

Start Growing Thornless Blackberries: How to Prepare and Select Cultivars for the Mid-Atlantic

Blackberries are a hardy plant and a great summer fruit option for a diversified farm, a U-Pick or a garden. While blackberries are a native plant to most of the United States and Canada, most wild blackberries are thorny vines with small and tart fruit. Many modern blackberry cultivars are thornless and produce fruit that is large (up to 10 grams) with varying levels of sweet and tart flavors. Unlike tree fruits such as apples, peaches, and cherries, blackberries grow on canes which are single stems and require fewer years of cultivation before a fruit crop is produced. This fact sheet will provide you with the first-year planting, initial management, and cultivar selection advice to help you begin small-scale blackberry production.

Growing site selection

Before planting, it's important to select which area of your land will be suitable for blackberry production. Blackberries, like most fruit crops, should be grown in full sun. Commercial producers will generally use drip or overhead irrigation systems for their plants. However, for home gardeners this is not a necessary investment as long as you are able to water your plants several times per week.

Plant architecture and training

Blackberries may have different growth habits; some cultivars are vining or trailing, while others can be upright (Figure 1). However, both types require a physical support structure such as a trellis or fence. Trailing cultivars have a growth habit that is more vine-like and requires "training," which involves manual labor to position and tie the cane on the trellis or a fence to keep them upright. In contrast, the upright plant architecture of some cultivars enables the canes to grow with an erect, compact, vertical stem which has the advantage of needing less training.

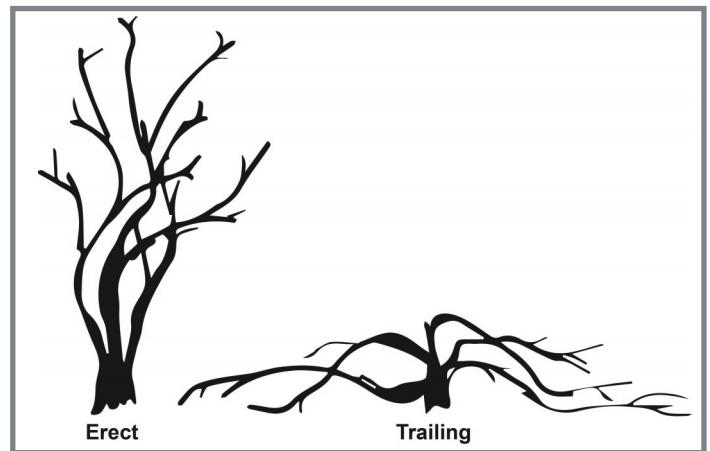


Figure 1. (Right) plant architecture of an erect blackberry bush. (Left) plant architecture of a trailing or vining blackberry. Original illustration by the author.

Trellising

Most modern cultivars of blackberries have been bred for an upright plant architecture. However, we still recommend using a trellis system which will allow for more uniform cultivation of plants and prevent fruit-laden canes from lodging on the ground. Trellis systems also makes harvest easier. Construct a trellis before or right after planting. A trellising system requires a metal pole or wooden post on either end of the planted row, ideally with at least two metal fencing wires running between the poles or posts. The lowest wire should be between 1.5-3 ft. above the ground and the upper wire 5-6 ft. above the ground. Common trellis designs include a T structure (Figure 2), V structure (Figure 3) or an I structure (Figure 4). When constructing a trellis, it's important to make sure that the load bearing posts or poles are secured in the ground and are buried deep enough to maintain structural stability. Ideally the posts should be spaced 20- 25 ft. apart.

