E. Blair Adams, Extension Horticulturist

For gardeners who would like to grow their own fruit, the small fruits (berries) offer some distinct advantages. While few locations are amenable to growing every kind of small fruit, any location that will support a lawn and ornamental plantings will be suitable for cultivating one or more types of fruits.

Small fruit plants require a relatively limited space to produce a significant amount of fresh fruit for family enjoyment, and most of them are attractive plants which complement the home landscape. Caneberrys, such as raspberries or blackberries, can be trellised as screening hedges or attractively espaliered on fences. Strawberries make an attractive groundcover or rock garden plant. Blueberries have attractive fruits and brilliantly colored autumn foliage. Gooseberries and currants are compact deciduous shrubs which are among the earliest to leaf each spring. The flowers, fruit, and foliage of elderberries are attractive enough that this plant is often cultivated as an ornamental, even when the fruit is not desired.

Small fruits begin bearing one or two years after establishment and will usually produce more fruit per square foot of space occupied than tree fruits. Since the plants are small (compared with tree fruits), only simple tools and spray equipment are needed to care for them in the home garden, and harvesting does not require ladders.

The greatest reward for growing small fruits in the garden is the bonus in eating quality of the home-grown product. Most small fruits are also "soft" fruits which do not attain their peak of flavor unless fully ripened before picking. When ripe, they bruise easily and quickly begin losing both flavor and texture. Therefore, unless you live close to a commercial producer, it is difficult to purchase most berries at their best. The quality of fruits available at the supermarket is good, but due to the fragile nature of most small fruits, those picked from the home garden will generally taste significantly better than those which were harvested, shipped, and stored until the purchaser selects them at the produce counter.

STRAWBERRIES

Strawberries are one of the most satisfactory small fruits for the home gardener. Wild strawberries, from which our cultivated varieties were developed, are native to most every part of North America. However, it is important to select varieties adapted to the area. Strawberry plants are affected by day length, so varieties are quite regionally adapted by latitude.

VARIETIES FOR WASHINGTON

Most strawberry varieties that do well and are popular in other sections of the United States have not done well in the Pacific Northwest. The Washington State University Agricultural Research Center has a continuous breeding and testing program to develop, test, and select varieties that are adapted to Washington.
The following varieties have proven to be dependable and productive here or are suggested for trial where insufficient information exists on performance. They are listed in order of blossoming and fruiting. Where late spring frosts occur, late-blooming varieties may escape damage when early-blooming varieties would be damaged.

<table>
<thead>
<tr>
<th>Variety in order of bearing</th>
<th>Recommended for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W. Wash.</td>
</tr>
<tr>
<td>JUNE-BEARING</td>
<td></td>
</tr>
<tr>
<td>Hood</td>
<td>Yes</td>
</tr>
<tr>
<td>Totem</td>
<td>Yes</td>
</tr>
<tr>
<td>Shuksan</td>
<td>Yes</td>
</tr>
<tr>
<td>Rainier</td>
<td>Yes</td>
</tr>
<tr>
<td>Benton</td>
<td>Yes</td>
</tr>
<tr>
<td>EVERBEARING</td>
<td></td>
</tr>
<tr>
<td>Tillikum</td>
<td>Yes</td>
</tr>
<tr>
<td>Quinault</td>
<td>Yes</td>
</tr>
<tr>
<td>Ogallalla</td>
<td>No</td>
</tr>
<tr>
<td>Gem</td>
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</tbody>
</table>

**CULTURE IN THE HOME GARDEN**

The most important consideration in growing strawberries in the home garden is to plant them in well-drained soil. Strawberries like moist soil but cannot stand wet feet. If your soil is heavy (high clay content) or poorly drained (remains wet for prolonged periods), strawberries will grow better in raised beds or planted on ridges.

Incorporation of well decomposed organic matter (compost or well rotted manure) into the planting bed will improve both the water-holding capacity of the soil and the soil drainage.

**Matted Row Culture**

The most common home garden cultural system is the matted row. In this system, plants are set at 1-1/2 to 2 feet spacing in rows (or beds) 3 to 4 feet apart. Runners from the initial planting are allowed to fill the planting space to form a matted row approximately 18 inches wide. Optimum spacing of plants in the matted row is one plant every 5 to 8 inches. To maintain this spacing, some runners (and 2- and 3-year-old plants) must be removed by pulling or hoeing each year.

**Hill Culture**

Strawberries can also be maintained as individual plants or “hills” in the garden. In a hill system the plants are usually spaced 15 to 18 inches apart in rows about 3 feet apart. No additional plants are allowed to grow. Runners are removed as they form each spring and summer.

