

Growing Tree Fruits in Alaska

Harvesting a ripe, juicy apple from your very own tree can be very satisfying. Many people worry that they cannot grow their own fruit in Alaska because of the cold winters, but fruit trees can be successfully grown here. In fact, in the early 1900s, fruits were already being commercially grown in Haines. Since that time, growers have established several dozen apple varieties and several cherry, plum and apricot varieties in locations from Ketchikan to Fairbanks and west to Kodiak. However, successful growing of fruit trees depends on a favorable planting site and proper care throughout the year.

Alaska has long, cold winters, short and often cloudy summers, wind and other conditions unique to northern latitudes. The home gardener or experienced farmer who hopes to grow anything other than a few hardy crabapples will need to consider factors such as the local microclimate, slope, soils, aspect and the amount of sunlight the site receives. Flower pollination requirements and protection from sunscald, moose, deer, hares and rodents also need to be considered.

Cultural Considerations

Fruit trees in Alaska must be able to survive the coldest temperatures of the year without suffering freeze damage. To survive cold temperatures, trees “harden off” their growth to prepare for winter. Hardening off involves deactivating the tree’s growing points (meristems). Some varieties cannot accomplish this quickly enough in Alaska, partly because of brief autumns.

Freeze-and-thaw cycles also reduce hardiness by allowing trees to reactivate meristems after thaws and prior to cold temperatures, and this affects hardiness. These cycles are most likely to occur in late winter or early spring.

To help you avoid selecting plants that are not suited



to wintertime temperatures, the United States Department of Agriculture (USDA) has assigned zone ratings to regions of Alaska based on average historical extreme low temperatures (Figure 1). This rating system is referred to as the USDA plant hardiness map. Most of Alaska north of the Alaska Range is considered hardiness Zone 1. Zone 2 occurs in favored locations with 600- to 1,200-foot elevations around Fairbanks, parts of the Matanuska-Susitna Valley and the upper hillside areas of Anchorage.

Hardiness zones along coastal areas from Nome to Bethel range from 3 to 4, with warmer locales occurring farther south. Much of Anchorage, the Kenai Peninsula and lower parts of the Mat-Su Valley also range from 3 to 4. Zones 4 to 6 can be found around Seward, Homer, Valdez and the Alaska Peninsula. Kodiak and parts of Southeast are predominately Zones 6 and 7, with some areas south of Juneau approaching Zone 8.

While the USDA plant hardiness zone map is considered the best means of selecting which varieties of trees will survive cold temperatures across Alaska, it is important to note that sometimes trees can survive

