K-STATE Research and Extension

Raspberries and Blackberries

MF720

Raspberries and blackberries are not as widely available as other fresh fruits, which makes them a welcome addition to the fruit garden or home landscape. The plants, also called brambles, begin to bear fruit the year after planting. Fruit is produced on canes that develop from roots and crowns each year. The canes grow the first summer, bear fruit the second summer, and then die. Everbearing (fall-bearing) varieties develop some fruit the first year. With proper care and conditions, bramble plantings remain productive for 8 to 10 years or longer.

Site Selection and Preparation

Brambles grow best in a well-drained soil that holds moisture, preferably a deep sandy loam with plenty of organic matter. A deep soil encourages deep rooting and increases drought tolerance. Additional water is needed most summers to maintain plant vigor and improve fruit production and quality. Raspberries and blackberries should not be planted in soil where potatoes, tomatoes, pepper, eggplant, or strawberries have grown in the past two or three years. A fungal disease known as verticillium wilt can persist in soil and infect plants through the roots.

A less-than-desirable planting site can be improved with retaining walls or raised beds. Organic matter can be added to sandy soils to hold water and nutrients. Then mulch can be added around plants to conserve moisture and modify soil temperatures. Protection from strong winds will reduce cane breakage and increase fruit production. Buildings and taller plants can shield plants from winter and summer winds.

Ground preparation will depend on what has been growing in that location. A site that has been planted regularly can be prepared as if planting seeds. If grass has been growing on the site, tilling the year before will eliminate grass competition and white grubs. The planting site should be tilled and worked so the soil is mellow to a depth of 5 to 8 inches. A hedgerow planting requires a row about 18 inches wide. In hill systems an area of at least 6 to 9 square feet should be worked for each. Soil fertility may be low in grass areas. A soil analysis requested through your local extension office will identify required nutrients. Regularly fertilized garden soil may not need nutrients until plants begin bearing. The desirable soil pH for brambles is 5.8–6.5. A good garden soil will be satisfactory. Fall tilling is recommended to avoid having to work soil under wet spring conditions. Working soil when wet often results in clods, which interfere with plant growth.

Bramble Types and Cultivars

Weather conditions should be considered when selecting brambles and cultivars (varieties). Black and purple raspberries can be grown in all areas of Kansas. The fruits of some red raspberry cultivars can sunscald, but this problem is less likely occur in northeast Kansas. Extremely low temperatures can kill blackberry canes. Subzero temperatures damage plants severely, especially thornless and trailing types. The surviving plants will send up new canes, but with the exception of fall-bearing varieties, plants will not bear fruit when existing canes die.

Brambles are self-fruitful and only require one cultivar for pollination. Certified virus-free stock should be purchased when possible. Raspberries and blackberries can be summer-bearing or fall-bearing (everbearing) types. Summer-bearing cultivars bear fruit on two-year-old canes that die when done fruiting. Fall-bearing varieties bear fruit on first-year canes but later in the season. Fall-bearing varieties bear a second time on two-year-old canes.

Blackberries

Blackberries have either an erect or trailing growth habit. Trailing blackberries, also called dewberries, include boysenberries, youngberries and loganberries. Canes of trailing varieties require support. Most blackberries are summer-bearing varieties but the number of fall-bearing varieties is increasing. As is the case with raspberries, fall-bearing types bear fruit a second time on two-year-old canes. A disorder commonly known as sterility can reduce blackberry production. Affected plants may bloom profusely but only produce a few berries, which are usually malformed. Viral infections can cause sterility, but other factors also may contribute to the problem. Plants propagated from tissue cultures typically are not infected with the sterility virus.

Blackberry varieties*

Erect blackberries	Trailing blackberries
Shawnee (thorny)	Lucretia
Choctaw (thorny)	Boysen
Natchez	Young
Osage	
Ouachita	
Prime Ark Freedom (fall-bearing)	
Prime Ark Traveler (fall-bearing)	

* Erect varieties are thornless and summer-bearing, unless noted.

Raspberry varieties*

Red raspberries	Black raspberries (black–cap)
Heritage (fall-bearing) September (fall-bearing) Latham Reveille Taylor	Black Hawk Bristol Jewel
Purple raspberries	**Yellow raspberries**
Amethyst Brandywine Royalty	Fallgold (fall-bearing) Goldie (fall-bearing)

*Varieties are summer-bearing unless otherwise noted.

