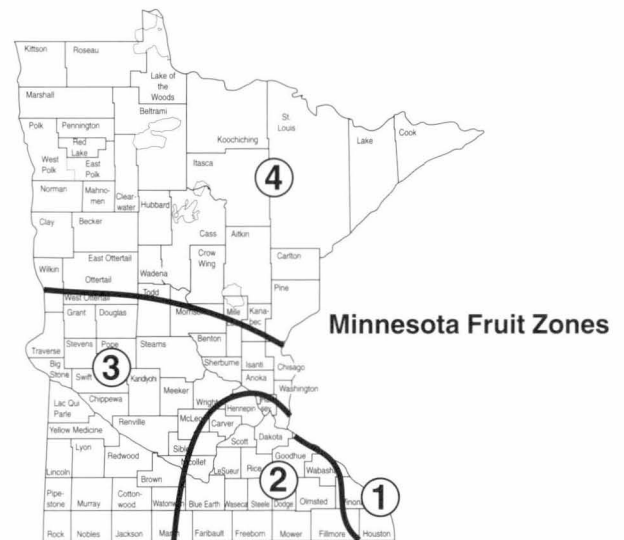


Growing Stone Fruits in Minnesota Home Gardens

Doug Foulk and Emily Hoover

Stone fruits all have hard pits at their center and include peaches, plums, cherries, and apricots. Most stone fruit species, including peaches and sweet cherries, are unsuitable for growing in Minnesota; they are sensitive to winter injury and, even if they survive, bloom before the danger of killing spring frosts is past. Stone fruit species that do grow acceptably well in part or all of the state are selected European and hybrid plums, cherry plums, tart cherries, sand cherries, and Nanking cherries (**Table 1**). Two hybrid apricot cultivars, Moonglow and Sunglow, make fine ornamental trees, but rarely produce fruit in Minnesota gardens (**see characteristic charts**).

When deciding which stone fruits to grow, consider winter hardiness, ease of care, fruit characteristics, and plant size (**Table 1 and characteristic charts**). In addition, because of a condition called *self-incompatibility*, Nanking and sand cherries both require at least two different cultivars located within about 100 yards of one another for pollination to occur and fruit to be produced. Hybrid plums and cherry plums are not only self-incompatible, but require a *pollinizer cultivar* (a specific second cultivar) within 100 yards for pollination (**see characteristic charts**). Therefore, in order to get much fruit from an Alderman plum, one would have to plant either a Toka or South Dakota plum as well (unless one of



those two cultivars is growing in the neighborhood). Of course, if you are growing a self-incompatible species for ornamental purposes and do not want fruit, then a single plant is sufficient. European plums and tart cherries are self-compatible and do not require two cultivars to produce fruit.

Peaches are rarely grown successfully in the upper Midwest and are not recommended for in-ground planting. You may be able to grow a peach tree in a container by placing it in full sun

Table 1. Stone Fruits for Minnesota Home Gardens

| Common Name | Scientific Name | Fruit Size | Pollination | Mature Height ¹ |
|----------------|--|------------------|---|----------------------------|
| European Plum | <i>Prunus domestica</i> | medium | self-compatible | 15-20' |
| Hybrid Plum | <i>P. salicina</i> x <i>P. americana</i> | medium | self-incompatible; pollinizer required | 15-20' |
| Tart Cherry | <i>P. cerasus</i> | small | self-compatible | 8-14' |
| Nanking Cherry | <i>P. tomentosa</i> | small | self-incompatible | 5-7' |
| Sand Cherry | <i>P. besseyi</i> | very small | self-incompatible | 4-5' |
| Cherry Plum | <i>P. besseyi</i> x plum, tart cherry or both | small | self-incompatible; pollinizer required | 6-8' |
| Hybrid Apricot | <i>P. armeniaca</i> x <i>P. mandshurica</i> | small- medium | self-incompatible | 15-20' |

¹Depending upon cultivar and growing conditions. When planting multiple stone fruit plants, assume that the spread will be at least as great as the height. In other words, two trees with a mature height of 15-20' will need to be spaced at least 15-20' apart at planting.

during the growing season and moving it to an attached or slightly heated garage in winter. Keep in mind that in order for the tree to grow and bloom properly during the season, the winter temperature must be carefully controlled—readings from roughly 20 to 40°F are preferable during winter storage. Temperatures below 10°F may damage buds, while those below zero will likely kill the tree.

