



GROWING BLACKBERRIES IN YOUR HOME GARDEN

B.C. Strik

Oregon is known around the world for its blackberries. We have an ideal climate, with warm, clear, summer days and cool nights, so our berries reach peak flavor and quality. We also grow excellent black and red raspberries (see EC 1306, *Growing Raspberries in Your Home Garden*). Blackberries are distinguished from raspberries by whether the fruit retains its receptacle (white core) when picked. In blackberries, the receptacle stays with the fruit; in raspberries, it stays with the plant.

This publication briefly describes the growing requirements and production systems for blackberries. Differences among types are indicated as appropriate.

Types of blackberries

There are three main types of blackberry: **trailing**, **erect**, and **semierect**. The primary difference is the growth habit of their canes.

Trailing blackberry cultivars include ‘Marion’ (“marionberry”), ‘Cascade’, ‘Santiam’, ‘Black Butte’, ‘Obsidian’, ‘Thornless Evergreen’, and ‘Olallie’ (“olallieberry”). The fruit quality is considered excellent, with very good aroma and small seeds. The fruiting season ranges from mid-June to early September, depending on cultivar.

Trailing blackberries are considered the least cold-hardy of the three types of blackberries. Expect damage to buds and canes when temperatures drop below about 13°F in December or early January. Plants are more sensitive to cold in late fall and late winter, when damage might occur at



Obsidian.

much warmer temperatures (in the 20s°F). Trailing blackberries grow well west of the Cascades in Oregon and southern Washington, although some damage might occur in particularly cold winters. You can grow trailing types in colder areas with low winter rainfall if you leave the canes on the ground and mulch them in winter.

Several hybrids between raspberry and trailing blackberry have been developed, including ‘Logan’, ‘Tayberry’, and ‘Boysen’ (“boysenberry”). Since these grow and are managed like a trailing blackberry, they usually are included with this group.

Erect blackberries produce stiff, erect canes that need summer and winter pruning. Cultivars include ‘Cherokee’, ‘Shawnee’, and ‘Navaho’. Fruit are glossy and firm, with a milder aroma and flavor and larger seeds than the trailing types.

The fruiting season extends from early July to frost, depending on the variety.

Semierect blackberries produce very vigorous, thick, arching canes that benefit from summer and winter pruning. Cultivars include ‘Triple Crown’, ‘Loch Ness’, and ‘Chester Thornless’.

For detailed information on the cultivars within each type, see *Blackberry Cultivars for Oregon*, EC 1617.

Growth and fruiting cycle

All blackberry plants are perennial; the roots and the base of the plant (crown) live for many years. The canes are biennial; they grow 1 year (primocanes), produce fruit the following year (floricanes), and die after harvest. All types of blackberries produce new canes each year from the crown, and erect types also produce new canes from the roots. During the growing season, both new vegetative primocanes (which will fruit next year) and fruiting floricanes (which will die in the winter) are present.

After harvest, the floricanes are removed, and the primocanes, which will fruit the following year, are trained. In some types of blackberries, the primocanes are also pruned.

Primocane-fruiting (sometimes called “fall fruiting” or “everbearing”) blackberries are an exception to this fruiting pattern. This type of erect blackberry is the only kind that produces flowers and fruit on the current-season primocanes. The fruiting season is from late August to the first fall frost.

Blackberry canes

There are two names for a blackberry cane, depending on whether the cane is in its first or second year of growth.

Primocanes: first year of growth; most types produce no fruit on these canes.

Floricanes: second year of growth; these canes produce flowers and fruit and then die.

Selecting a site

Blackberries produce best in full sun, but they tolerate partial shade.

Blackberries are more tolerant to heavy soils than any other berry crop. However, it’s best to select a site with good drainage. Plants grow best in a well-drained, fertile, loam soil with moderate water-holding capacity.

Selecting a cultivar

The various types of blackberries require different care, and cultivars differ greatly in fruiting season, fruit and seed size, appearance, and flavor. All types are self-fruitful, so you need only one cultivar for pollination and fruit production. For cultivar descriptions, see *Blackberry Cultivars for Oregon*, EC 1617.

