

# Growing Tree and Bush Fruits in Alaska

Although tree fruits were grown commercially in Haines at the turn of the century, commercial production is not practical in Alaska at this time. Alaskan growers have successfully established several dozen apple varieties and several cherries, plums, and apricots in locations from Ketchikan to Fairbanks and west to Kodiak. Most of this success depends on a favorable location and special care associated with home culture.

Alaska has long, cold winters, short and oftentimes cloudy summers, wind, and other problems unique to northern latitudes. The gardener who hopes to grow anything other than a few hardy crabapples will need to consider the microclimate, slope, soil, sun exposure, suitable varieties and hardy rootstocks. Flower pollination and protection from sunscald, moose, and rodents also have to be considered.

## Cultural Considerations

The U.S. Department of Agriculture has assigned zone ratings to areas based on the extreme low temperature recorded there. (See below). Most of Alaska north of the Alaska Range is Zone 1. Zone 2 occurs in favored locations with 600 to 1200 foot elevations around Fairbanks, parts of the Matanuska-Susitna Valley, and the upper hillside area of Anchorage. Much of the Anchorage Bowl is considered Zone 3, likewise the Kenai Peninsula and the lower parts of the Mat-Su Valley. Zone 4 is found around Seward, Homer, Valdez, and favored parts of Anchorage; Zone 5, Kodiak and parts of Southeast.

## Climatic Zones

Zone 1	=	-50°F or lower
Zone 2	=	-40°F to -50°F
Zone 3	=	-30°F to -40°F
Zone 4	=	-20°F to -30°F
Zone 5	=	-10°F to -20°F
Zone 6	=	0°F to -10°F

Good soil drainage, full sunlight, adequate water and proper nutrition, mulching and wind protection can often enable a tree to survive a full climatic zone colder than it is rated for.

A tree must “harden off” its new growth to prepare for winter. Because of the brief autumn in Alaska, some varieties cannot accomplish this quickly enough. Freeze-and-thaw cycles also reduce hardiness, especially when they occur in late winter.

## Site Selection and Planting

Selection of a good site is important. A south-facing gentle slope is ideal; an east-facing exposure is better than west, and of course a northern exposure is the poorest. Avoid low areas where cold air accumulates. Choose planting sites where there is adequate wind protection. The south side of a building is good, especially if it reflects sunlight. Soil drainage is also an important consideration. Fruit trees will not tolerate “wet feet” caused by poorly drained soil.

The planting hole should be five times the diameter of the root ball, and 1½ to 2 feet deep to allow for backfilling. Mix in enough lime to raise the pH of the soil to 6.0 to 6.8. Well-composted manure mixed with the soil will both improve its structure and provide the tree some nutrition. Slow-release fertilizers, at the rate of one cupful per inch of trunk diameter, may be thoroughly mixed with the soil. A complete analysis fertilizer should be added in following years to maintain fertility.

Once planted, the tree should be staked loosely with nylon hose, rubber hose, or horticultural tape around the trunk to keep it from toppling in strong winds. A thorough soaking once or twice a week should be adequate unless the weather is extremely dry. Upon planting the tree, any broken, dead or diseased branches should be pruned entirely or pruned to the first outward-pointing healthy bud.

Protection of young trees from moose-browse damage is essential. Most damage seems to occur in late summer, fall and early winter. Various remedies to repel moose — balls of human hair, soap bars, deer and rabbit repellent — have been tried, but none are foolproof. A stout cage, built of 2 x 2s and chicken wire is fine for protecting just one tree. A better long-term solution for several trees is to erect a wire fence at least 6 to 8 feet high around the trees. A length of 4-foot wide fencing, hung from fenceposts 3 to 7 feet off the ground, should suffice.

Young apple, crabapple, and pear trees have thin bark and will need protection from sunscald in the winter and early spring, especially in sunny locations. The sun heating the trunk, followed by abrupt freezing of the sap, will often damage the cambium layer under the bark, which could injure or kill the tree.

Sunscald may be prevented by shielding the tree trunk from the direct rays of the sun. Wrap the trunk from the ground to the first branch with any material which is light-colored, opaque, non-absorbent, and flexible. (This will also protect the trunk from rodent damage.) Wrapping should be applied in October and removed in early May. Protection should not be required after the tree has become acclimated and established in a location.

### Variety Selection

The rootstock that a tree is grafted onto may be chosen to determine tree size, encourage early bearing, or promote resistance to drought or disease. In Alaska rootstocks are chosen to obtain hardiness. Alaska-grown apple trees usually have super-hardy crabapples such as *Malus baccata*, the Siberian crabapple; or varieties such as Columbia, Dolgo, Ranetka or Red Splendor as rootstocks. The apple varieties Antanovka and Beautiful Arcade are also used and have generally proved satisfactory as rootstocks.