During the growing season, a peach tree in a container will have special water and nutrient needs, and even then, will likely have a short life span. Hardier cultivars to try to grow in containers include Reliance, Harrow Beauty, and Madison, while extra-dwarf cultivars especially suited for container production are Honeybabe and Pixzee. The listed cultivars are all self-compatible.

Planting and Early Care

Stone fruit plants may be purchased bare-root or in pots. Bare-root plants should be planted in early spring, after the ground is workable but before the weather warms. Bare-root plants should be dormant at planting time. Potted plants can be planted any time during the growing season and may be leafed out at planting time. Both bare-root and potted plants need regular watering the first year.

Bare-root plants should be planted as soon as possible upon arrival. Do not allow the roots of bare-root or potted plants to dry out at any time. Soak the roots of bare-root plants 2-4 hours before planting. Although potted plants may be held for several weeks before planting, they will require frequent applications of water and fertilizer. Potted plants must never be allowed to dry out.

Choose the sunniest site available at planting time. Stone fruit plants require at least half-day sun to produce fruit; the more sun they receive, the more fruit they have the potential to produce.

Avoid planting stone fruit plants too close to the south side of buildings where heat that develops on sunny spring days will encourage them to bloom too early. Do not put stone fruit plants where water collects and drains slowly after a rain.

At planting time, dig a hole large enough to fit the roots without bending them. Bent roots are less likely to spread normally as they grow, causing anchorage problems and susceptibility to drought. If one root is very long, it may be shortened, but in general, do not prune the roots. Potted plants should be removed from the pot. If the plant is root-bound or if larger roots circle the inside of the container make several vertical cuts through the roots with a sharp knife and spread them out from the plant.

Do not heavily amend the soil from the hole at planting time as this can create a “flower pot” effect where the roots never leave the amended soil. Plants become root-bound with poor anchorage and low drought resistance. When amending soil, add compost or dampened, shredded peat moss to original soil so that half or more of the resulting mixture is original soil. Or, instead of amending the soil, mulch well with compost after planting. *Do not add fertilizer to the soil at planting.*

When planting, place the tree or shrub at the height at which it was grown in the nursery. The soil line is usually apparent. If it is not, place trees so that the graft union (a bump or knob just above the roots) is near the soil line. If this graft union is several inches above the uppermost roots, plant with the union slightly above the soil line. If the graft union is very near the uppermost roots, however, plant with the union at or slightly below the soil line (the graft union should only be placed below the soil line when dwarfing rootstocks are *not* being used; stone fruits are not grafted to dwarfing rootstocks in the Upper Midwest). Place shrubs so this point is

CHARACTERISTICS OF APRICOTS

| Common Name | Cultivar | Zone | Fruit Characteristics | Comments |
|----------------|----------|------|---|--|
| Hybrid Apricot | Moongold | 1-2 | Medium size, sweet, juicy, ripens unevenly, prone to splitting and premature fruit drop | Must be planted with Sungold to produce fruit |
| | Sungold | 1-2 | Small, mild, sweet | Must be planted with Moongold to produce fruit |

be at the same height on the trunk. Prune out all remaining branches. If the leader extends more than 12 inches above the tips of the scaffold branches, prune the leader as well. (**Figure 2.**)

If the newly planted tree does not have at least three strong branches suitable for the primary tier, remove all branches and prune the leader at a height of 30-40 inches from the ground. Once branches begin to sprout from the trunk, you can select scaffold branches and remove any unwanted branches while they are still small. This summer pruning may be done through mid-summer if necessary.