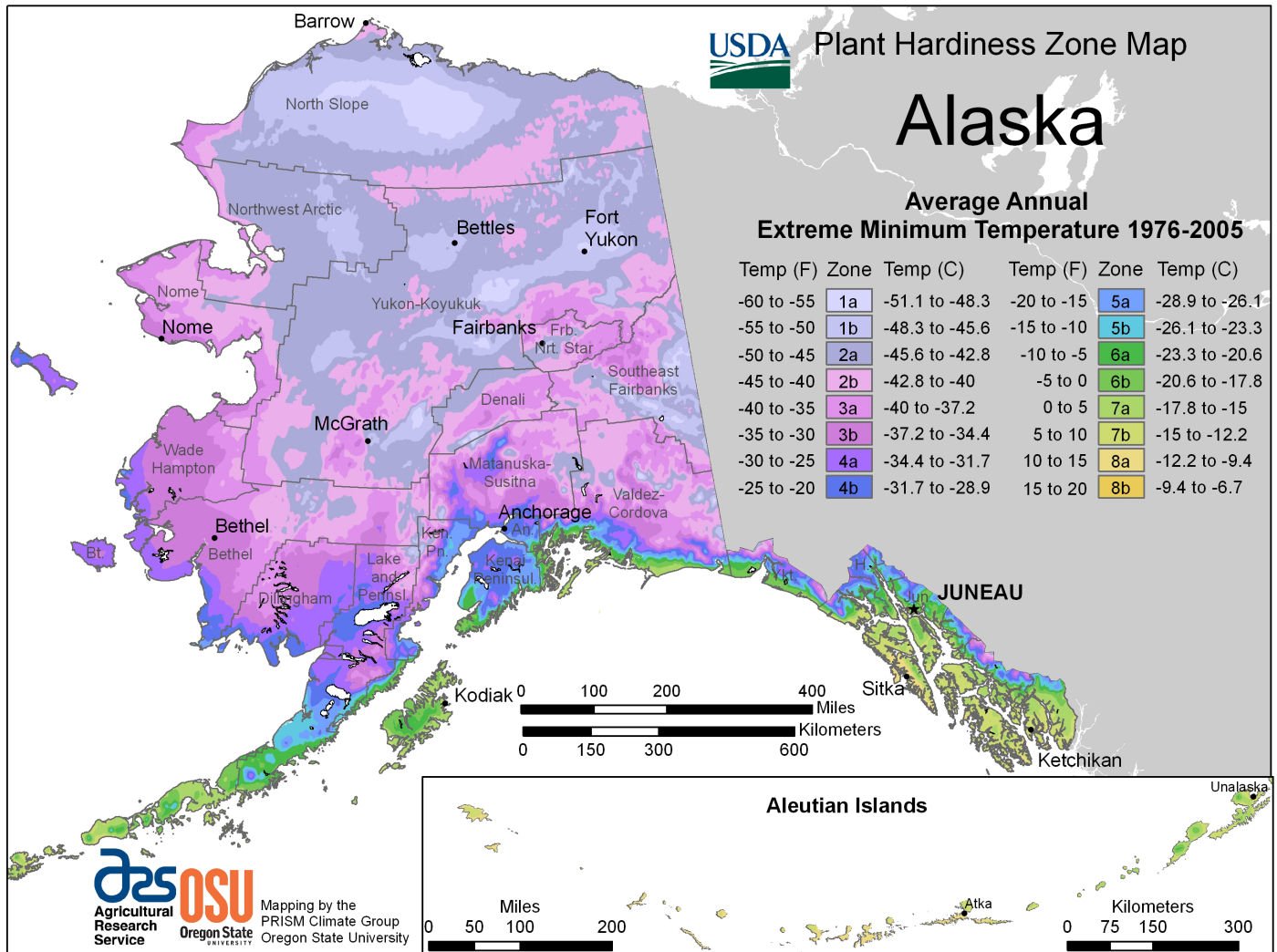


Figure 1. USDA Plant Hardiness Zone Map

in a climatic zone colder than the one they are rated for. Such a rare occurrence can only occur where there is good soil drainage, full sunlight, adequate water, proper nutrition, mulching and wind protection.

Selecting a Site

Although it is important to plant the tree where the it will provide maximum benefit to its owner, the main consideration should be finding a spot where the tree will be healthy and have room to grow.

A south-facing gentle slope is ideal. An east-facing exposure is better than west, and a northern exposure is the poorest. Avoid low areas where cold air or water accumulate. Choose a planting site where there is adequate wind protection. The south side of a building is preferred, especially if it reflects sunlight.

Soil drainage is another important consideration.

Fruit trees will not tolerate “wet feet” caused by poorly drained soil. Saturated conditions caused by poorly drained soil will prevent oxygen from reaching tree roots. To assess soil drainage, try a soil percolation test. A soil percolation test has four steps:

Step 1: Dig a hole 18 inches to 3 feet deep that is 6 inches to 12 inches wide.

Step 2: Fill the hole with water.

Step 3: Give it some time (usually a couple of hours) and let the water drain out of the hole.

Step 4: Fill the hole with water again and measure the rate that the water drains (percolates) out of the hole. The ideal rate is 1 to 2 inches of drainage per hour. If after a few hours none of the water has drained away, look for a different place to plant your tree.

Give your trees space to grow. Roots will usually

grow in the upper 4 to 18 inches of soil around the tree, and roots can extend far beyond the drip line. Do not crowd trees (Table 1). Avoid areas that have traffic from heavy equipment or vehicles to prevent soil compaction and encroachment over the rooting zone of a tree. It is advisable to plant trees at least 15 to 30 feet away from power lines, power poles, buildings or other structures.

Table 1. Distance Recommended Between Fruit Trees

Type of tree	Distance between trees (feet)	Estimated height at maturity (feet)
Apricot	20	20
Apple, standard	30	20-25
Apple, semidwarf	15	12-15
Apple, dwarf	10	10
Cherry, standard sweet	20	30
Cherry, semidwarf sweet	15	15-20
Cherry, dwarf sweet	10	12-15
Cherry, standard sour	20	20
Cherry, semidwarf sour	15	12-15
Cherry, dwarf sour	10	8
Pear, standard	20	20
Pear, semidwarf	15	15
Pear, dwarf	12	12-15
Plum	20	20
Plum, semidwarf	12	12-15
Plum, dwarf	10	8-10

used for transport. Dig the hole so that it is at least two times wider than the spread (width) of the roots. If the soil is poor (compacted and low in organic matter), a hole up to four or five times the width of the roots is recommended. The hole should be no deeper than the height of the tree from the base of trunk flare to the bottom of the roots (Figure 2).

To expose and identify the upper portion of the main root system, carefully remove the soil from the top of the root ball. For trees that come in burlap, a basket or a container, you may want to soak the root ball in a large tub of water to remove some of the soil from around the roots. Removing soil will allow any circling or damaged roots to be identified and removed prior to planting. Prune any roots that are diseased, circling or damaged. Prune roots back to where there is white, healthy tissue. Try to leave most of the roots intact. Removing soil may also reduce the risk of weed invasion and will allow the tree to grow in a more uniform soil medium. Lastly, removing some of the soil can make the tree lighter and easier to handle while planting.