Planting and Care

Hold plants in a bucket of water when planting to keep roots from drying out. Set red and yellow raspberry plants 2 to 3 inches deeper than they were growing in the nursery container and other brambles about an inch deeper. Nursery planting depth is indicated by the dark gray line on the upper root and lower stem area. Spread the roots in the planting hole, firming the soil over them. Apply 1 to 2 quarts of water to each plant to settle soil around the roots.

Red raspberries should be set about 2 feet apart in the row, in rows 6 to 8 feet apart. In hills, set plants 5 to 6 feet apart in each direction. Black and purple raspberries need more space than reds and are usually set 3 feet apart in the row in rows 8 to 10 feet apart. Hill spacing is about 6 feet by 6 feet. Erect blackberries should be spaced the same as black and purple raspberries, whether planting in rows or hills. After planting, cut back canes of red raspberries to 8 to 12 inches. The "handles" of black and purple raspberries should be cut off at ground level and removed from the site to prevent disease. Cut back blackberries to about 6 inches.

Fertilizing. Plants can be fertilized about a month after planting, if fertilizer was not added to soil before planting. Make a second application in six weeks, applying 1 ounce (1 tablespoon) of a 12-12-12, 13-13-13, or similar fertilizer to each plant both times. Beginning in the second year, fertilize plants in early spring. Apply 2 to 3 cups per 100 square feet of a similar product by broadcasting it along the hedgerow. In hill systems, apply about ½ cup of fertilizer around each plant. Make another application after harvest using the same material and rate.

Fertilizer per plant

	1st application	2nd application
Ammonium sulfate (21% N*)	¼ cup	¼ cup
Urea (46% N)	2 T*	2 T*
Blood meal (12% N)	2/3 cup	2/3 cup
Cottonseed meal (7% N)	1 cup	1 cup

* N = nitrogen ** T = tablespoon

If only nitrogen (N) is needed based on a soil test, use one of the materials listed in the preceding table. If none are available, a lawn fertilizer containing 25-30% nitrogen can be used as long as it does not contain a weed preventer or killer. The first of the three numbers on the fertilizer bag is the nitrogen percentage. For example, a 25-4-4 fertilizer contains 25% nitrogen. Apply 3 tablespoons per plant for each application.

Mulching. Brambles should be hoed or cultivated the early part of the first summer while young roots are developing. Do not mulch until later in the summer once plants are established. Mulching too early can interfere with root growth and establishment. Mulch helps control weeds and conserves soil moisture. It protects plants by reducing soil temperatures in the summer and preventing crown injury during the winter, which promotes a fibrous root system.

Soil management. For weed control, aisles can be hoed or tilled shallowly or seeded with grass and mowed. To use water most efficiently, till or hoe the ground, mulch plants, and supplement rainfall with drip irrigation to total 1 inch of water per week, the amount required for brambles. Irrigation usually is necessary during the summer months, especially as fruits are maturing. Apply enough water to soak the soil to a depth of 10 inches.

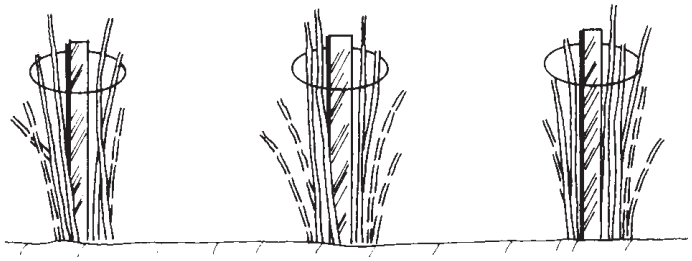
Winter protection. Blackberry canes can be damaged at temperatures below 0°F. Lower temperatures cause progressively more damage to all brambles, including cane tips on raspberries. At temperatures of -10 to -15°F, blackberry canes will be severely damaged or killed. Trailing blackberries can be protected by laying them on the ground and covering them up with soil or straw after they are dormant in the early winter. When the danger of severe cold weather is past in the spring, uncover the canes, do dormant pruning, and tie the canes to the support.

Pruning and Training

Blackberries and raspberries have the same growth and fruiting habits. Both have perennial root systems that send up new shoots or primocanes every year. The shoots are biennial. Growth is completed in the first season and plants bear fruit the following summer. Second-year canes (floricanes) die shortly after fruiting. Shoots of red raspberries and blackberries can originate from buds at the base of the canes or on the roots. Buds growing from the roots are called suckers. Purple and black raspberries do not produce suckers.

Fall-bearing (everbearing) brambles bear fruit twice on the same cane. The new shoots bear fruit at the tips in the fall and again the next season lower on the cane. Fall-bearing plants can be managed for a fall and summer crop or for a fall crop only by cutting canes 2 to 3 inches above ground level while dormant after the fall harvest. Cutting canes during the dormant period simplifies pruning.