**Rotation**

Strawberry plantings generally produce well for only three to four years. Established plantings generally become infected with various viruses and fungus diseases which reduce vigor and production after a few years. When vigor and production decline, remove the planting and establish a new one.

Rotating the planting site reduces the chance of soil-borne diseases carrying over to the new planting. Strawberries can be rotated with most garden crops but should not be planted in sites where they were planted to potatoes and tomatoes the previous year.

**Use Only Certified Plants**

When planting or replanting a strawberry bed, it is important to begin with certified plants. Do not use runner plants from an old established bed. Strawberries are subject to several virus diseases which are transmitted to the new runner plants. These virus diseases are transmitted from plant to plant by aphids.

Certified strawberry plants are produced in isolated fields from carefully selected foundation stock. These fields are inspected several times each year by representatives of the Washington Department of Agriculture for evidence of diseases, insects, or nematodes. The plants are also inspected when they are dug for delivery to the retail nurseries. Establishing new plantings with certified plants assures gardeners that they are not introducing pests into the garden with the planting stock. Ask your local nursery if the plants they sell are certified.

**Setting Plants**

The strawberry plants you purchase may have roots 6 to 8 inches long. To facilitate planting, trim the roots to 4 or 5 inches long. Set each plant with the crown at soil level (see illustration). Firm the soil around the roots and irrigate as soon as the plants are set.
Fertilizing

Strawberries initiate their flower buds in the fall, and the next season’s berries develop from food stored in the crown. For this reason, fertilize them in late summer to promote maximum fall growth. Spring fertilization results in excessive leaf growth and runner formation and does not promote more or larger berries.

Strawberries respond to a moderately fertile soil; however, tests at the agricultural experiment stations in Oregon, Washington, and British Columbia have shown that over-fertilization tends to reduce yields. For this reason, Washington State University recommends heavy fertilization before planting the bed and no fertilizer application during the following two years. After two years, a one-half rate fertilizer application can be applied in August if the bed is to be kept in production.

Prior to planting in western Washington soils, apply 0.2 pound nitrogen, 0.4 pound phosphate, and 0.4 pound potash per 100 square feet and till into the soil. These amounts can be supplied with 2 pounds of 10-20-20 fertilizer or 4 pounds of 5-10-10 fertilizer per 100 square feet of bed.

Irrigation

Irrigation is a necessity in most parts of eastern Washington if good yields of strawberries are to be produced. In western Washington irrigation is beneficial during dry summer periods.

Research has shown that strawberries absorb 90 per cent of their moisture (unless stress conditions occur) from the top 1 foot of soil. Practically none is taken from below 2 feet, even when the soil is deep and well drained. Soils vary in the amount of water they will hold as a reservoir for crop growth. Light, sandy soils may hold less than 1 inch of water per foot of soil depth. Moisture in these soils is quickly depleted during the growing season, so irrigation must be more frequent and in smaller amounts than for heavier soils. Medium- and heavy-textured soils may hold 2 inches of usable water, or slightly more, per foot of soil depth, so they can take up and hold more water at each irrigation and need to be irrigated less often.

Air temperatures, humidity, day length, and air movement have considerable effect on moisture needs of plants. Evaporation of water from the soil surface and transpiration of moisture through plant leaves on bright, dry, windy days may be twice as much, or more, as on dull, cloudy days.

Keep newly set strawberry beds well irrigated throughout their first season. If a matted row is to be developed, the earlier the runner plants can be rooted down, the more fruit buds they will form for the following year’s crop. If the original plants are maintained as individual hills, the larger and more vigorous their crowns, the more fruit buds they will set in late summer and fall.

After the first season there are two critical periods during the growing season when good soil moisture is especially important. The first is before and during harvest for the production of the crop of berries. The other is in late August and on into the fall when plant growth resumes and fruit buds for the following year’s crop are formed.

Strawberry Culture Summary

- Select a variety or varieties adapted to the area in which you live.
- Buy certified plants.
- Prepare the planting bed. (In areas where drainage is slow, use raised beds.)
- Before planting, heavily fertilize the planting soil so that subsequent fertilizer is not needed for three years.
- Plant the initial certified plants at the proper planting depth (see illustration).
- Irrigate as needed to maintain regular growth.
- Keep weeds and excessive runners removed by hoeing and pulling, as needed.
- When plant vigor and production decline (after four to five years), remove the entire planting and replant with new certified plants the following spring.