The Malling, Merton Malling, and EMLA dwarfing rootstocks commonly used by nurseries in the Lower 48 states 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 our short growing seasons. Apple trees will require decades to grow over 15 feet high in Anchorage, for example.

Although many apple varieties are partially self-fertile, it is generally best to plant two different varieties to guarantee good pollination. Some popular Alaskan apple varieties, such as Yellow Transparent, Rescue, and Summerred, are highly self-fertile. Furthermore, white-blossomed crabapples are excellent pollinators for either applecrabs or standard apples. The closer the trees, the better the pollination and resulting fruit-set will be. A spacing of 10 feet for upright and 14 feet for spreading cultivars should be adequate.

None of the apple cultivars commonly sold in supermarkets will ripen in our short growing season. Nevertheless, there are dozens of summer apple and applecrab (apple-crabapple crosses) cultivars of good flavor which are represented by bearing trees in Southeast and Southcentral Alaska and even the Interior.

### Considerations for Bearing-Age Trees

As a rule, it takes about 30 to 40 healthy leaves to properly nourish one apple. The sugars formed by photosynthesis in the leaves must be used not only for production of fruit, but must also be stored as energy reserves to get it through the long Alaska winters. Young trees that are allowed to overset fruit may not survive the winter. This is especially true if their overset occurs during the first three years after

planting. It is a good practice to thin most of the first crop produced to reduce the potential for this problem.

Pruning should be kept to a minimum until the tree begins to bear. Limbs which grow into the interior of the tree, or rub against another branch, or are growing parallel to and within several inches of another branch may be pruned in early spring while the tree is still dormant. Remove any suckers that start growing from the rootstock. Later 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.

## RECOMMENDED VARIETIES OF TREE FRUITS

### APPLES

*(in approximate order of ripening)*

**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 cm 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 cm 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 cm 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.

**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 pollenizer, as well as being 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 cm, 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 U.S.

**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 cm long, greenish-yellow background with striped red overcolor. Flesh is cream colored, slightly coarse, moderately acid but of 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.

**Rescue** — Hardy in Zones 1 and 2. Rounded to spreading in form. Highly productive, annual bearer, bears very young. Fruit has greenish-yellow background well washed with dull to bright red, is conic, 3 to 4 cm, 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. Apple-crabapple cross.

**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 and is moderately productive, and recovers well if winter-injured. Fruit is yellowish-green, yellow when overmature, 4 to 6 cm 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.

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

**Mantet** — Hardy in Zone 3. Tree is somewhat spreading, attractive, and productive. Fruit is amber, washed and striped with red, 5 to 7 cm 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.

**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 cm diameter. Flesh is crisp, juicy, with a good flavor. The fruit is said to keep well and ripens early to mid September in Fairbanks, mid September in Southcentral.

**Westland** — Hardy in Zone 3, possibly in 2. Tree is upright-spreading, moderately precocious and productive, represented by bearing trees in Anchorage and Palmer. Fruits

are 6 to 8 cm 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, flavor mild and sweet. Good for eating and cooking, should keep for a month or two. Ripens mid to late September in Southcentral.

**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 cm 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, ripens late September in Southcentral. Represented by 20-year-old trees in Anchorage.

**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 cm diameter, 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.

**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 cm 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.

**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 cm 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 Experimental Farm in Fairbanks 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 Nor-

son, 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.

## 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, flesh yellowish, 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 mm 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.

## PLUMS

The Manchurian plum, *Prunus salicina mandshurica*, is the only variety currently proved 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 which have survived three or more winters in Anchorage are list-

ed 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 proven 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 proven fully hardy in west Anchorage and has blossomed there, but not fruited, 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 which 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 help also. The trees will blossom in late May to early June.

## 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 suggest that they should be planted in the warmest, sunniest location available. As with Manchurian plum, ripening dates, taste, and size will vary somewhat, but Manchurian apricots are self-fertile. Hardiness is Zone 3 and 4.

As of 1988 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.

## PEARS

For rootstocks, Manchurian apricot seedlings are significantly hardier than common apricot seedlings. Apricots are sometimes grown on plum rootstocks for 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 location 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, 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 which 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 in south Anchorage which survived the winter of 1987-88 with little winterkill on its branch tips. According to Valley Nursery in Helena, Montana, it is hardier and bears better quality fruit than Scout.

Other apricots which, 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.

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 cm). Pears of unknown variety have been established in Kodiak and Hope. Most pears require a pollinator and take somewhat longer (age 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 in 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 Farmindale 333 rootstock appears satisfactory for Anchorage and points south.