Establishing your planting

Preparing the soil

You should be able to keep your blackberry planting productive for 15 to 20 years, so choose and prepare a site carefully.

Eliminate all perennial weeds. Prevent weeds from going to seed!

Almost any soil type is suitable for blackberries as long as the drainage is good. Blackberries grow best when the soil pH is between 5.5 and 7. Test soil pH the year before you plant. (For more information about soil testing, see *Laboratories Serving Oregon: Soil, Water, Plant Tissue, and Feed Analysis*, EM 8677, and *Soil Sampling for Home Gardens and Small Acreages*, EC 628.) If the soil is too acidic (pH below 5.5), add lime to the soil as recommended by the soil analysis.

A good supply of soil organic matter improves aeration and drainage and increases water-holding capacity. Apply organic matter the summer or fall before you plant. Manure is a good source. Use about 2 cu yd per 100 sq ft of planting area. You also can use decomposed (rotted) compost. Use only materials that you think are free from insects and weed seeds.



Black Diamond.

Dig, plow, or rototill the material into the soil to ensure that it will be well decomposed by planting time. If you incorporate large amounts of nondecomposed material into the soil, add 2 lb calcium nitrate (16 percent nitrogen) per 100 sq ft to aid in decomposition.

If your garden is slow to drain, or if the water table is high, you can install a drain tile near the row (at least 25 inches deep) or plant on raised beds.

Spacing

For trailing cultivars, space plants 4 to 6 feet apart in the rows. Space erect cultivars 2 to 3 feet apart and semierect cultivars 5 to 6 feet apart. Leave about 10 feet between rows.

Planting

It's best to purchase certified disease-free plants from a nursery. Plants from a neighbor's planting could introduce root-rot organisms, viruses, or other pests into your garden. Traditionally, plants were sold as fairly large "bare-root" plants, but tissue-cultured plants are becoming more common. These plants are lush and tender and are sold in small cell packs.

If you can't plant immediately, bury plant roots in moist soil or sawdust to prevent drying.

To propagate cultivars that produce suckers, simply transplant rooted suckers. Propagate trailing cultivars, which produce fewer root suckers, by tip layering. Cover tips of canes with soil in the late summer or early fall. Cut rooted tips from the canes and transplant them the following spring.

Plant as early as you can work the soil in the spring. Dig a shallow hole, large enough to

accommodate the roots. If you have bare-root plants, spread the root mass and set the plant so that the highest point of attachment of roots to cane is 1 to 1½ inches below ground level. Cover with soil and press firmly to remove air pockets. Water the plants to settle the soil. Cut the canes on newly set bare-root plants to 6 inches at planting time. Tissue-cultured plants need more care after planting and should be treated like a vegetable transplant; plant them at about the same depth as the container (or slightly deeper) and water them frequently until established.

Trellis

It's advisable to trellis all blackberries. You can grow erect blackberries without support, but trellises help prevent cane breakage from wind, keep the planting neater, and make cultivation and harvesting easier.

Trailing blackberries. This type of blackberry is easy to grow on a simple two-wire trellis. Use 8-foot or longer wooden end posts. Bury one end of each post, leaving 6 feet above ground. Place metal posts every 20 feet in the row. Run a top wire almost 6 feet above ground and a lower wire 4½ feet above ground (Figure 1). Use high-tensile wire and install tightening devices at one end of the row. In the planting year, train new primocanes