Caneberries

The caneberries (sometimes called brambles) are among the most delicious and delicate small fruits. Included are the red raspberry, black raspberry (blackcaps), and blackberry. All of these fruits are species and hybrids of the genus Rubus, and all have similar fruiting habits.

The fruits on most caneberries are borne on lateral branches which initiate from one-year-old canes. Each cane bears fruiting laterals for only one
year. The one-year-old canes are removed each year after harvest while the new canes, which will fruit the following year, are thinned and trained. One or more types of caneberries are adapted to virtually every region of Washington.

Red raspberries have stiff, erect canes which are produced from buds on the root system. They sucker freely and can be invasive of other plantings, so it is best to plant red raspberries where they can be clean cultivated on either side of the row. They grow best in moderately fertile, well-drained soils as, like the strawberries, they do not tolerate wet feet.

Black raspberries (black caps) produce long arching canes which arise from the original crown. They do not produce canes from the root system, like red raspberries, but increase by tip layering where the arching canes touch the ground. The purple raspberries are crosses between the red and blacks and can resemble either in growth habit. The term blackberry includes all types of trailing and upright blackberry types, including Marion, Loganberry, and Youngberry.

**RED RASPBERRY CULTURE**

Red raspberries grow best in areas which have mild winters and cool, moist summers. They do extremely well west of the Cascade Mountains and less well in eastern Washington. Several new varieties which bear fruit on the primocanes (current-season canes) extend the areas that are suitable for growing red raspberries and should be useful in eastern Washington gardens. These fall-bearing varieties can be cut to the ground each winter and fruit in late summer on the new growth arising in the spring.

**Varieties**

Raspberry varieties differ in fruiting habit and hardiness; therefore variety recommendations for eastern and western Washington may differ.

*Varieties for Western Washington.* In western Washington the vigorous, large fruiting varieties developed for commercial production are the better choices for home garden planting. Three good varieties to consider are:

**Willamette**—earliest fruiting with large, dark red berries. Plants vigorous and productive but do not respond well in heavy soils.

**Meeker**—late fruiting with large, bright medium red, firm berries. Plants less hardy than Willamette or Sumner.

**Sumner**—late fruiting with large, bright medium red, sweet berries. More tolerant of heavy soils and hardier than Meeker or Willamette. Probably the best home garden variety.

*Varieties for Eastern Washington.* In eastern Washington winter hardiness may restrict the adaptability of commercial varieties. **Sumner** is hardy enough for most areas of Washington. **Willamette** has been successfully grown in the Yakima Valley area. In the colder areas of central and northern Washington, where Sumner does not survive, the Midwestern varieties **Latham** and **Newberg** are hardy, but usually, plants must be ordered from out of state.

In central and eastern Washington the fall-bearing or everbearing varieties are good home garden choices. These varieties produce fruit on the current-season's growth in late summer or fall (usually late August and September). The canes, if not damaged by winter weather, will produce side branches the following spring to produce a second crop in early summer (normally late June or early July). Remove second-year canes as soon as they have fruited. An alternative cultural system for this type of raspberry is to remove all canes each winter and harvest only the fall crop.

The variety **Heritage** is the most productive of the fall-bearing varieties. **Pathfinder** and **Trailblazer** are also suitable; they have good quality fruits but production is lower than Heritage.

All varieties of black raspberries are hardy. The variety Munger has been the most popular. Black raspberries are severely affected by several diseases to which red raspberries are tolerant. As a result, black raspberries often do not survive well in areas of the state where red raspberries are grown extensively.

**Site Preparation**

Raspberries grow best in a fertile, well-drained soil. A raspberry planting should remain productive for 15 to 20 years, so prepare a good planting site prior to establishing the planting. Compost, manures, or other well-decomposed organic matter will improve soil drainage. If your garden is slow draining, or if you have a high water table, it will help to install a drain tile 25 inches deep near the row, or plant the raspberries in raised beds. Locate the raspberry planting so there is room to clean cultivate on each side of the rows to control the sprouts which will grow from the roots each year.
Fertilizing

The canes on established raspberry plants should grow 8 or 9 feet tall. Reduce annual application of fertilizer if cane growth is excessive.

Apply fertilizer in early spring at about the same time as new growth is starting. The fertilizer can be applied as a broadcast application (spread over the surface of the soil) or as a band application in a shallow trench 1 foot on each side of the row and 3 to 4 inches deep. Band applications are preferable in western Washington.

