Thimbleberry - *Rubus parviflorus*

Thimbleberry is a short, prostrate or erect deciduous shrub that is a close relative of cultivated raspberries (Figure 22). Typically, the plant grows from 1 1/2 to 8 feet. The canes live an average of 2 to 3 years and develop and fruit like raspberries. Fall color ranges from brilliant orange to maroon. The thimblelike fruit is an aggregate of red or scarlet pubescent drupelets that are dry at maturity and crumble readily when picked (Figure 23). Thimbleberry spreads vigorously through rhizomes and can form dense clonal thickets. In Michigan, thimbleberry grows wild in the north-



Figure 22. Thimbleberry habit.
(Photo courtesy of S. Berkheimer)

ern extremes of the Lower Peninsula and throughout the Upper Peninsula. Thimbleberry may also hybridize with red raspberry (*Rubus idaeus*) and evergreen blackberry (*R. laciniatus*), but the progeny are frequently sterile. Thimbleberry is occasionally planted as an ornamental for its fragrant and attractive flowers and colorful fall foliage. Some cultivars are available, including 'Colonel' and 'Golden'

Site and cultural requirements

Thimbleberry thrives in a variety of dry to moist and wooded to open sites. The plants tolerate a wide variety of soil



Figure 23. Thimbleberry fruit.

(Photo courtesy of S. Berkheimer)

temperatures and pH, but adequate moisture is necessary for good growth. The nitrogen requirement is high. A deep, well drained loam or clay-loam should work well.

Thimbleberry is moderately shade tolerant, but full sun is preferred for development of fruit and fall color. It should be hardy throughout the state.

Pests and diseases

Pest and disease problems associated with thimbleberry in Michigan are unknown at this time. Thimbleberry ringspot virus, causing irregular leaf ringspotting and oak leaf patterns, is present in Canada, but it is unknown whether it occurs in the Midwest.

Home uses

Thimbleberries make excellent jelly but are considered too seedy for preserves. Berry flavor may vary geographically (the best flavor may occur toward the eastern portion of the plant's native range because of increased rainfall). The young shoots are edible as greens, and the foliage has been used for making teas.

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Native Americans used thimbleberry throughout its natural range. The fruit was consumed fresh in summer and dried for winter use. The bark was boiled and used as soap. Leaves were pulverized and applied to burns to minimize scar tissue formation.

Other Plants to Consider

Chokeberry (*Aronia melanocarpa*) is an astringent fruit (hence the name) which is tolerant of a wide variety of soil types. They grow as spreading multistemmed shrubs to heights of 6 to 10 feet, 3 to 5 feet wide, and prefer full sun but tolerate partial shade. Can withstand wet or dry conditions. 'Nero' produces large fruit and has a more compact growth habit exhibiting glossy foliage, purple fall color and white flowers. Hardy to zones 3 to 8.

Sea buckthorn (*Hippophae rhamnoides*) is a large spreading shrub or small tree that may be useful in hedges or windbreaks or for attracting wildlife. It is closely related to

Russian olive (*Elaeagnus angustifolia*) but has fewer pest and disease problems and is a nitrogen fixer. It's a highly variable species, and the small orange fruit varies in quality (like the growth form) depending on the selected cultivar. Foliage is silver-white. It seems to do better in sandy, infertile soils than in rich soils, and it tolerates salt. It is dioecious, so a ratio of one male to six females should be planted for fruit production. Hardy to zones 4 to 7.

Beach plum (*Prunus maritima*) is native to the sandy soils on the eastern seaboard. Occurs as a dense, rounded, spreading shrub, growing to heights of 6 feet or more; but it can also be trained to an arborescent form or hedge. It's salt tolerant and prefers a slightly acidic soil for optimum fruit set. It's precocious, with glaucous fruit ranging from yellow, red and blue to black with very attractive white flowers. 'Nana' is a dwarf, slow-growing form with smaller fruit than the species. 'Flava' produces yellow, high quality, sweet fruit. Hardy to zones 3 to 6.

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North American Fruit Explorers

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