In the second year and thereafter, prune in early spring, usually March or April in Minnesota. If you were able to select first-tier branches in the previous year, you may select four to six second-tier branches. These should begin about 18-20 inches above the first tier and should again be spaced as equally as possible around the trunk and at different heights from one another. Remove all other branches not belonging to the first or second tiers and prune out the leader (as in the first year, **Figure 3**).

Prune sparingly in subsequent years, removing weak or crossing branches and those growing inward or down. Prune early in spring, as close to

CHARACTERISTICS OF PLUMS

| Common Name | Cultivar | Zone | Fruit Characteristics | Comments |
|---------------|--------------|--------------------|--|--|
| European Plum | Dietz | 1-3 | Small, bluish-black skin, good quality plums, fruit is slow to drop | Hardest of the European |
| | Mount Royal | 1-2 | Smallish size, bluish-black skin, very good quality, freestone | Hardier than 'Stanley' |
| | Stanley | 1-2 | Medium size, blue skin, good quality | |
| Hybrid Plum | Alderman | 1-3 | Large size, burgundy skin, golden flesh | Tree is attractive in landscape due to horizontal branch habit |
| | LaCrescent | 1-4 | Early, small to medium in size, yellow skin, flavor is suggestive of apricots, freestone | Only moderately productive |
| | Pembina | 1-3 | Large size, yellow flesh | |
| | Pipestone | 1-3 | Large size, red skin | Good for jam and jelly |
| | Redglow | 1-3 | Large size, late, red, astringent skin | Good for jam and jelly |
| | South Dakota | 1-4 | Medium size, red over yellow skin | Pollinizer |
| | Superior | 1-2 | Very large size, red, slightly astringent skin | Good for jam and jelly |
| | Toka | 1-2 | Small size, red skin, good flavor | Pollinizer |
| | Underwood | 1-4 | Medium-large size, very early | |
| Compass | 1-4 | Small, red, acidic | Pollinizer | |
| Cherry Plum | Opata | 1-4 | Medium size, purple | |
| | Red Diamond | 1-4 | Medium to large, reddish purple | Good for multiple uses |
| | Sapa | 1-4 | Medium size, reddish purple | Good for multiple uses |

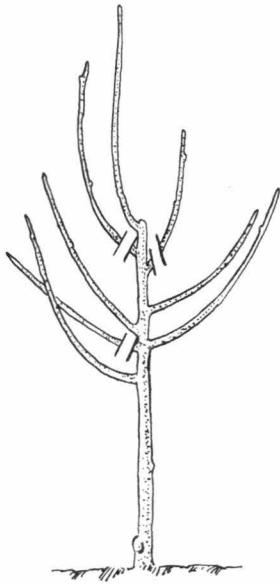


Figure 2. First Year Spring

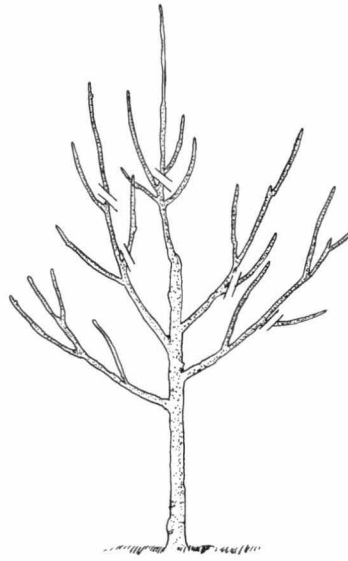


Figure 3. Second Year Spring

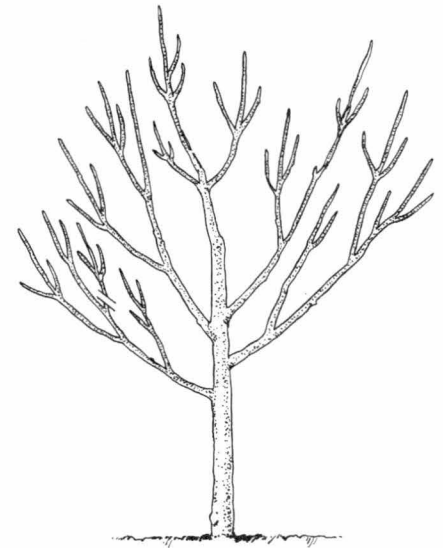


Figure 4. Third Year Spring

bud-break as possible. (Figure 4.) For more information on pruning, consult *Pruning Fruit Trees* (MI-0556).¹