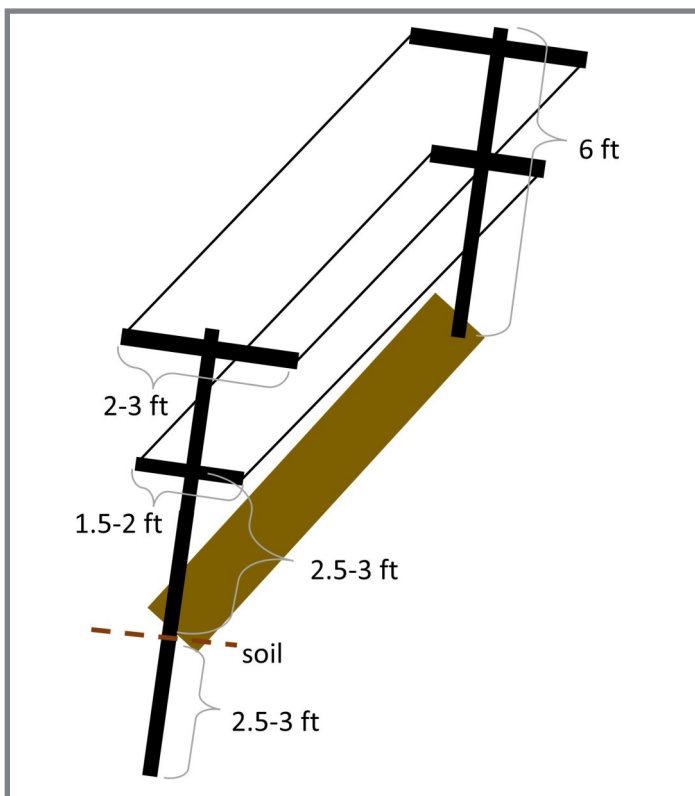


Figure 2. T trellis design and dimensions.

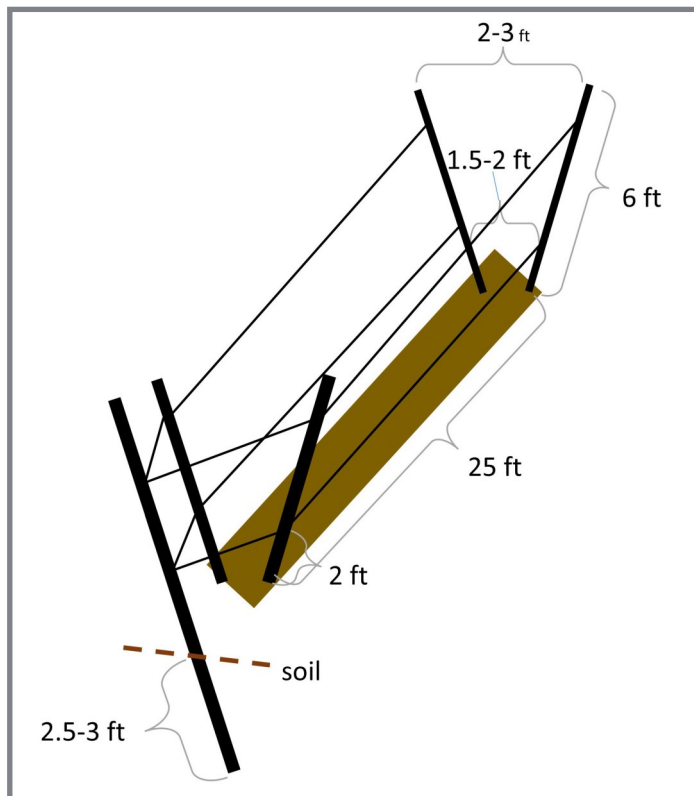


Figure 3. V trellis design and dimensions.

Soil Characteristics

Blackberry does best on well drained soils with high organic matter and can tolerate sandy soil as well (Vossen, n.d.). Clay soils are more difficult for plant roots to penetrate and have higher water holding capacity, which can enable root rotting diseases such as Phytophthora to attack blackberry plants. Have your soil sampled before planting; if you have a clay-textured soil, consider building raised beds and amending the soil with large particles such as wood chips to improve drainage. Additionally, if you have very sandy soils, you should consider adding organic matter or carbon sources such as compost to help maintain soil moisture and to prevent nutrient leaching. Ultimately, the soil's ability to retain water and nutrients while still allowing for good drainage to prevent root rotting diseases will help ensure healthy plant development, which is crucial in the first year for blackberry establishment.