The hole for the tree should be shallow and wide. Any grass, leaves or large rocks within the hole should be removed. The sides and bottom of the hole should be roughened — but not made too soft — just enough to allow for root penetration after the tree is planted. Newly planted trees should sit on firm,

Planting Your Tree

Do not postpone planting your tree. The growing season in Alaska is relatively short. Make the most of suitable growing conditions. Water your tree prior to planting. It is also advisable to plant your tree on a cool or cloudy day to avoid excessive moisture loss. Before you start digging a hole, remove any twine, wire, wrap or tags from around the tree, and remove the tree from the burlap, wire basket or container that was

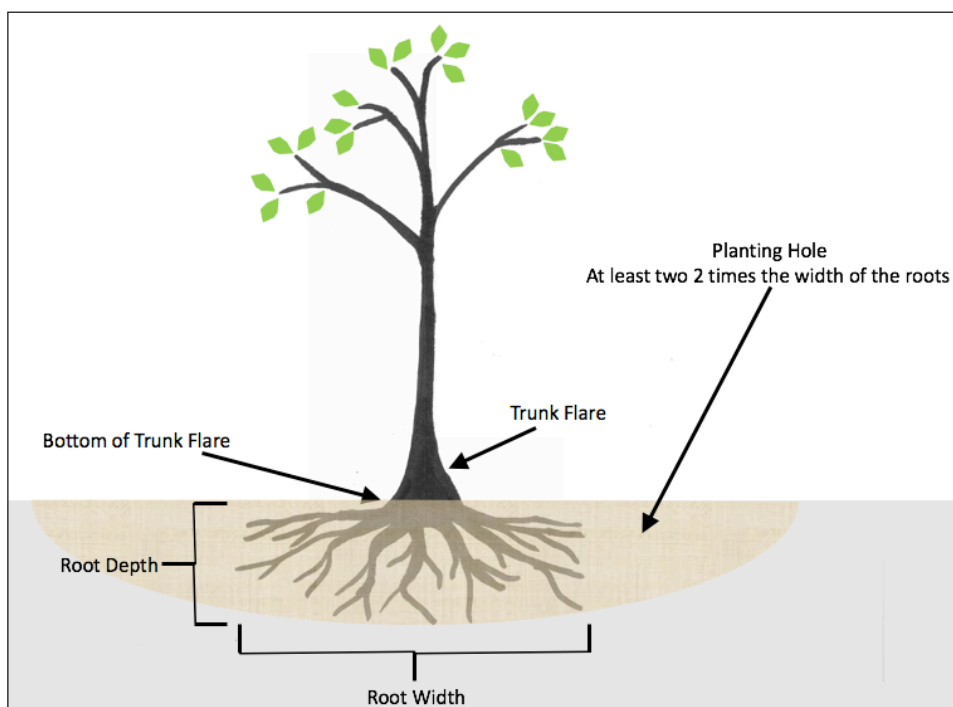


Figure 2. Tree-planting diagram

not loose, soil. Loose soil will settle after planting and result in an unstable root system. Once the hole has been properly prepared, gently set your tree into the hole. Spread and separate the roots so that they will grow out into the surrounding soil. The trunk flare should be just above ground level. Do not plant the tree too deep. Planting the tree too deep may reduce the amount of water and oxygen available for the tree roots, causing the roots and trunk to die and decay.

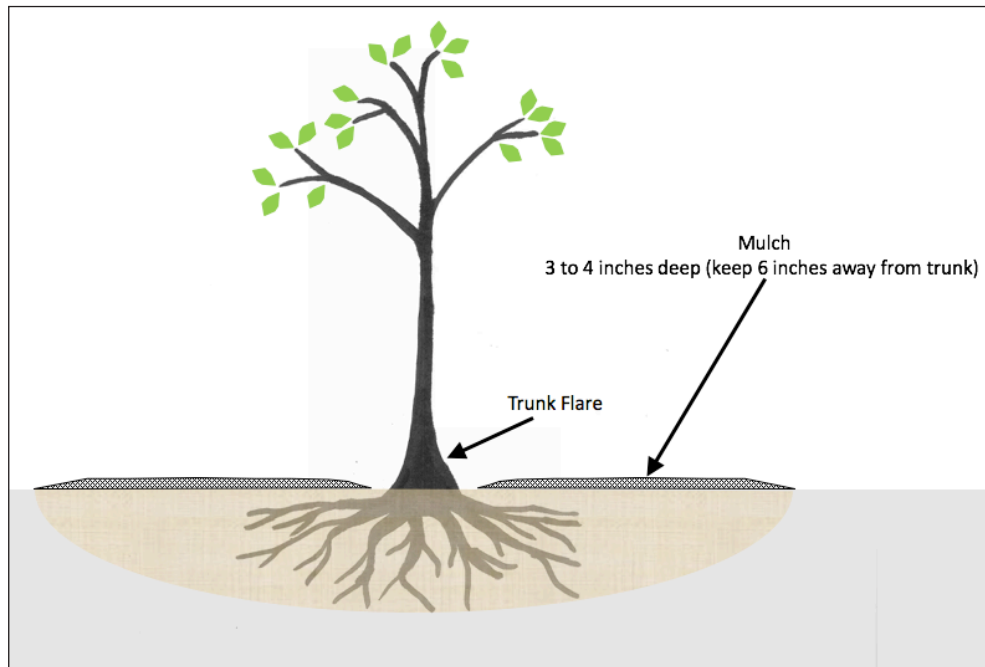


Figure 3. Tree planted with mulch

Prior to planting, it is advisable to conduct a soil pH test. The ideal pH for fruit trees is between 6 and 6.5. A soil test will indicate whether or not lime is required; requesting a lime recommendation at the time of your soil test will indicate how much lime to add to your soil if it is needed. If lime is recommended, incorporate the proper amount and any other amendments into the parent soil that was excavated from the hole. Do not add too much lime. In situations where the parent soil is compacted, heavy sand, heavy clay or very gravelly, it is advisable to amend it with some topsoil, compost or peat. When determining how much topsoil, compost or peat to add to the hole, consider a ratio of one part topsoil/peat to two parts parent soil. Mix these materials so that the soil has a gradual transition to the surrounding area outside of hole. Backfill the hole with the soil in one-third increments. After the hole has been completely backfilled to the proper height (not above the trunk flare), avoid walking on the soil to prevent root damage and soil compaction.