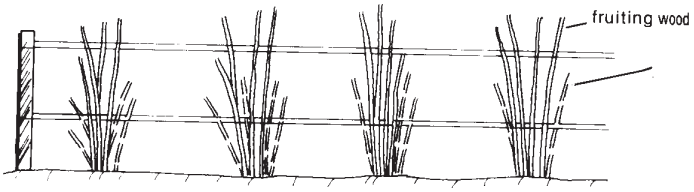
Support systems. A support system can reduce wind damage, improve air circulation, and help support the weight of the fruit crop. Plants in a hill system can be supported by a stake about 2 to 4 inches in diameter. Tie 5 to 8 eight canes to the stake in one or two places after dormant pruning in the spring.



Plants in a hill system tied to stakes.

Hedgerow plantings can be supported with a trellis system. Set posts about 15 to 20 feet apart, leaving at least 5 feet of post above ground. A simple system uses T-posts set at angle in pairs directly across from the other. Each pair should be 1½ feet apart at soil level and 3 feet apart at 5 feet. Install the lower wire about 18 inches above the ground and the top wire at 5 feet, holding wires in place with electric fence insulators that snap onto the T-post. Wire height can vary depending on vigor of the plant.

An alternative trellis system uses wooden or metal T-posts set vertically every 15 to 20 feet within the row. Install an 18-inch wooden cross-piece 18 inches above soil level with a second piece at 5 feet. Attach wires to each end of the cross-piece and extend them horizontally down each side of the row. Train or tie canes to the wires. Wire clips between posts will keep wires from spreading.



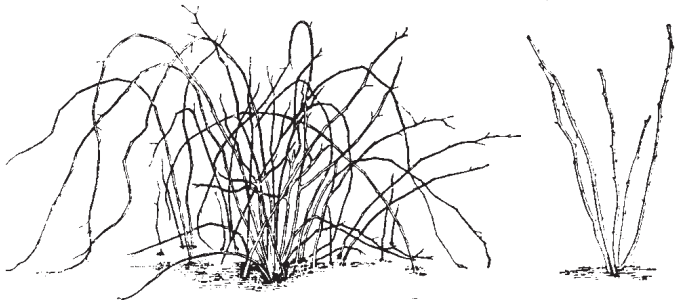
Brambles supported between horizontal wires with the top wire about 3¼ feet above ground. A lower set of wires supports plants about 2½ feet above the ground.

Tipping. Summer tipping is one of the most important practices in the production of black and purple raspberries and blackberries. Tipping leads to stronger canes and side branches and a 3 to 5 times increase in yield. It is done by removing 1 to 2 inches of new growth at the tip of each cane. Do this when canes reach 2 to 3 feet high, tipping more vigorous plants at the higher height. Tip side branches when they reach 18 inches.

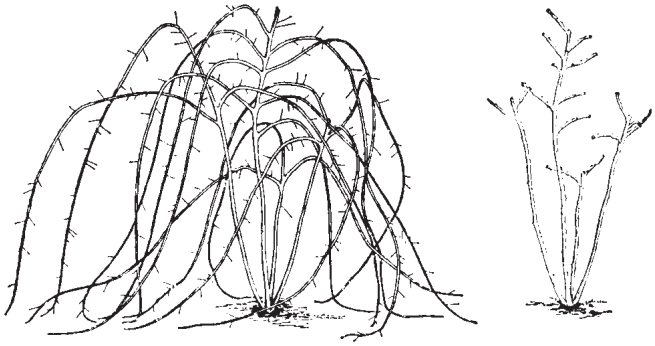
Red raspberries. Red raspberries are pruned and trained differently because of their strong suckering habit. Tipping is not necessary during summer. If numerous suckers develop and increase the row width too much, cut out excess shoots or mow the aisles. While plants are dormant in late winter, prune to remove weak canes. Keep strong canes that are about 4 to 6 inches apart. Maintain a row width of 18 to 24 inches heading canes back to about 5 to 5½ feet. Prune tips injured by wind, winter temperatures, insects, and other causes back to healthy wood. Follow similar procedures for plants in a hill system, removing suckers to confine the hill to the desired space.

Black and purple raspberries and blackberries. Thorny blackberry plants may sucker heavily and fill the row with plants. Extra blackberry canes should be thinned near the end of the dormant season, selecting strong canes about 6 to 8 inches apart. Row width should be kept at 12 to 15 inches at ground level or picking will be difficult. Width can be controlled during the growing season by mowing the aisles. Thornless blackberries do not sucker as vigorously as thorny types and can be trained to a hill system by removing suckers as they appear. Prune each hill to six to eight canes, removing weaker canes in March.