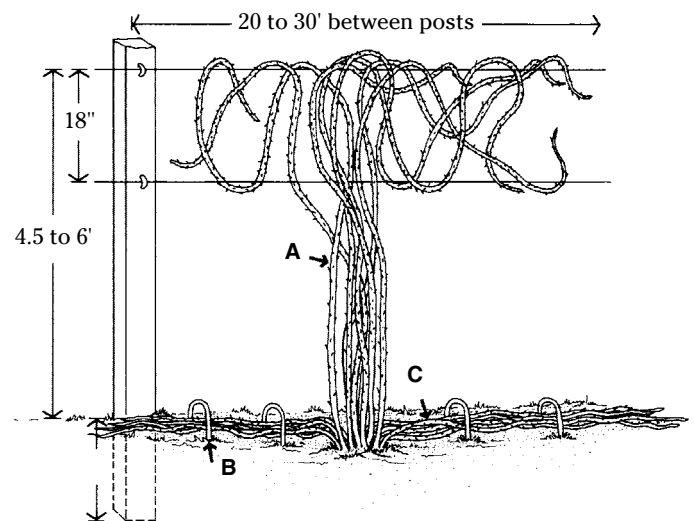


Figure 1. Two-wire trellis for trailing blackberries, in the growing season (leaves and fruiting laterals not drawn for clarity): **(A)** Floricanes that just bore fruit and will die. **(B)** Wire guide for new cane growth. **(C)** New primocane growth that will bear fruit the following year.

as they grow. Bundle the canes and use twine to train them straight up to the top wire. If canes grow longer than the top wire, start wrapping them carefully around the two training wires, spreading out canes (Figure 1, page 3, and Figure 2). These canes will fruit next year.

Training the canes to a multiple-wire trellis (Figure 3) or an existing fence is another option, but training is more difficult with these methods.

Erect blackberries. Erect blackberries produce short, stiff canes from both the crown and the roots, thus forming a hedgerow. A simple knee-high “T” trellis with a 1½-foot-wide top will support the canes. You can make this type of trellis with rebar. String twine or wire down each side of the row. Erect blackberries can be trained to the trellis used for trailing blackberries if you are growing both types.

Semierect blackberries. These plants are vigorous and are easiest to manage on a “double T” trellis. Use sturdy end posts, and bury one end so that 6 feet remains above ground. Use 2x4s for cross arms. Install one cross arm at the top of the post; this cross arm should be about 4 feet long. Install a 3-foot-wide cross arm about 2 feet below



Figure 2. Marion blackberry trained in August. Picture taken in February.

the top one. Run high-tensile wire along the row on each side of the cross arms; you’ll have four wires.

Fertilizing

In the planting year, fertilize each plant with ½ to 1 oz nitrogen (N), depending on soil fertility. Use a well-balanced fertilizer such as 16-16-16. To calculate how much product to apply, divide the desired amount of N you need to apply (for example, 1 oz) by the percentage of N in the fertilizer: $1 \div 0.16 = 6.3$ oz of fertilizer per plant.

Do not apply all of the fertilizer at once. Divide the total into thirds and apply the first one-third 2 weeks after planting, the next one-third 1 month later, and the final one-third 1 month after the second application. In the above example, you would apply 2.1 oz of 16-16-16 per application per plant ($6.3 \div 3 = 2.1$). Distribute the fertilizer evenly in a small area around the young plants.

Irrigation and weed control

Supplement rainfall with irrigation as needed to supply about 1 inch of water a week. Keep the area around plants free of weeds.

No fruit is produced in the planting year.

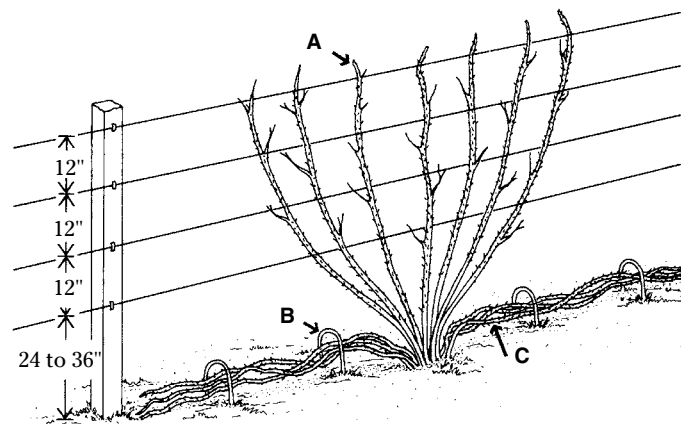


Figure 3. Multiple-wire trellis for trailing blackberries, in the growing season (leaves not drawn for clarity): (A) Canes that just bore fruit and will die. (B) Wire guide for new cane growth. (C) New growth that will bear fruit the following year.