After Planting

Any broken, dead or diseased branches should be pruned entirely or pruned to within $\frac{3}{4}$ inch to 1 inch from the first outward-pointing healthy bud. A thorough soaking once or twice a week should provide enough water unless the weather is extremely dry. Fertilizer is not generally recommended at the time of planting. Delaying the use of fertilizer

will avoid creating a nutrient-rich hole surrounded by poor soil, and it will help encourage root growth into surrounding soil. Testing the soil the spring after planting may be a good time to determine if the soil requires additional nutrients.

Newly planted trees should not have mulch placed directly over the root ball (Figure 3). Mulch (wood/bark chips) can be applied the second year after planting. Do not use sawdust. Sawdust can inhibit proper movement of air and water into the soil. Mulch should not be applied directly against the tree trunk, and it should be positioned 6 inches away from the trunk flare. Mulch can provide weed control, moderate soil temperatures and help prevent compaction from foot traffic. Areas to avoid mulching are open, windy areas and areas that already have wet soils. Mulch should be 3 to 4 inches deep but no deeper than 4 inches. Placing mulch over newly planted trees and applying mulch deeper than 4 inches may result in reduced oxygen to tree roots.

Staking Your Tree

Trees should be staked only as needed to stabilize their roots. If necessary, a tree may be staked and then tied loosely with nylon hose, rubber hose or horticultural tape around the trunk to keep it from toppling in strong winds. Proper staking lets the tree sway a few inches (wiggle room) but will not allow

it to topple over. Do not use wire for staking, even if it is coated or housed within rubber or hose. When attaching ties to deciduous trees, the tie is generally located just below the lowest branch or one-third of the way up from the bottom of the tree. Ties can be removed within one year or kept, as needed, until the roots have grown to anchor the tree into the soil.

Protecting Your Tree

Protecting young trees from browse damage by moose or deer may be the most important action you take for your tree. Many methods of repelling moose and deer have been attempted, but none are foolproof. Exclusion of herbivores using a protective barrier has the highest rate of success. A stout cage, built of two-by-two boards and chicken wire is suitable for protecting a single tree. Additionally, a length of 4-foot-tall fencing hung from posts that are positioned with the fencing 3 to 7 feet off the ground have been used. Even retired fishing nets supported on posts have been used effectively. Trees should be protected at least from late summer until early spring. Fencing should be placed far enough from the tree to provide a big enough buffer for the tree to grow and to prevent a deer or moose from reaching over or through the fence to eat the tender branches inside. A better long-term solution for several trees is to erect a wire fence at least 8 feet high around the outside of the orchard area.

Because, young apple, cherry, crabapple and pear trees have thin bark, they are susceptible to sunscald injury from October to early May, especially in sunny locations. When tree bark that has been heated by the sun is abruptly exposed to cold temperatures, the living cells just inside the outer bark (phloem and cambium) can be damaged. Older trees with thicker bark are generally not affected. Protecting trees from sunscald is relatively easy and inexpensive and involves insulating and/or shading the bark during winter and early spring for a minimum of three winters. Flexible tree wrap can be applied seasonally to protect young trees, but the wrap should be removed in spring to avoid harboring pests. There are many different tree wraps available for purchase. Tree wraps should be light-colored, opaque, nonabsorbent and flexible. Wrapping trees may also protect trunks from rodent damage. An alternative to tree wrapping is to use white latex interior paint. If using

paint, consider diluting the paint 1:1 with water. Do not use exterior paints, since they may contain antimicrobial agents that can damage the tree.

Apple Tree Varieties

Many of the apple trees purchased today are the result of grafting two different trees together. Grafting involves fixing a desirable fruit producing scion (top) on to a dependable and hardy rootstock (bottom). The rootstock that is used will often determine tree size, fruit bearing age, resistance to drought or disease, and tolerance to cold. In Alaska, rootstocks are chosen primarily to obtain superior cold hardiness. For this reason, rootstock for Alaska-grown apple trees are typically sourced from either the Siberian crabapple (*Malus baccata*) or other cold hardy crabapple varieties (Columbia, Dolgo, Ranetka or Red Splendor). Antanovka and Beautiful Arcade apple varieties have also been used with satisfactory results.

The Malling, Merton Malling and EMLA dwarfing rootstocks commonly used by nurseries in the Lower 48 are not reliably winter-hardy in Alaska. These are commonly designated by a letter followed by a number, such as M.26, EMLA 7, MM 111, etc. Dwarfing rootstocks such as these and others lack the vigor required to grow well in Alaska's short growing season. Apple trees in Alaska may require decades to grow over 15 feet high.

Yellow Transparent, Rescue, and Summered apple tree varieties are considered highly self-fertile. For other varieties and to reduce the risk of pollination failure, it is best to plant two or more different apple varieties together. White-blossomed crabapples are excellent pollinators for either crabapples or standard apples and are included in many orchards. Tree spacing is important to improve the odds of pollination (Table 1).