Stone fruit trees are highly susceptible to trunk cracking in winter. To prevent this, wrap the trunk with a paper or plastic trunk protector in late fall, removing it from the tree in spring. The wrap should extend from the ground to just beyond the first scaffold branch base. White latex paint may also be applied as a protectant. Encasing the trunk in a wire-mesh cylinder and keeping mulch a few inches from the trunk will protect the trunk from rodent damage.

Nanking cherries, sand cherries, and cherry plums are normally grown as shrubs. At planting remove weak, broken, or crossing canes. In subsequent years, prune in early spring, removing weak, crossing, broken, diseased, or crowded canes. Canes older than five years are less productive and should be removed. Always remove canes as close to ground level as possible.

Fertilization

You do not need to fertilize stone fruit plants the year of planting unless a soil test finds a specific deficiency. After the first year, use the previous season's growth as a guide and fertilize in early spring if necessary. If the shoots of a young, non-bearing stone fruit tree grew 15 inches or more in length, you do not need to fertilize. For mature, bearing trees, the minimum shoot growth should be at least 8 inches. If the previous year's growth falls below these

amounts, then fertilization is appropriate. Never apply fertilizer to a tree exhibiting normal or vigorous growth. With fertilizer, too much is more harmful than too little. Also, if you fertilize the lawn surrounding a stone fruit plant, take this fertilizer into account when calculating the amount to be applied.

When fertilization is appropriate, estimate the square footage taken up by the tree to calculate the right application. The square footage is estimated by looking at the dripline (outer leaf canopy) of the tree. A newer, branched tree will cover about ten square feet (in other words, the canopy would be about three by three feet across) and each year square footage increases until the tree reaches mature size.

The rate for fertilizing stone fruit trees is 0.2 pound (3.2 ounces) of actual nitrogen per 100 square feet. Once you have estimated square footage, look for three numbers on the fertilizer bag or box. The first number is the percentage of actual nitrogen in the product. In other words, a 10-10-10 fertilizer contains 10 percent actual nitrogen. Because 1 pound of 10-10-10 contains 0.1 actual nitrogen, it would be applied at a rate of 2 pounds per 100 square feet. Therefore, a newer tree with a square footage of 10 square feet requires only one-tenth that amount or 3.2 ounces, while an older tree with a canopy 12 feet across requires 2.9 pounds. Spread the fertilizer in a ring around each tree at the dripline (at ground level) or place in several holes around the tree and then water well.

¹ *Pruning Fruit Trees* is available from the Minnesota Extension Service Distribution Center (625-8173, or, outside the metro area, 1-800-876-8636) or a County Extension Office for a nominal fee. Other valuable publications are available as well.

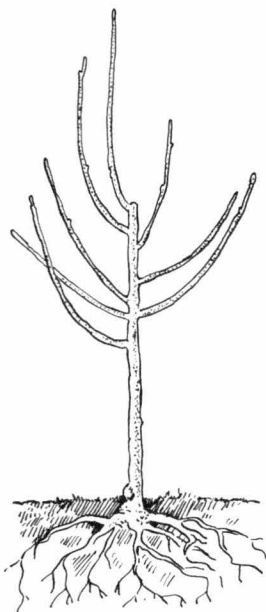


Figure 1. Important parts of a young stone fruit tree. The bud union shows where the rootstock and the scion were joined by grafting.

below the soil line to encourage multiple canes to sprout. (Figure 1.)