How much should I fertilize?

A good guide for fertilization is to observe plant growth. Primocane leaves should be a healthy green; a pale green or yellow color may indicate nitrogen deficiency. Canes should grow well.

Care of established plantings

Fertilizing

After the planting year, apply fertilizer annually to maintain good growth and leaf color. Apply from 1 to 1½ oz N per plant (6.3 to 9.5 oz 16-16-16 per plant) per year. Divide the total into thirds, and apply one-third at each of three times: (1) when the new primocanes start to grow, (2) at the end of May, and (3) at the end of June. Spread fertilizer over the entire surface of the soil in the row. Irrigate right after fertilizing.

If you use manure, apply it in late fall or early winter to a depth of 2 to 3 inches in the row. Reduce the rate of nitrogen fertilizer applied by one-half. Manure applied early in the fall may cause blackberries to grow late in the season, making them more susceptible to winter injury.

If you use organic mulches for weed control, you may need to apply additional nitrogen fertilizer to assist in breakdown of the mulch.

Irrigation

Established blackberry plants need 1 to 1½ inches of water per week from mid-June through late summer. Irrigate when rainfall doesn't provide this amount. Plants need more water in extremely warm and windy conditions. To avoid excessive disease to canes or fruit, it is best to use drip irrigation or under-canopy sprinklers.

Weed management

Cultivate to control weeds. Cultivate no deeper than 1 to 2 inches to prevent root damage. You can use a mulch or landscape cloth (weed mat) around

trailing and semierect blackberries to control weeds. Weed mat is not recommended for erect types as it will prevent primocane emergence from roots.

Pruning and training

Pruning instructions vary by the type of blackberry.

Trailing blackberry

Trailing blackberries produce new primocanes in the spring at the crown of the plant. (No root suckers are produced.) After growing upright for a short time, these canes turn down and grow along the ground.

After the first year, there will be fruiting canes on the wire, while new primocanes will grow from the crown starting in spring. To avoid damage to new primocanes, keep them trained in a narrow row beneath the bearing canes (Figure 1, page 3). If you have more than one plant, train all the primocanes in one direction down the row (rather than what is shown in Figure 1). This will help prevent primocanes from tangling and make training easier. Do not summer prune or tip primocanes during the growing season.

After fruit harvest, the floricanes start to die. Unless there is a lot of cane disease, it's best to delay cutting off the canes as long as possible. This allows the dying canes to move nutrients back into the crown and roots, making for a healthier plant.

In western Oregon, it's best to train the new primocanes on the trellis in late August. The risk of cold injury increases if you wait to train in September through fall. In eastern Oregon and Washington, leave the primocanes on the ground. In areas with frequent low winter temperatures, you can try to protect the canes through the winter with a straw mulch. Then train the primocanes onto the trellis in late February, after any danger of severe cold has passed. Training canes during cold temperatures is not advised, as brittle canes break easily.



Figure 4. Marion blackberry just before fruit harvest season showing new primocane training technique.

To train primocanes, wrap them, one or two at a time, in a spiral around the trellis wires, working each way from the plant (Figure 1). The canes from adjacent plants should overlap as little as possible on the trellis (Figure 4). Plants may also be trained as shown in Figure 3 (page 4). Wrap long branches around the main canes. No winter pruning of primocanes is necessary.

Erect blackberry

Erect cultivars require little pruning during the planting year. Don't be surprised if canes trail along the ground a bit the first year.

These blackberries require summer pruning. Early in the summer, remove the top 1 to 2 inches of new primocanes when they are about 4 feet tall. This causes the canes to branch, and these branches will produce fruit the next year. Check the planting several times to make sure you prune all of the primocanes as they grow.

Primocanes ("suckers") that grow outside the hedgerow are weeds. Remove them as soon as you see them.

In winter (December–February), remove the dead floricanes that fruited last season. In late

winter, shorten the lateral branches to about 1½ to 2½ feet long.