Only a select group of apple tree varieties are both cold-hardy and productive in Alaska. Nevertheless, there are dozens of apple and applecrab (apple-crabapple crosses) varieties available to choose from.

Considerations for Bearing-Age Apple Trees

Most fruit trees will bear fruit productively within three to five years of planting. Once trees begin to

reach bearing age, certain considerations must be made. Young trees should not be allowed to over-set fruit. Trees with overset fruit may have reduced winter survival, since oversetting can reduce energy stores needed for tree roots during long Alaska winters. As a rule, there should be approximately 30 to 40 healthy leaves per apple on the tree for desirable fruits and to maintain tree health. It is good practice to thin the first crops of fruit produced to maintain this balance and to reduce the risk of poor winter survival. Thinning fruits in this manner can also help prevent tree damage from the excessive weight of overset fruit on flexible young tree limbs.

Structural pruning of the tree should be kept to a minimum until the tree begins to produce fruit. Limbs that grow into the interior of the tree, rub against another branch or are growing parallel to and within several inches of another branch may be pruned in late winter or very early spring while the tree is still dormant. Suckers that start growing from the rootstock should be removed. In later years, pruning should be done to develop strong scaffold branches.

Tree limbs should be spread, if necessary, to form crotches at angles of 45 to 60 degrees to the main trunk. This will make them stronger, prevent winter injury and cause the branches to produce more fruit at an earlier age. Small pieces of wood with a V-shaped notch in both ends work well for this purpose when inserted between the branch and the trunk.

The following recommended varieties of fruit trees are listed in approximate order of ripening.

Recommended Varieties of Apples

Rescue — Hardy in Zones 1 and 2. Rounded to spreading in form. This apple-crabapple cross (applecrab) is highly productive, an annual bearer and bears very young. Fruit has greenish-yellow background well washed with dull to bright red, is conic, 3 to 4 centimeters, firm, spicy-sweet, good for eating and excellent for culinary use. It keeps less than a month and becomes mealy when overmature. Fruit ripens early to mid-September in Southcentral, early September in Fairbanks.

Heyer #12 — Hardy in Zones 1 and 2. This apple grows upright to spreading with large limb-to-

trunk angles. Tree bears regularly in Fairbanks and Southcentral. Tree bears very young, is moderately productive and recovers well if winter-injured. Fruit is yellowish-green, yellow when overmature, 4 to 6 centimeters across, mildly acid and tart with creamy white, coarse flesh. Fair for eating, better for sauce and pies, the fruit is highly perishable and breaks down quickly after ripening. Ripens early September in Fairbanks, mid-September in Anchorage.

Patterson — Hardy in Zones 1 and 2. This Canadian apple is represented by bearing trees in Fairbanks. It is productive and moderately precocious in bearing. Fruits are pale green, overlaid with a purplish-red blush, 5 to 6 centimeters diameter. Flesh is crisp and juicy with a good flavor. The fruit is said to keep well and ripens early to mid-September in Fairbanks, mid-September in Southcentral.

Kerr — Hardy in Zones 1 and 2, represented by productive, healthy trees in Fairbanks, where fruit ripens early to mid-September. Fruit is purplish-red in color, 3 to 4 centimeters in diameter, best for sauce, jellies and pies. It should be allowed to mellow in storage for a month or two before eating. Keeps until March. This is an applecrab.

Norland — Hardy in Zone 2. This Canadian apple is represented by bearing trees in Fairbanks, Palmer and Anchorage. Tree is a genetic semidwarf, upright to spreading, very hardy, precocious and productive in bearing. Fruit is oblong, conic in shape, 5 to 7 centimeters long, greenish-yellow background with striped red overcolor. Flesh is cream colored, slightly coarse, moderately acid but with a very good flavor. Fruit is good for both eating and cooking and stores at least 16 weeks if picked slightly immature. Ripens early to mid-September in Southcentral.

Norkent — Hardy in Zone 2. Very hardy and sturdy. Parentage is a cross of the Haralson and Rescue varieties. Orange striped yellow apple, 7 centimeters in diameter. May produce fruit a year earlier than other varieties. Taste is similar to an apple-pear and often compared to the Golden Delicious. Fruit is good for both eating and cooking. May store for approximately three months.

Parkland — Hardy in Zone 2. This Canadian apple is one of the leading apples grown in Alaska. A genetic semidwarf resulting from a Melba and Rescue

crossing. The tree is very hard and productive. Fruit is 6 to 7 centimeters long, yellow green in color with red blush. Flesh is white with a pleasant tart taste. Makes excellent preserves. Generally, stores longer and considered a better quality fruit than Norland. Ripens late August to September in Southcentral.

Yellow Transparent — Hardy in Zones 2 and 3, a popular variety in Southcentral and Southeast Alaska. Tree is somewhat upright in form, bears very young, is an excellent pollinizer and is productive. Fruit or skin of fruit is clear, white to pale yellow. Flesh is white and of good flavor for eating; excellent for culinary uses. Fruit is round, 5 to 8 centimeters, best picked when slightly immature. It keeps for only a few weeks, even under refrigeration. Ripens early to mid-September in Southcentral.