**Hudar** — This New York pear is described as hardy to Zones 1 and 2. Fruit is yellow, juicy, good for eating, 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 in characteristics to Luscious but ripens much earlier. It is a superb pollenizer of other pears and blossoms at a young age. The original tree has withstood -35°F temperature and bears fruit which is best picked while still crisp. Good for eating, fair for canning, this cultivar shows good promise for Southcentral and Southeast Alaska. It should ripen in mid September in Southcentral.

**Parker and Patten** — Two Minnesota pears which 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, flavorful fruits. Hardy in Zone 1. The tree is a slow grower.

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

**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 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 Alaskan conditions.

## GROWING BUSH FRUITS

The common bush fruits — raspberries, gooseberries, and currants — are all suitable for the home garden. Some of these may even be worked into the landscape plan. Red raspberries can be used as an ornamental hedge (not to serve as a fence). Currants and gooseberries can be used in the shrub border. Special care is necessary to supply water and nutrients when plants are used in landscape planting. The number of plants needed will depend on the size of the family and the degree of success in growing them. Yields for an established raspberry planting may be as much as 2 to 3 pints of fruit for each original plant. Twenty-five plants should supply a family of five with fresh fruit and a small surplus for canning.

### Soil Requirements and Planting Distances

Bush fruits may be grown on a rather wide range of soil types, but all of them will make better growth if organic matter is fairly high and there is a good supply of moisture.

Raspberries thrive on a wide range of soil textures, ranging from sandy soils to well-drained clay loams.

The plants should be set 24 to 30 inches apart in rows 7 to 8 feet apart. Since raspberries spread by producing suckers at some distance from the parent plant, they should not be planted near a property line fence or a perennial flower border.

Currants and gooseberries prefer soils ranging from sandy loam to clay loam. They may be set at 4 to 5 foot intervals in rows 6 feet apart.

### Spring vs. Fall Planting

Most gardeners prefer spring planting because the entire garden will be plowed and prepared at that time. Fall planting

of bush fruits is also satisfactory. It is important to do spring planting as early as the soil can be prepared. Plants for fall setting should not be dug until they have dropped their leaves, and planting should be completed by late October or before freeze-up.

It is preferable to plant currants and gooseberries in the fall. These plants begin to grow very early in spring when the soil is still too wet to be properly tilled. They mature early and are winter hardy.

### Fertilizers Will Be Needed

On Alaskan soils of average fertility an annual application of a good commercial fertilizer, such as 8-32-16 at the rate of 2 pounds per 100 square feet, should meet the requirements of the bush fruits. On less fertile soils more fertilizer may be needed. The fertilizer should be broadcast in early spring and worked into the soil by cultivation. Well composted barnyard manure makes a very good fertilizer for all of the bush fruits. It adds nutrients to the soil and organic matter which is also needed. The bush fruits ordinarily do well if the soil is slightly acidic. Lime should be applied, however, if the soil is very acid (pH less than 5).

### Cultivation

Frequent but shallow cultivation in the spring and summer will eliminate weeds and conserve moisture.

### Annual Pruning Advisable

All the bush fruits require pruning, which is usually done in early spring. No one system can be applied to all types because of differences in growth and fruiting habits.

Old fruiting canes of all the bramble fruits (raspberries) should be removed as soon as the crop has been harvested. These canes are biennial; making their growth one season, fruiting the next, and then dying.

### Red Raspberries

At planting time, prune the single cane to about 6 to 8 inches in height. The red raspberry should not be summer-pinch. During the dormant season, prune out the old canes at ground level along with diseased, injured, and weak canes. Cut the remaining new canes back to 24 to 36 inches from the ground. When the planting becomes too congested, remove some of the canes. It is best to have about four or five canes per running foot of row 15- to 18-inches wide.

When green shoots, rather than dormant plants, are set out in June, they should be cut back at the end of the first season to approximately 24 inches.

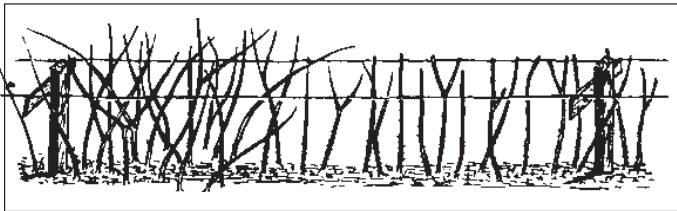
The everbearing or fall-bearing red raspberry varieties are pruned as previously described. The tips that fruit in the fall die during the winter and should be cut back to live wood during the dormant season pruning.