Once the plant is placed properly, fill the hole with soil and firm the soil with your foot. Water immediately. Regular watering is critical throughout the year of planting. During this first year, if

abundant and regular rain does not occur, give each plant 1-2 inches of water once each week. Do not wait for the plant to wilt before watering.

Place an organic mulch, such as wood chips or well-rotted compost, around the base of the plant. Keep the mulch a few inches away from the plant itself. Spread the mulch in a circle at least 2 feet out and farther if possible. The mulch should be 4 inches deep. Grass and weeds should be kept at least 2 feet from the trunk or crown throughout the life of the tree or shrub. For this reason, you should mulch annually.

Pruning and Training

The goals in pruning and training are to maximize light penetration into the tree and maintain healthy fruiting wood. Plums, tart cherries, and apricots are normally grown as trees, while Nanking cherries, sand cherries, and cherry plums are grown as shrubs. At planting, stone fruits may require pruning. Plums, tart cherries, and apricots are pruned to the "Modified Leader" system. At planting, choose four to six branches, about 3 feet from the ground and spaced as equally as possible around the tree, to form the first-tier or "scaffold" branches. These branches should not all

CHARACTERISTICS OF CHERRIES

| Common Name | Cultivar | Zone | Fruit Characteristics | Comments |
|----------------|-----------------------|------|---|---|
| Tart Cherry | Mesabi | 1-3 | Similar to Meteor but sweeter than Meteor or North Star | A cross between a sweet either and a tart cherry |
| | Meteor | 1-3 | Larger than North Star, bright red with yellow flesh | Fruit matures 7-10 days later than North Star, may sustain less bird damage |
| | North Star | 1-3 | ¾" diameter, dark mahogany with dark red flesh | Only 6-10' in height, very ornamental |
| Nanking Cherry | Drilea | 1-4 | Small, bright scarlet red | Both Drilea and Orient have a flavor between sweet and tart cherries |
| | Orient | 1-4 | ½" diameter, bright red | Excellent for jelly |
| | seedling ² | 1-4 | varies | Named cultivars usually superior in fruit quality |
| Sand Cherry | Black Beauty | 1-4 | ¾" diameter, purplish black | |
| | Brooks | 1-4 | same | |
| | Sioux | 1-4 | same | |
| | seedling | 1-4 | varies | Unnamed seedlings are usually of satisfactory quality ² |

² Both Nanking cherry and sand cherry seedlings may be found in nurseries as "Hansen Bush Cherry."

Stone fruit shrubs like Nanking cherries are undemanding about fertilization. Apply a balanced fertilizer at a rate calculated as described above, in a ring around the dripline of the shrub only if cane production and growth were weak in the previous year.

Pests and Diseases

Stone fruits are subject to numerous pests and diseases including apple maggot, plum curculio, brown rot, and black knot. Not all pests and diseases occur at damaging levels in any given year. Information on controlling pests and diseases is available in the *Home Fruit Spray Guide* (FO-0675).

Birds are the main pest of stone fruits in Minnesota. They feed on maturing stone fruits, pecking holes or eating entire fruits. This is especially true of cherries. The best protection is to net the entire plant, taking care to secure the netting both above and below the protected area. A few days of protection may be gained at harvest time by hanging aluminum pie pans or

mylar tape from the perimeter of the tree or shrub, but the protection is short-lived.

Harvest and Storage

As stone fruits ripen, the flesh softens and the skin changes from green to purple, red, orange, or a combination of these colors. You may test for ripeness by applying pressure (the flesh should yield to gentle thumb pressure), but the best way to determine ripeness is to taste the fruit.

Stone fruits grown in Minnesota are usually harvested without the stems attached. To harvest without hurting the fruit buds for next year's crop, twist the fruit slightly while pulling. Handle fruit gently to avoid bruising.

Refrigerate stone fruits promptly after harvest in perforated plastic bags or loosely covered containers. Keep the refrigerator at a temperature of 32-40°F. Cherries will keep only 3-5 days, while plums will keep 3-5 weeks when promptly refrigerated.

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