Primocane-fruiting erect blackberries. This type of blackberry produces new primocanes from the crown and buds on the roots. Primocanes will flower and fruit in the current season. If left to overwinter, the portion of the primocane that did not fruit will become a floricanes and will flower and fruit the following summer. Thus, this type of blackberry can produce two crops per year. The first, in July, is produced on the floricanes; the second, from early September until frost, is produced on the new primocanes.

However, if you have enough space to grow two types of blackberries, grow a



Obsidian.

primocane-fruiter for only the primocane crop. If you want fruit in July, it is best to grow a floricanes-fruiter erect (e.g., ‘Navaho’) or trailing blackberry (e.g., ‘Marion’ or ‘Boysen’). These types produce better quality fruit and a higher yield than the floricanes crop of primocane-fruiter blackberries.

To grow primocane-fruiter blackberries for only a primocane crop, cut all the canes off to just above ground level in late winter. When the new primocanes are 3½ feet tall, remove about 6 inches of the tip. The branches produced will flower and fruit in the fall. A summer-pruned primocane will produce more than three times the yield of an untipped primocane.

Canes may benefit from a temporary trellis.

Semierect blackberries

Semierect blackberries also require summer pruning. When primocanes are just over 5 feet tall, remove the top 2 inches of the tip to encourage the production of lateral branches. Check the planting several times, and tip all of the primocanes as they grow.

In winter, first remove the dead floricanes. Train the remaining primocanes to the double “T” trellis (Figure 5). The branches do not need to be shortened. However, if they are too vigorous and are difficult to train, they can be shortened in late winter.

Harvest

Pick berries every 4 to 7 days, depending on weather and cultivar. Regular picking minimizes problems with disease and insect pests that like overripe, rotting fruit. When the berries are ripe, you can pick them quite easily. Use a breaking, rather than pulling, motion. Pick into a shallow container to prevent fruit from crushing.

To extend shelf life, avoid picking when berries are wet, and refrigerate as soon as possible.

Expect yields of 10 to 13 lb/plant in trailing blackberry cultivars, 4 to 6 lb/plant in erect types, and 25 to 55 lb/plant in semierect types.



Boysen.

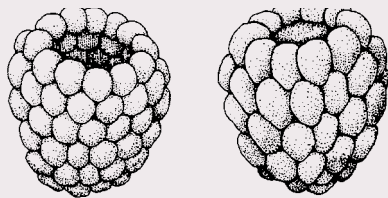


Figure 5. Semierect blackberry (‘Chester’) trained to a double “T” trellis.

Pests and other problems

The most common disease problems include cane and leaf spot, yellow rust, anthracnose, and fruit rot. The most important insect problem is red berry mite. Photos and suggested control measures for these pests can be found on the Internet (<http://berrygrape.oregonstate.edu/>; <http://pnwpest.org/pnw/insects>). Many of these problems can be controlled with dormant and delayed dormant applications of lime sulfur and oil.

Cold injury can cause crop loss. Trailing blackberries are the most sensitive to cold. Hot summer temperatures can cause fruit sunburn (ultraviolet light damage), which causes white drupelets.



Blackberry or raspberry?

It's easy to tell a blackberry from a raspberry. In a raspberry (left), the fruit receptacle (core of the berry) remains on the plant when you pick the fruit, leaving an opening in the fruit. In a blackberry (right), the receptacle is part of the fruit that you eat; the fruit has no opening.

For more information

Blackberry Cultivars for Oregon, C. Finn and B.C. Strik, EC 1617.

Growing Raspberries in Your Home Garden, B.C. Strik, EC 1306.

Laboratories Serving Oregon: Soil, Water, Plant Tissue, and Feed Analysis, J. Hart, EM 8677.

Soil Sampling for Home Gardens and Small Acreages, M. Robotham and J. Hart, EC 628.

Many OSU Extension Service publications may be viewed or downloaded from the Web. Visit the online Publications and Videos catalog at <http://eesc.oregonstate.edu/catalog>

Copies of our publications and videos also are available from OSU Extension and Experiment Station Communications. For prices and ordering information, visit our online catalog or contact us by fax (541-737-0817), e-mail (puborders@oregonstate.edu), or phone (541-737-2513).