A soil test is the most accurate method of determining the best, fertilizer ratio for your garden. Most garden soils in western Washington need a 1-2-2 ratio fertilizer, but eastern Washington soils usually require only nitrogen fertilizer. The following recommendations are average applications for eastern and western Washington and should be adjusted as indicated by the growth response of your plants: eastern Washington—3/4 to 1 pound of 21-0-0 fertilizer per 100 feet of row; western Washington—2 to 3 pounds of 5-10-10 fertilizer per 100 feet of row.

Purchasing Plants

It is best to purchase certified raspberry plants from a nursery to start your planting. Plants from a neighbor’s planting could introduce root rot organisms or viruses into your garden. Certified stock, which is disease-free, is your best assurance for establishing a long-lasting, productive planting.

Raspberry plants are normally spaced from 2 to 3 feet apart in rows of 7 to 10 feet apart. In the home garden, one dozen plants will establish a row 25 to 35 feet long.

Planting and Cultivating

Plant 1 to 2 inches deeper than previously grown as soon as the soil is workable in the spring. If raspberries are not planted immediately, heel them in to protect them from drying.

Cut the canes on new plants to 6 or 8 inches at the time they are planted. Do not try to produce fruit the first season. The first growing season should produce three to five canes per plant intermediate in size. These will produce berries the following season.

During the second and subsequent growing seasons new strong canes will come up between plants and between rows. Cut out all of the new shoots except those in the hills. Allow 6 to 12 canes per hill. Keeping the plants in hills makes weed control by tilling and hoeing easier. Cultivation should be shallow around the hills.

Trellising

New raspberry canes grow erect, but as the fruiting laterals form during the following season, they need some type of support to remain erect. This can be provided by a simple trellis of posts and wires to which the canes are tied. In the home garden, space posts 10 to 15 feet apart. Number 12 gage or heavier wire is satisfactory. The illustrations on page 6 show three commonly used trellising systems.

Pruning and Cane Removal

Remove all second-year canes which have fruited. This is best done soon after harvest to allow full exposure for the new replacement canes the following spring.

Tie the new canes to the trellis in late fall or winter. After the plants are dormant (the leaves have dropped), top the fruiting canes to 4½ to 5½ feet tall. Pruning the canes back forces the lateral fruiting spurs to grow out at a convenient height for picking. They may also be allowed to grow to their full length, and tied or woven along the upper wires.

FALL FRUITING RED RASPBERRIES

The fall-bearing varieties of raspberries form fruit on the primocanes (current season’s growth)

<table>
<thead>
<tr>
<th>Raspberry Culture Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Prepare planting bed in well-drained site.</td>
</tr>
<tr>
<td>o Plant certified plants in early spring.</td>
</tr>
<tr>
<td>o Keep planting weed-free by shallow cultivation.</td>
</tr>
<tr>
<td>o Install trellis.</td>
</tr>
<tr>
<td>o Irrigate as needed.</td>
</tr>
</tbody>
</table>

Annual Maintenance

| o If desired, top fruiting canes to 5 feet before new growth begins, and secure canes to trellis. |
| o Fertilize when new growth starts. |
| o Control weeds and remove all new shoots arising from the root system (away from the crowns) by shallow cultivation. |
| o Harvest fruit. |
| o Remove canes which fruited after harvest, and thin out weak primocanes. |
| o Withhold irrigation after mid-August to harden plants for winter. |
Three-wire trellis—wires fastened directly to posts. Single top wire stapled to post, two bottom wires on hooks or bent nails so they can be lifted and swung out over new canes to pull them in. Hills with up to six or seven canes can be brought up and tied in a single bundle (A). Hills with more canes can be split (B), with part going half way to the next plant in the row.

Four-wire trellis—wires fastened directly to posts. Two top wires stapled to post and two bottom wires on hooks. Canes in each hill can be split with half going to each top wire (A), or they can be split three or four ways (B). This setup appears to work best with large mechanical harvesters that straddle the row.

Four-wire trellis with crossarms. For fields with many strong canes. Crossarms for the top two wires spread out the fruiting canes and leaves plenty room for new canes inside the wires.
Mature black raspberry plants before and after pruning. New shoots were headed during growing season by pinching out tips. Left—before dormant pruning: Old fruited-out canes and some of weaker ones have been removed. Note length of laterals resulting from heading. Right—after pruning: Weak canes (less than 1/3 inch in diameter at 1 foot above ground) were removed. Lateral were cut five to eight buds long. The stronger the cane, the lighter the pruning.