Lodi (Improved Yellow Transparent) — Tree is hardy in Zones 2 and 3. Very similar to Yellow Transparent except that it ripens a few days later, is slightly larger and more tart, and it keeps longer. Excellent for culinary use, the fruit is greenish when ripe. Lodi is a commercial cultivar in parts of the Western United States

Red Duchess — Hardy in Zones 2 and 3. Tree blossoms early in season, produces red fruits 5 to 7 centimeters diameter and ripens mid- to late September. Fruit is tart, best for culinary use only.

Oriole — Hardy in Zones 2 and 3. Tree is a cross of Yellow Transparent with Liveland Raspberry (Minnesota, 1949). Fruit is round to slightly flattened, 6 to 8 centimeters across, yellow with orange-red stripes on one side. Flesh is very firm, moderately sweet with some underlying tartness. Fruit is of excellent quality for eating and cooking, stores 8 to 12 weeks and ripens late September in Southcentral. Represented by 20-year-old trees in Anchorage.

Mantet — Hardy in Zone 3. Tree is somewhat spreading, attractive and productive. Fruit is amber, washed and striped with red, 5 to 7 centimeters diameter, excellent for fresh eating and pies but bruises easily. Flesh is juicy, tender, aromatic and sweet. Ripens mid- to late September in Southcentral. Tree is a cross of McIntosh with the Russian apple Tetovsky.

Westland — Hardy in Zone 3, possibly in 2. Tree is upright-spreading, moderately precocious and pro-

ductive, represented by bearing trees in Anchorage and Palmer. Fruits are 6 to 8 centimeters in diameter, greenish when ripe, very good for cooking, fair for eating.

Hazen — Hardy in Zone 3. Tree is spreading, moderately productive, a cross of Duchess with Delicious from North Dakota. Fruit is medium to large, dark red, with firm yellowish-green flesh, juicy, mild and sweet in flavor. Good for eating and cooking; should keep for a month or two. Ripens mid- to late September in Southcentral.

State Fair — Hardy in Zone 3. Tree is spreading and productive. Fruit is bright red, medium sized, subacid to sweet with crisp, yellowish flesh. Very good keeper, excellent for all purposes. Ripens late September in Southcentral.

Beacon — Hardy in Zone 3. Tree produces fruits 4 to 6 centimeters in diameter and pinkish-red in color. Fruit is juicy, good for eating, and should keep for a few months. Beacon was produced commercially in Washington in the 1970s. Tree is extremely productive, and fruit size may be improved by thinning the fruit when it is marble-sized. Ripens late September in Southcentral Alaska.

Chinese Golden Early — Hardy in Zone 3. Tree is very upright, forms numerous fruit spurs, bears very young and annually, and appears to be a good pollinator. Fruit is yellow, sweet, 3 to 5 centimeters in diameter, good for eating but only fair for cooking and pies. It is highly perishable and subject to watercore when fully ripe. Ripens from late August to mid-September in Southcentral Alaska.

Geneva Early — Hardy in Zone 3. Tree is a vigorous grower. Fruit is 5 to 7 centimeters across, solid pinkish-red. Flesh is aromatic, creamy white tinged with pink, semi-firm. Best for fresh eating but will keep at least a month. Ripens early September.

Vista Bella — Hardy in Zone 3. Tree is a vigorous grower and produces fruit 5 to 8 centimeters across, dark red, sweet, and firm. Should keep a month or two. Vista Bella is being grown commercially in Washington, and it ripens in Alaska in early September, with Geneva Early.

Summerred — Hardy in Zone 3. Tree is upright to

spreading, productive, moderately precocious, somewhat self-fertile. Tends to grow long and lanky. Fruit turns red before it is ripe. Flesh is very firm. Fruit is best for culinary use when first picked but makes excellent eating after a few months of storage. Keeps until March or April. Fruit is 4 to 7 centimeters diameter and ripens late September in Southcentral Alaska.

There are a number of less available Canadian apples surviving on Siberian crabapple rootstocks. These bearing trees are located at the University of Alaska Fairbanks Experiment Farm and the Plant Materials Center in Palmer. Included are the six Nor-series cultivars from Beaverlodge, Alberta: (in order of ripening) Norcue, Noret, Norhey, Norson, Norda and Noran. The Trailman applecrab likewise survives, bears and ripens fully at those locations. All seven cultivars are precocious in bearing, hardy and good to eat, but only Norson, Norda and Noran will keep more than three months. Norda and Noran may not always ripen fully in Fairbanks' short growing season. Goodland, Battleford and Carroll are three other Canadian cultivars which are bearing apples in one or two locations in Fairbanks.

Other apples surviving and bearing in Southcentral are Collet, Viking and Sweet 16. This list is by no means exhaustive. It is provided to give detailed descriptions of cultivars noted for their early ripening, hardiness, good flavor, and availability.

Recommended Varieties of Cherries

No sweet cherry varieties have proved hardy in Southcentral. There are individual trees in Southeast, however. Sour or tart (pie) cherries are considerably hardier and will survive through Zone 3. Tart cherries do best on a well-drained, sandy loam soil. The three varieties most available (Meteor, North Star and Montmorency) are all self-fertile and productive. Maheleb is the rootstock most commonly used to propagate them.