The ideal soil pH range for blackberries is 6-6.5, but they can be grown at a pH between 5.5 and 7. Unlike blueberries, blackberries will not flourish if planted into low pH soils. If your soil is acidic with a pH lower than 5.5, calculate how much lime, eggshells or other calcium sources is needed to add to raise the soil's pH. To calculate the amount of lime needed, use a table based on your current pH or use an online calculator. One such lime calculator table from the University of Delaware Cooperative Extension is listed in "References" below.

Blackberries also do not thrive in soils with high pH. If you have a soil with a pH higher than 7, consider adding acidifying organic matter such as peat moss, pine bark, pine needles, or by adding elemental sulfur at planting. These soil amendments will increase the soil's ability to retain moisture and nutrients and will often lower the soil's pH. If your soil has been tested and is not ideal for blackberries, but you take the necessary steps to amend and improve the conditions for them, be sure to retest your soil in the spring of the following year to make further adjustments.

Planting instructions

It's important to know when to plant and what to expect at different times of the year from your blackberry plants. Blackberries should be planted in early spring between February and April to allow plants to become established over the full growing season. Blackberry plants are sold in multiple forms and sizes, and the price you will pay per plant will vary accordingly. Commercial growers buying in bulk can expect to pay \$2.00 to \$8.00 per plant depending on the quantity and the source. For small scale growers and homeowners, prices may range from \$8.00 to \$20.00 per plant depending on where and how large a plant you purchase. Blackberries may come from the nursery as live small plugs, full size canes, or as a pruned cane from which a new cane will begin growing. Blackberry plants can also be purchased as dry bare-root plants, which are easier to ship compared to



Figure 4. Two photos taken of an I trellis implemented using metal stakes and thick gauge wire on Goat Plum Tree Farm, Berlin, MD. Photos by Matthew Harhai, Goat Plum Tree Farm.

live plants. If you are planting bare-roots plants, make sure to soak the plants if instructed to do so by the nursery and make sure to water the roots heavily to help spur new shoot growth. Regardless of which type of plant you purchase, avoid planting in the heat of summer (July and August). Plants should be spaced between 3 and 5 feet apart with a minimum of 6 feet between rows.

After planting, follow a fertilization schedule during the spring and summer as your first-year blackberry canes are growing (Demchak et al., 2013-2014). In the first year of the planting, fertilize at a rate of 30 lbs. nitrogen per acre. Do not apply nitrogen until at least eight weeks after planting. In the second year, the rate can be increased to 45 lbs. nitrogen per acre. By year three, apply a total of 60 lbs. nitrogen per acre, which should be followed in all subsequent years. In general, apply nitrogen in two equal, split applications: once at bud break in spring and again in May around flowering. Individual nitrogen rates will vary based on your soil type. Heavier soils may take less fertilizer while lighter sandy soils may require more nutrients.

Blackberry growth and cultivar types

Blackberry canes live for two years. The first-year canes are called “primocanes” and will eventually defoliate during the winter. However, they will emerge from dormancy with new leaves and flower buds and eventually fruit in the spring of the following year. In their second year of growth, the stems are called “floricanes.” By planning your planting and by providing the necessary conditions, you can ensure vigorous primocane growth in your first year.

Floricane-fruiting cultivars have canes that remain vegetative their first year and then flower and produce fruit during the summer of their second year when they

resume growth. New canes that emerge in the second season will not produce fruit until the following year.

Primocane-fruiting cultivars offer an advantage for some growers because they can flower and set fruit on first year tops of the cane. These cultivars will also set fruit in the second year on floricanes in the early summer. Therefore, by their second year of establishment, the floricanes will set fruit in the summer and new primocane stems will set fruit in the fall. This will extend your fresh fruit season, making them desirable for many home gardens. If you are growing blackberries commercially, you can plant primocane-fruiting cultivars and treat them as an annual production system by mowing the canes every year to allow only primocane growth with a fall fruit harvest each year.