In late summer. These varieties may be pruned to the ground each winter to force all new growth the following spring, or the canes can be left to fruit again the following summer. These varieties normally develop more and shorter canes and usually do not require trellising.

**BLACK RASPBERRIES**

Black raspberries can be trained on trellises in the same manner as red raspberries, but the most common practice is to pinch off the new shoots in the summer when they reach knee high, about 18 inches. This causes the canes to branch. During the dormant season these lateral branches are pruned again to leave 5 to 8 buds on each branch. This double pruning forms a bush to bear the fruiting spurs the following spring. Using this culture, no trellis is required, but spacing of plants should be wider—3-1/2 to 4 feet apart.

Remove canes that have fruited each year after harvest is completed.

**BLACKBERRIES**

All blackberries have similar appearing fruit and all current varieties are hybrids of various species of the genus *Rubus*. Various types have different growth habits, fruit color, and flavor.

Blackberries differ from raspberries in their fruit structure. In raspberries, the fruit receptacle (core of the berry) remains on the plant; in blackberries, the receptacle is a part of the fruit which is eaten.

There are two types of blackberries—erect and trailing. The primary difference is the character of their canes. Erect blackberry varieties have stiff, arching canes which are somewhat self-supporting. The trailing blackberries, also called dewberries, ground blackberries, or running blackberries, have canes that are not self-supporting. In the home garden, both types are normally trellised for ease of care and picking.

The erect varieties are more cold hardy and are primarily used in eastern Washington. The trailing varieties have less cold hardiness and are better adapted to western Washington. The trailing varieties can be grown in many areas east of the Cascade Mountains if the canes are left on the ground, mulched during the winter, and trellised in the spring. The thornless varieties are the least hardy. In eastern Washington expect some winter damage on the thornless varieties.

**BLACKBERRY VARIETIES**

- **Erect** (for use east of Cascades)
  - Alfred
  - Darrow
  - Eldorado
  - Hedrick
  - Snyder
  - Bailey

- **Thornless** (for mild areas only)
  - Thornfree
  - Thornless Boysen
  - Thornless Evergreen

- **Trailing** (for use in western Washington)
  - Aurora
  - Boysen
  - Cascade
  - Himalaya
  - Marion

**BLACKBERRY CULTURE**

Blackberries will grow in almost any type of soil. They do require a steady moisture supply and should be frequently irrigated in light or sandy soils. Blackberries do not require a high fertility level. In most garden soils, little or no fertilizer is required to maintain vigorous growth. If fertilizer is used, apply it at blossom time.

Space blackberry plants 5 to 8 feet apart for erect varieties and 8 to 12 feet apart for trailing varieties. Erect varieties tend to produce suckers from the roots. Remove these suckers as they appear. Keep blackberry plantings clean cultivated to eliminate weed competition and sucker growth.
PRUNING AND TRELLISING

The crowns of blackberry plants are perennial; new canes arise from them every year. The canes are biennial; they live for only two years. During the first year, they grow and send out laterals (side branches). The second year, small branches grow from buds on the year-old canes. Fruit is borne on these small branches. After fruiting, the entire cane dies.

In the home garden, it is advisable to trellis all blackberries. Erect blackberries can be grown without support, but trellises keep the planting neater and make both cultivation and harvesting easier.

Pruning erect and trailing blackberries varies slightly. When the old canes of trailing blackberries are removed in late summer, thin the new canes. Leave 6 to 12 of the sturdiest canes to bear the next season. In western Washington, these canes can be trellised immediately, but in eastern Washington, leave them on the ground, mulch over-winter, and trellis when danger of frost is past in the spring. Do not tip the canes of trailing blackberries.

When the new canes of erect blackberries reach a height of 30 to 36 inches, cut off the tips. This causes the canes to branch. Tipped canes grow stout and are better able to support a heavy fruit crop. In late summer, when the old canes are removed, thin the new canes to the three or four stoutest canes. The following spring, prune the lateral branches on these canes back to about 12 inches. Fruit from pruned laterals is larger and better quality than fruit from unpruned laterals.

Many arrangements and methods of trellising are used by blackberry growers. A simple method is illustrated, or blackberries can be trellised on an existing fence.

BLACKBERRY CULTURE SUMMARY

- Plant new plants in spring using a type and variety hardy in your area.

Erect Varieties
- Tip new canes at 30-36 inches as they develop.
- Cut back lateral branches on fruiting canes to 12 inches in early spring.
- Fertilize if needed during bloom period.
- Remove old canes after harvest and thin new canes to 4 or 5 per hill.
- Irrigate as needed to maintain steady growth.