North Star Dwarf — Tree is genetic dwarf, grows about 6 to 8 feet high at maturity. Fruit is dark red with yellowish flesh, meaty, juicy, with good flavor for pies and fresh eating. Fruit ripens late July to early August in Anchorage and is about 15 to 20 millimeters diameter; keeps about two weeks.

Meteor — Tree is 8 to 10 feet tall when mature and is slightly more cold-hardy than North Star Dwarf. Fruit is bright red with yellowish flesh, medium firm, medium juicy, with freestone pit. Good for pies and fresh eating; ripens about the same time as North Star Dwarf. Fruit slightly larger than North Star Dwarf.

Montmorency — The standard commercial pie cherry. Hardy to Zone 4, possibly Zone 3, but not as hardy as North Star Dwarf or Meteor. Fruit is brilliant red, excellent for pies and preserves. Tree is larger than Meteor.

Recommended Varieties of Plums

The Manchurian plum, *Prunus salicina mandshurica*, is the only variety currently proved to be winter-hardy in Southcentral Alaska. It can also yield ripe, sweet fruit. The quality, taste, size, ripening time and hardiness may vary somewhat because it is propagated from seed. Two Manchurian plum trees are required for cross-pollination. Plums tolerate heavier soils and more exposed locations than cherry trees. Cultural practices and requirements are similar to those for cherries.

Prunus americana, the native American plum, is commonly used as a rootstock for Japanese-American hybrid plums. It is hardy in Anchorage and is said to be hardy throughout Zone 3. Named Japanese-American hybrid plums that have survived three or more winters in Anchorage are listed below. These are only recommended for planting on an experimental basis.

Toka — This plum is a superb pollinator of other hardy Japanese-American hybrids and produces spicy-sweet, good-quality fruit. Toka has survived and blossomed in a few locations in Anchorage but has not fruited yet.

Underwood — This cultivar ripens very early and has proved hardy in Anchorage and the Matanuska-Susitna Valley. It has blossomed in these locations but has not fruited.

Pembina — Originating in Canada, this plum has proved fully hardy in west Anchorage and has blossomed, but not fruited, there after three winters.

Sapa — Has survived three winters (including a test winter) in west Anchorage and is worth a try elsewhere.

Pipestone — The fruit ripens fairly early and shows promise of being fairly hardy, but its pollen is sterile and will not pollinize other plums.

Superior — A Minnesota plum whose fruit quality is worthy of the name, it is the pollinizer of choice for Toka. Superior is not as hardy as the above and is best for warmer and more sheltered locations.

Other Japanese-American hybrid plums that show promise for Southcentral and Southeast Alaska include LaCrescent, Alderman and Waneta.

Mount Royal, of the European plums, produces ripe fruit in Juneau. This Canadian cultivar is self-fertile and may be tried on an experimental basis in Southcentral Alaska.

Plums have proven difficult to pollinate in Alaska. Use at least two different Japanese-American hybrid cultivars or seedling Manchurian plums to insure cross pollination and plant in full sunlight. Plant trees close together (8 to 10 feet). Planting the trees near a source of bumblebees or honeybees will also help. The trees will blossom in late May to early June.

Recommended Varieties of Apricots

Manchurian apricots are the only reliably winter-hardy variety in Southcentral Alaska. Like the Manchurian plum, they are propagated by seed and hence vary in quality. The greater heat requirement of apricots suggests that they should be planted in the warmest, sunniest location available. As with the Manchurian plum, ripening dates, taste and size will vary somewhat, but Manchurian apricots are self-fertile. Hardiness is Zone 3 and 4.

So far, on record, no named apricot cultivars have fruited or even blossomed in Alaska outdoors. Nevertheless, the cultivars described below are worth planting experimentally based on hardiness and early ripening.

For rootstocks, Manchurian apricot seedlings are significantly hardier than common apricot seedlings. Apricots are sometimes grown on plum rootstocks in heavier or less well-drained soils, but suitability of this combination for Alaska is unknown.

Moongold and Sungold — These two Minnesota apricots have survived three winters at one loca-

tion in west Anchorage. Each requires the other for cross pollination. (The other apricots mentioned are self-fertile).

The Har-Series — Developed in the province of Ontario, the two earliest ripening are Harcot and Hargrand, which ripens nine days later than Harcot. In Illinois, they fruited after -25°F. Fruit quality is high.

Goldcot — This Michigan apricot, more self-fertile than most, ripens four days after Harcot. Fruit is medium-sized with good flavor, although the skin is said to be thick and tough.

Scout and Manchu — These two selected Manchurian apricot seedlings were selected for good-quality fruit as well as for hardiness. Both are said to be better for cooking than for eating. They evidently ripen at the same time as Goldcot or slightly later.

Puget Gold — This 1987 introduction from Washington State University originated as a seedling tree in Anacortes, Washington, on Puget Sound. Its blossoms are exceptionally frost-resistant. The tree appears to be better adapted to cool, moist growing conditions than most apricots and the fruit ripens early. As such, it may be worth trying in Southcentral or Southeast Alaska.

Strathmore — This Canadian cultivar is represented by two trees in south Anchorage that survived the winter of 1987-88 with little winterkill on their branch tips. According to Valley Nursery in Helena, Montana, it is hardier and bears better quality fruit than Scout.

Other apricots that, if available, are worth planting on an experimental basis include Precious and Adirondack Gold (from New York) and from Canada, the cultivars Westcot, Morden 604, Debbie's Gold and Sunrise, all of which were developed in the Prairie Provinces.