Blackberry cultivars

Modern cultivars of blackberries have been bred for traits which make the berries easier to harvest and that produce larger fruit sooner with better storage potential. Breeders have developed several thornless cultivars of blackberries which are suitable for the Mid-Atlantic region. These include Apache, Arapaho, Chester, Eclipse, Galaxy, Hull, Natchez, Navaho, Osage, Ouachita, Sweet-Ark® Caddo, Sweet-Ark® Ponca, Sweetie Pie, Triple Crown, Twilight, and Von. These cultivars are far easier to harvest, stake, and prune than blackberries with thorns.

Primocane-fruiting cultivars

Recently, breeding programs have released primocane-fruiting cultivars, of which just a few are thornless, including Prime-Ark® Freedom, Prime-Ark® Horizon Prime-Ark® Traveler and Stark® Black Gem®.

Pollination requirements

Blackberry flowers require pollination of their flowers, usually performed by bees, to produce fruit. To obtain high yields and larger fruit size, plant blackberries in areas where bees are active during the summer where other flowering plants are present to attract pollinators. Unlike apples and blueberries, blackberries do not require cross-pollination. Therefore, it is not necessary to plant two different cultivars of blackberries. However, to extend your fresh harvest of blackberries, you may consider planting cultivars with different harvest times. One method could use an early-season cultivar which fruits on floricanes for early summer fruit and a late-season fruiting cultivar or a primocane-fruiting cultivar for late summer and fall fruit.

Pruning and tipping

Pruning blackberries is important, as it prevent canes from becoming too tall and removes old canes after they have fruited. Experts recommend pruning in early summer after the first year of establishment when primocanes have reached beyond the top of the trellis wire. This process, called “tipping,” requires removing only a few inches of soft, non-woody tissue at the tip of the cane to spur lateral shoot development. Lateral shoot development will promote a bushier cane architecture and ultimately create more flower buds in the subsequent year. For primocane-fruited varieties, perform tipping on your canes when they have reached three feet high; you may need to do so twice to three times in a season to keep cane height in check. At the end of the season, in the winter, thin out floricanes which have already fruited by cutting the cane right above the soil surface. Winter is an ideal time for pruning because disease risk after wounding or cutting canes is low. Pruning out old canes which have already born fruit helps increases air circulation and sunlight penetration into the planting for new primocanes emerging the following spring.

Primocane-fruited cultivars can be pruned in one of two ways. “Single cropping” involves mowing primocanes down to the ground every year so that only the primocane crop is harvested in the fall each year. In a “double cropping” system, primocanes are pruned on top just below the point where primocane fruit stopped and are left to overwinter and to fruit on the lower section of the cane the following summer. The floricanes in a double crop system are pruned in the winter after their summer crop in the same management style as a floricanes-producing cultivar.

Summary

Blackberries can make an excellent summer fruit option for home growers as well as for diversified farms. They are one of the easier fruit species to grow in the Mid-Atlantic and produce fruit within one to two years of planting. Ensure that your soil has high enough organic matter and the correct pH range, and ensure you have a trellis to support the blackberry canes before planting. By spring you will be ready to plant your thornless blackberry crop.

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When citing this publication, please use the suggested format below:
Sater, H. (2023). *Start Growing Thornless Blackberries: How to Prepare and Select Cultivars for the Mid-Atlantic* (FS-2023-0660). University of Maryland Extension. go.umd.edu/FS-2023-0660.

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This publication, *Start Growing Thornless Blackberries: How to Prepare and Select Cultivars for the Mid-Atlantic* (FS-2023-0660), is a part of a collection produced by the University of Maryland Extension within the College of Agriculture and Natural Resources.

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