Trailing Varieties
- Attach canes to trellis (fall in western Washington; spring in eastern Washington).
- Fertilize if needed during bloom.
- Remove old canes after harvest and thin new canes to 8-12 per hill.
- Irrigate as needed to maintain growth.
BLUEBERRIES

Blueberries are one of the most delicately flavored small fruits for the home garden. Blueberry plants, raised by the home gardener for fruit production, can also serve as ornamentals. These deciduous shrubs are handsome plants for a hedge or shrub border. The clusters of white-to-pinkish urn-shaped flowers are attractive in spring, and the fruits are highly decorative throughout the summer. In the fall the leaves turn yellow to scarlet, before falling, revealing red to yellow bark depending on the variety.

Blueberries belong to the same family as rhododendrons and azaleas. Like their ornamental relatives, they grow well only in acid soils. They are well adapted throughout western Washington and can be grown in the upland areas of eastern Washington. If rhododendrons grow well in your area, blueberries also should be adaptable.

The commercial varieties are hybrids developed over the past 40 years from the highbush blueberry native to the East Coast. The evergreen huckleberry, native to parts of western Washington, has an edible but small fruit. This plant is widely grown for its attractive evergreen foliage, but the fruits are of secondary interest.

VARIETIES

Cultivated blueberries are generally self-fertile; however, two or more varieties in a planting assures good pollination and a larger yield. Good pollination is essential as berry size is controlled to a large extent by the number of seeds per berry. Varieties with overlapping flowering dates and good bee activity at the time of flowering will aid fruit set.

The following varieties are generally recommended for home and commercial planting. The varieties are listed in order of ripening.

<table>
<thead>
<tr>
<th>Variety</th>
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<th>Variety</th>
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</thead>
<tbody>
<tr>
<td>Earliblue</td>
<td>Berkeley</td>
<td>Herbert</td>
</tr>
<tr>
<td>Blueray</td>
<td>Pemberton</td>
<td>Jersey</td>
</tr>
<tr>
<td>Stanley</td>
<td>Ivanhoe</td>
<td>Coville</td>
</tr>
<tr>
<td>Concord</td>
<td>Bluecrop</td>
<td>Dixi</td>
</tr>
</tbody>
</table>

SITE AND SOIL

Blueberries grow and produce best in full sun but will tolerate partial shade. They have a dense, shallow root system and do best in soils with a high organic content which retains water well. Mixing peatmoss into the planting soil prior to planting increases the water-holding capacity of the soil and tends to lower the pH (makes the soil more acid).

CULTIVATION AND MULCHING

Because blueberries are shallow-rooted, cultivation around the plants should be very shallow (top 1/2 inch of soil only). Cultivation needs can be reduced or eliminated by mulching around blueberry plants with sawdust, ground bark, or other similar material. A light mulch at planting time, increased to a depth of 6 inches after a period of years, will retard weed growth, protect the roots from extremes in temperature, help hold soil moisture, and maintain a high organic content in the
soil. Add nitrogen fertilizer to new sawdust to prevent a shortage of available nitrogen to the plant.

**IRRIGATION**

Blueberry plants require about 1 to 2 inches of water every 10 days either from natural rainfall or supplemental irrigation. In the summer when no rain occurs, this is best applied at two-week intervals. Constant but moderate soil moisture is needed. Good drainage is essential since the roots need good aeration.

**FERTILIZING**

The amount of fertilizer applied to blueberries is governed by the length of new shoot growth on the mature canes. Plants that make little or no shoot growth should receive the maximum recommended amount. Plants that make 1 foot or more of new shoot growth need little or no fertilizer. In a highly organic soil, blueberries require little supplemental fertilizer. Where needed, a mid-March application of 5-10-10 fertilizer at the rate of 14 ounces (or approximately 1 ¾ cup) per mature plant is recommended. On mineral soils, there is generally a need for added nitrogen beyond that supplied by an early spring application of 5-10-10. This can be supplied in the form of ammonium sulfate added after berry set or about mid-May to June 1, with a second application in mid-June when necessary. The table details the recommended rates.

Spread all fertilizers evenly to cover the root zone of the plant, away from the crown and out as far as the drip line of the branches. Dry fertilizer can be spread directly on the soil surface or mulch layer and watered in thoroughly. Exercise caution when fertilizing 1- to 2-year-old plants, as roots on young plants are easily injured by fertilizer.