Manchurian apricots bloom in mid- to late May in Anchorage and are ripe by late September. The ripening times of other named cultivars are unknown but probably will not occur before September 1.

Recommended Varieties of Pears

Ussurian pears are the only type considered reliably winter-hardy in Fairbanks and Anchorage, and

generally their fruit is extremely sour and small (2 to 3 centimeters). Pears of unknown variety have been established in Kodiak and Hope. Most pears require a pollinator and take somewhat longer (5 to 8 years) to come into bearing than cherries, apples, plums or apricots.

The following cultivars are recommended for planting on an experimental basis only. This recommendation is based on attempts to grow them in Anchorage or in other short-season locations with severe cold in the Lower 48 and Canada. None of these has fruited in Alaska. As with plums, every effort should be made to promote cross-pollination by planting two different varieties close together and providing or encouraging pollinating insects. *Pyrus communis*, the common seedling European pear, seems satisfactory as a rootstock for Southcentral and Southeast Alaska. The Old Home x Farmlandale 333 rootstock appears satisfactory for Anchorage and points south.

Hudar — This New York pear is described as hardy in Zones 1 and 2. Fruit is yellow, juicy, good for eating and fair for canning. It should ripen in Southcentral Alaska in early September. Hudar has survived three winters in Anchorage.

Summer Crisp — Discovered in 1933, this Minnesota pear is similar to Luscious but ripens much earlier. It is a superb pollinizer of other pears and blossoms at a young age. The original tree has withstood -35°F temperatures and bears fruit, which is best picked while still crisp. Good for eating and fair for canning, this cultivar shows good promise for Southcentral and Southeast Alaska. It should ripen in mid-September in Southcentral.

Parker and Patten — These are two Minnesota pears that have both survived three winters in one location in west Anchorage, but are said to be slightly less hardy than Summer Crisp. Fruit quality is said to be good; ripening time, mid- to late September.

Clapp's Favorite — Similar to Bartlett but more intense in flavor. Its hardiness in Southcentral Alaska is not fully proven. It should ripen mid- to late September in Southcentral.

Ure — An extremely hardy Canadian cross of European with Ussurian pear, yielding medium-sized, flavor-

ful fruits. Hardy in Zone 1. The tree is a slow grower.

Nova — A high-quality New York pear, hardy to Zone 1, can be used green or ripe.

Luscious — Prairie pear, very hardy, good quality. Ure, Nova and Luscious should ripen in late September in Southcentral Alaska.

General Considerations for Experimentation

The grower considering purchase of fruit tree cultivars other than hardy apples or cherries from Lower 48 nurseries, or even here in Alaska, should consider the following:

1. How hardy or how far north is it currently being grown?
2. On what rootstock is it being sold?
3. What are its genetic parents?
4. What are its pollination requirements?
5. When does it ripen? The hardiness zone of the nursery selling the stock is also worth knowing, especially if the nursery grows its own trees for sale.

Generally, varieties or rootstocks developed in the Soviet Union, Canada, Manchuria, northern Europe or the northern U.S. (for example, Minnesota, North Dakota, New England) will have the best chance of adapting to Alaska conditions. It should be noted however, that Alaska has many microclimates. Fruit trees that may grow successfully in your neighbor's garden may not grow in yours just a short distance away. The closer your site comes to meeting the ideal environments of the chosen fruit variety, the greater the chance for success.

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References

USDA Plant Hardiness Zone Map, 2012. Agricultural Research Service, U.S. Department of Agriculture. Accessed from <http://planthardiness.ars.usda.gov>

Glossary

Cambium — A region of rapidly dividing cells beneath the bark which produce xylem cells (woody tissue) and phloem cells (food conducting tissue).

Cultivar — A contraction of “cultivated variety.” A plant type within a cultivated species which is distinguished by one or more unique characteristics.

Fruit-set — The formation of the fruit subsequent to pollination and fertilization taking place.

Harden-off — The process of acclimating young plants to a new environment. Normally it is a gradual process which allows them to be planted in a harsher outdoor environment.

Microclimate — The climate in the immediate vicinity; usually referring to a plant’s environment.

Overset — Usually referring to a fruiting plant producing more fruit than it can support to maturity.

pH — A symbol that denotes the relative concentra-

tion of hydrogen ions in a solution. This determines its acidity or alkalinity. A pH of 7 is neutral. Below 7 is acidic while above 7 is alkaline. The pH values range from 0 to 14.

Prairie Provinces — Normally referring to the Canadian provinces of Alberta, Manitoba, and Saskatchewan.

Precocious — Developing very early. Often referring to plants that flower before the appearance of leaves, but is also used to indicate early fruit production.

Rootstocks — The root system onto which a fruit tree is grafted. It may impart such characteristics as hardiness and dwarfing.

Self-fertile — A plant that can produce fruit through self-fertilization with its own pollen.

Suckers — Shoots that arise from locations along the trunk of a tree (water sprouts) or a stem arising from a root.

Sun Scald — Injury produced on the trunk of thin barked young trees. It normally occurs when the sun is shining on the bark on a cold winter day and is accompanied by a rapid change in temperature.

Watercore — The center of an apple which has become soft as intercellular spaces fill with water.

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