Red raspberry

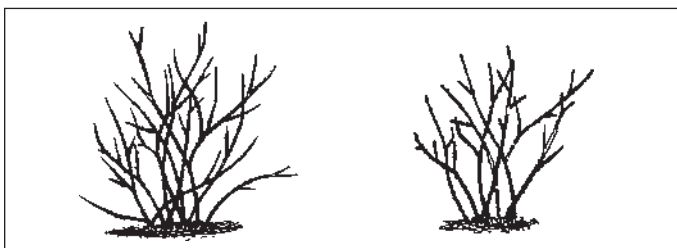
### Trellis Will Support Canes

A trellis for bush raspberries is not absolutely necessary. It will, however, keep the canes from being broken off during storms and will prevent the fruit touching the ground. Posts erected at intervals with crosspieces to hold a wire 18 to 24 inches high on each side of the row will provide an inexpensive trellis. Occasionally a single wire is strung on posts or strong stakes at a height of approximately 24 inches. The individual canes are tied to this wire. This is a good system but requires extra labor.



### Currants and Gooseberries

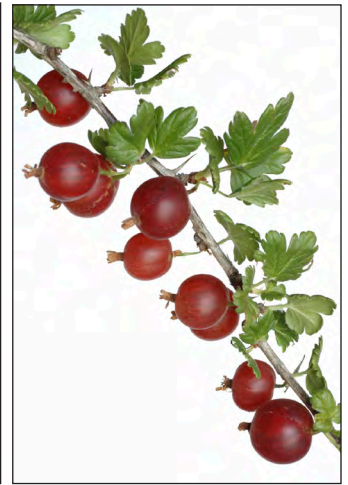
Currants and gooseberries form bushes with many canes originating near the surface of the ground. Pruning involves the removal of some of the weaker 1-year-old canes, as well as those four or more years old. These canes are usually weak and are not worth retaining. Cutting back of terminals is rarely necessary. Some varieties make a sprawling type of growth with many low branches. It is usually desirable to prune off those branches which would lie on the ground if loaded with fruit.



Gooseberry. Left, unpruned; right, pruned.



Currant



Gooseberry

The mature plant that is growing well will consist of 12 to 15 canes. These will include three or four each of the 1-, 2-, and 3-year-old canes plus one or two of the strong 4-year-old canes.

## RECOMMENDED VARIETIES OF BUSH FRUITS

The success of small fruits in the garden depends largely on the adaptability of the varieties to local soil and climatic conditions. Some varieties are adapted to a rather wide range of conditions, but others are distinctly limited. The following varieties are recommended for the Southeastern, Southcentral and Interior regions of Alaska.

### Red Raspberries

**Latham** — This plant produces a heavy crop of large, bright-red, delicious berries which are up to an inch in diameter. These strong and vigorous growers are adaptable to a wide range of soils and climates. It is one of the earliest to ripen in most locations.

**Chief** — This outstanding red variety is characterized by its disease resistance, early and heavy fruit, and strong canes.

**Trent** — Has mild flavor with good early production and excellent quality. Canes are strong and very hardy.

**Boyne** — A late producer with good yield potential. Fruit about the same size as Latham. Produces sturdy plants.

**Kiska** — An extremely hardy variety developed at the University of Alaska Fairbanks, Agriculture and Forestry Experiment Station. Is an early season producer and does well in Fairbanks.

**Indian Summer** — A midseason producer with very mild flavored fruit. Vigorous plant. The fruit crumbles easily.

## Other Raspberries

Black raspberries are not reliably winter-hardy in Southcentral, but golden raspberries will grow in many of the same locations where reds grow, and should be given the same care.

## Currants

**Red Lake** — These large, excellent-quality berries, borne in well-filled clusters on long stems, are very easy to pick. High in pectin, beautifully light-red in color, and deliciously rich in flavor, they are excellent for jelly, jam and pies.

**Holland Long Bunch** — These productive, upright plants are completely hardy, even in Fairbanks. The fruit is of excellent quality and is borne on long stems in well-filled clusters that are easy to pick. The fruit is red in color and is excellent for jelly, jam, and preserves.

**Swedish Black** — These hardy, spreading, and open-branched plants produce large black fruits which are of excellent quality. They are used primarily for jellies.

## Gooseberries

**Pixwell** — These fine-quality berries are large, oval, and light green but turn pink when ripe. Hanging on slender stems 2 inches below the branches, which are less thorny than most gooseberries, the fruits are very easy to pick.

## GLOSSARY

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

**Canes** — The semi-woody, upright stems of bush fruit on which fruiting stems are produced.

**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 concentration 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 (watersprouts) 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.

## ACKNOWLEDGMENTS

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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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