Black and purple raspberries do not produce suckers. The canes are located in clusters or hills where the original plants were set. Canes less than ½ inch in diameter at the base should be removed during the dormant pruning in March. Select five to eight canes per hill for fruiting. The laterals or branches on the canes should be cut back after winter injury can be determined, preferably before buds put out much growth. With black raspberries, eight to 10 buds per lateral are usually enough. Purple raspberries are more vigorous than black, so leave a few more buds per lateral. Laterals in both purple and black raspberries can



Red raspberry plants before and after dormant pruning.



Black raspberry plants before and after pruning. Purple raspberries and erect blackberries are pruned in a similar manner.

be left longer on canes with only two or three laterals, or when there are only a few canes per hill.

Trailing blackberries. When dormant, select four to eight of the strongest canes on semi-erect plants and eight to 16 canes on trailing plants. Remove weak canes at ground level.

Remove dead canes from all brambles. A large part of raspberry and blackberry pruning involves the removal of dead canes after fruiting. Canes should be cut close to the ground and removed soon after harvest as a disease-control measure. Purple raspberries and erect blackberries should be pruned in a similar manner.

Harvesting

The blackberry "core" comes off with the fruit, but on the raspberry plant, the core remains attached. Fruit color and ease of separation are the best indicators of maturity. Full color often develops before berries separate easily. Size and flavor will be reduced if picked too soon. For peak quality, harvest berries every 2 to 3 days, but avoid picking when berries are wet. Pick berries by gently lifting with your thumb and finger.

Berries should be kept in the shade and preferably the refrigerator to extend shelf life after harvest. Place berries into shallow containers. If piled too high, the berries on the bottom can lose shape and leak juice. Raspberries and blackberries should be handled carefully to maintain quality. Cool fruit within an hour of picking to minimize moisture loss, fungal growth, and slow breakdown. Berries will maintain quality for several days if cooled to around 32°F within a hour of picking and held in a refrigerator or cooler around this temperature.

Blackberry and Raspberry Varieties

Blackberry

Shawnee: Thorny, cold-hardy, erect canes do not require support. Medium-large, firm fruit. Highly productive; ripens over a long period of time, vigorous plant.

Choctaw: Thorny, medium-large fruit, somewhat soft, good flavor, very productive, ripens very early, 2 weeks before Shawnee; good cold-hardiness; vigorous; erect canes do not require support.

Natchez: Thornless, cold hardy, erect to semierect. Large, firm, flavorful fruit. Very productive. Ripens earlier than Ouachita.

Osage: Thornless, medium fruit, excellent flavor. Good yield.

Ouachita: Thornless, cold-hardy, erect, canes do not require support. Medium-size, flavorful fruit with reduced acidity. Very productive and vigorous. Ships well.

Prime Ark Freedom: Thornless, fall-bearing. Very large berries with excellent flavor. Does not ship well.

Prime Ark Traveler: Thornless, fall bearing. Medium-large berries with good yields and very good flavor. Ships well.

Raspberry, black

Allen: Large, good quality fruit; plants vigorous; not fully tested in Kansas.

Bristol: Medium-size, high-quality fruit; vigorous and hardy.

Jewell: Large, glossy black fruit, very productive; very vigorous and winter hardy; highly resistant to diseases.

Raspberry, red

Heritage: Fruit medium size, firm and holds together; canes strong and upright, and vigorous; canes bear in the fall and again in the spring.

Latham: Red, medium berry size; medium yields; spring crop, good fruit quality; very cold-hardy.

Reveille: Medium to large, good flavored fruit. Vigorous, high-yielding plants.

Titan: Red, very large berry, mild flavor, high yields; spring crop, early ripening; erect canes, nearly thornless, good cold-hardiness.

Raspberry, yellow

Fall Gold: Medium to large, sweet fruit; amber color, primocane fruiting.

Goldie: Medium-size, round, firm berries, deep yellow color with pink blush; little if any sunscald; primocane fruiting; multiple uses.

Raspberry, purple

Brandywine: Large, firm, tart, good quality berries; plants are vigorous, productive and hardy.

Royalty: Purple fruit, very large berry size; good quality, sweeter than Brandywine; productive and vigorous; spring crop, late ripening, good cold-hardiness, but buds and wood are tender after buds break.

Raspberry, red, black, yellow and purple

Additional cultivars could be listed, but have not been tried or observed the field, so recommendations will not be made.

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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