**PRUNING**

During the first three years of growth, blueberry bushes need little or no pruning. This allows the plants to build strength and make maximum growth. Fruit buds for the following year are produced on new shoots. Removal of old branches forces this new growth, thus assuring adequate and vigorous fruiting wood. Pruning in general will tend to reduce the number of fruits set but will increase their size and speed their maturation.

On older bushes, remove a few older canes or cut them back to a strong lateral. Remove low, spreading branches near the ground, as berries on them get dirty easily. Thin the shorter, weaker shoots to prevent crowding, and head back some fruiting twigs on varieties that produce too many fruit buds. Prune during the dormant season.

For more detailed directions on pruning blueberries, request EM 3070 from your County Extension office.

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**Quantity of Fertilizer per Plant in Ounces and Approximate Equivalents**

<table>
<thead>
<tr>
<th>Plant Age</th>
<th>5-10-10 (oz) March 13</th>
<th>Ammonium Sulfate (oz)</th>
</tr>
</thead>
<tbody>
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<td>0</td>
</tr>
<tr>
<td>1 year</td>
<td>2 (1/4 cup)</td>
<td>1 (2 Tbsp.)</td>
</tr>
<tr>
<td>2 year</td>
<td>4 (1/2 cup)</td>
<td>1-2 (2 to 4 Tbsp.)</td>
</tr>
<tr>
<td>3 year</td>
<td>6 (3/4 cup)</td>
<td>1-2 (2 to 4 Tbsp.)</td>
</tr>
<tr>
<td>4 year</td>
<td>8 (1 cup)</td>
<td>1-2 (2 to 4 Tbsp.)</td>
</tr>
<tr>
<td>5 year</td>
<td>10 (1 1/4 cup)</td>
<td>1-2 (2 to 4 Tbsp.)</td>
</tr>
<tr>
<td>6 and older</td>
<td>12 (1 1/2 cup)</td>
<td>1-2 (2 to 4 Tbsp.)</td>
</tr>
</tbody>
</table>

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**BLUEBERRY SUMMARY**

- Set new plants in early spring.
- Fertilize established plants in early spring with complete fertilizer.
- Add mulches if needed to control weeds.
- Irrigate as needed to maintain even moisture supply.
- Apply additional fertilizer in May and June, as needed, to stimulate growth.
- Harvest in summer.
- Prune during dormant season.
Harvesting

Fruits will mature between July 1 and October 1, depending on the varieties. Berries are produced in clusters and ripen in succession over a period of several weeks. Most varieties can be completely harvested in two to four pickings. Often the berry is blue some time before full maturity. Delay picking until a fair quantity of berries acquire full size and flavor.

Gooseberries and Currants

These two fruits belong to the same genus (Ribes) and have essentially the same culture. Both are well suited for home garden culture and can add flavorful variety to the family fruit supply. Both are extremely cold hardy and will thrive in all parts of Washington.

Gooseberry plants are attractive deciduous shrubs. They have a compact, arching growth habit attaining a height of 4 to 5 feet at maturity. They are one of the first deciduous plants to leaf in the spring and usually drop their leaves in early fall. The canes are thorny. Gooseberry fruit is tart and must be cooked to be enjoyed. It is used primarily for pies, pastries, and preserves. The fruits are often mixed with other less acid fruits to enhance their flavor.

Gooseberry fruits are borne singly along the arching canes. The cultivated varieties bear larger fruits (up to 1 inch diameter) which are much easier to harvest and prepare than the wild or native species.

Currants are also deciduous shrubs. They are somewhat more erect in their growth habits and the canes are thornless. Currant bushes grow 4 to 6 feet tall and about half as wide. Currants are frequently planted and maintained as ornamental hedges.

Currant fruits are borne in clusters (like small bunches of grapes). There are red, white, yellow, and black fruited varieties. The red, white, and yellow varieties are variations of the same fruit. Black currants are a separate species and have a stronger flavor than the other varieties.

Currants are milder flavored than gooseberries and are excellent for jams, jellies, pastries, and wine. Currants have never become as popular in this country as they are in Europe where their delicate flavor is highly prized and is enjoyed as juice, purees, pastry fillings, and wine.

Culture

Gooseberries and currants do well in nearly any type of soil. In western Washington, they grow best in full-exposure locations, but in eastern Washington, they will usually do best in partial shade.

Both shrubs require only a moderately fertile soil to thrive, and regular fertilization is not necessary. If more vigorous growth is desired, apply fertilizer in early spring. In western Washington, 1/2 to 3/4 cup of 5-10-10 fertilizer per plant and in eastern Washington, 1/4 to 1/2 cup of 10-6-4 fertilizer per plant is sufficient to stimulate vigorous growth.

Currants and gooseberries are very drought-tolerant plants. However, for best growth and production, they should be irrigated during drought periods to maintain a moderate level of moisture in the soil. In the home garden, the normal irrigation of lawns and ornamentals will more than suffice the needs of these small fruits.

Pruning

Gooseberries and currants will bear well with no pruning but will produce more and larger fruits if pruned. These plants fruit for several years on each cane, the second to fourth years being the most productive. Both types of plants can become crowded if too many canes are allowed to develop. Crowding of too many canes reduces fruit size and increases disease problems.

Thin crowns to 10 to 12 canes each. Prune to remove three or four of the 4-year-old canes each year and allow three or four replacement canes to develop from the crown each year. In this manner a maximum of bearing wood is maintained.

Varieties

All varieties of gooseberries and currants are hardy in Washington. The following are some of...
the most popular gooseberry and currant varieties:

Gooseberries
Chautauqua (green)  Perfection (red)
Fredonia (red)       Red Lake (red)
Oregon Champion (green)  Wilder (red)
Pixwell (pink)       White Grape (ivory)
Poorman (red)

Currants

MISCELLANEOUS SMALL FRUITS

There are a number of bush-type fruits that are occasionally useful for home garden culture. They often have an ornamental value in the home landscape, and the fruits are an added bonus to their basic purpose of environmental enhancement. The more common of the fruits follows.

BUSH CHERRIES

Two types of bush cherries are cultivated as small fruits. Both have limited usefulness in Washington. The fruit size and quality of bush cherries is inferior to tree cherries, so their usefulness is limited to areas where tree cherries are difficult to grow.

Hansen’s Bush Cherry (Prunus besseyi)

The common Hansen bush cherry has a small but edible fruit. Some improved (selected) strains have an acceptable quality—black sweet fruit, about one-half the size of a Bing cherry but without the flavor of Bing. Very hardy but of limited value.

Nanking Cherry (Prunus tomentosa)

This cherry has tart pie cherry type fruit. The fruits have an acceptable flavor and are produced in abundance on the bush, but the fruits are small having only about one-fourth inch fruit around the pit. They are most useful in ways which do not require pitting, such as jellies, juice, and wine.

The Nanking cherry is a hardy, attractive shrub growing 8 to 10 feet tall. It has more use as an ornamental plant and bird attractant than as a fruit plant.

ELDERBERRY

Elderberry can be an excellent home garden fruit. There are two species of elderberry native to Washington; one has blue fruit which is edible, the other has red fruit which is not edible. The eastern elderberry is a smaller shrub with dark blue to black fruit and is the better species for cultivation in the garden.

The eastern elderberry is a fast-growing, erect shrub 6 to 8 feet tall. The flowers and fruit are borne on flat umbels up to 12 inches across. The individual berries are small and somewhat seedy. This fruit is subacid and can be used in many of the same ways as blueberries. It can be grown throughout Washington.

The native blue elderberry is also suitable for home garden culture but makes a very large bush or small tree. The fruits are light blue and milder flavored than the eastern elderberry.

NATIVE SMALL FRUITS

There are many interesting small fruits native to particular sections of Washington which are often gathered from the wild but which have not been domesticated or improved. Most can be cultivated in the home garden to add unusual taste treats and interesting landscape effects. Some of the commonly gathered native small fruits include buffaloberry, huckleberry, Oregon grape (Mahonia), salal, bearberry (kinnikinnick), silveryberry, and serviceberry.

Approximate Fruit Production

<table>
<thead>
<tr>
<th>Crop</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberries</td>
<td>1/2 lb/plant or 1 lb/ft of row</td>
</tr>
<tr>
<td>Red raspberries</td>
<td>3-5 lb/hill</td>
</tr>
<tr>
<td>Black raspberries</td>
<td>2-3 lb/hill</td>
</tr>
<tr>
<td>Blackberries</td>
<td>12-25 lb/plant</td>
</tr>
<tr>
<td>Gooseberries</td>
<td>8-10 lb/plant</td>
</tr>
<tr>
<td>Currants</td>
<td>5-8 lb/plant</td>
</tr>
<tr>
<td>Blueberries</td>
<td>4-5 lb/plant</td>
</tr>
<tr>
<td>Elderberries</td>
<td>10-15 lb/plant</td>
</tr>
</tbody>
</table>

The above quantities are for mature or well-established plantings.

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