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## **SP284-G-Pruning Raspberries and Blackberries in Home Gardens**

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# Berries

## Pruning Raspberries and Blackberries in Home Gardens

*David W. Lockwood, Professor, Plant & Soil Science*

Brambles include raspberries and blackberries, plus many hybrids of the two. Although the term bramble indicates thorniness, both thorned and thornless bramble varieties exist. Likewise, some brambles have an erect growth habit, while others are classified as semi-erect and even others as trailing. In Tennessee, erect and semi-erect brambles are widely grown, but very few trailing brambles will be found.

Proper pruning and training of brambles require knowledge of their growth and fruiting habits. The root system and crown of brambles are perennial, meaning that they will live for many years, while the canes are biennial. The first year of their two-year life cycle is referred to as the “primocane year.” During the primocane year, a bramble cane grows and initiates fruit buds. The summer of the florican year, canes bloom, set fruit and then die following fruit ripening (Diagram 1.) In an established bramble planting, primocanes and floricanes exist at the same time. Everbearing raspberries deviate from this pattern somewhat. They will be discussed later.

Pruning and training are distinctly different operations, yet they are often used together to achieve a desired effect. Pruning refers to making cuts on canes to promote growth in certain areas, to adjust crop load, to increase fruit quality and to remove pest damaged tissue. Training involves positioning canes to achieve a desired effect. Trellising semi-erect brambles is a good example of training. Together, pruning and training have many positive effects on yields, fruit quality, pest problems and ease of management. In a new planting, pruning is used to enhance plant survival and growth. Training is used to support new primocanes, especially with semi-erect varieties.

In subsequent years, proper pruning can lessen pest problems by removal of diseased, insect-infested and dead canes. Light distribution, air movement and spray penetration throughout the canopy will be better in a well-managed planting, resulting not only in a reduction of pest problems, but an increase in yields and fruit quality. Proper pruning and training make management of the bramble planting easier as well.



Various aspects of pruning and training are conducted throughout each year as detailed below:

### **At Planting**

New red and yellow raspberry plants and erect blackberry plants may be started from root sections or from rooted cuttings having a root system and a stem. Other types of brambles are started from rooted cuttings. After planting, prune off most of the handle (stem) of the rooted cutting to force buds at the crown to grow and to remove diseased tissue that may have been on the stem (Diagram 2).

### **Summer**

Remove floricanes as soon after harvest as possible. Prune back the terminal of primocanes during the growing season when each primocane has exceeded its desired height by about 4 inches. This is referred to as a heading cut. Heading stiffens the cane, thus allowing it to better support the weight of the fruit and foliage. Heading also results in an increase in lateral branching on the cane, which will increase yield potential. Since not all primocanes begin to grow at the same time or grow at the same rate, you will need to make several trips through the planting to top canes. Delaying topping until late summer or fall means that fewer, less fruitful laterals will develop on canes, thus lowering the yield potential.

Canes of vigorous, erect blackberries should be headed at 48 to 60 inches above ground. Less vigorous varieties should be headed at 36 to 48 inches high. Semi-erect blackberries should be topped about 4 to 6 inches above the top trellis wire. Head black raspberries at about 24 inches and purple raspberries at about 28 to 32 inches (Diagram 3.) Do not head canes of yellow or red raspberries.

Finally, maintain a row width of about 18 to 24 inches at the base of canes by mowing as needed. Remove weak primocanes at the same time that dying floricanes are removed after harvest. These two practices will help maintain good light distribution throughout the rows, lessen the potential for disease problems and promote better growth in the remaining primocanes.

### **Late Winter to Early Spring**

Delay dormant pruning until late winter or early spring to better assess the extent of winter injury on the tips of canes and laterals. Red and yellow raspberries produce new canes from buds on the roots, so they are trained as a hedgerow. The hedgerow should be thinned to six or eight strong canes per linear foot of row, with a row width of 18 to 24 inches. Upright blackberries produce new primocanes from root buds and crown buds and can develop a thick row that needs to be thinned. Thin these canes to about six or eight per linear foot of row as well.

Other types of raspberries and blackberries develop new canes primarily from buds in the crown area. Instead of developing a hedgerow of new canes, plants tend to stay restricted to hills or areas around the original planting site. With this type of new cane growth, prune out weaker canes (those less than 1/2-inch diameter at their base) and thin the remaining canes to about five or six per hill.

To facilitate good air circulation around the canes and to make harvest easier, prune off laterals arising from the lower 18 inches on vigorous canes and 12 inches on weaker growing canes.

Prune back other laterals on canes to about 12 to 18 inches for blackberries and 8 to 10 inches for black and purple raspberries. Within these ranges, leave the laterals longer on vigorous canes and shorter on slower growing canes. When laterals are pruned back at this time, always cut back beyond areas showing winter injury, even if it means leaving the laterals shorter than outlined (Diagram 4).

### **Everbearing raspberries**

Everbearing raspberries (also called fall-bearing or primocane-bearing raspberries) may be grown for a primocane and floricanes crop or for a primocane crop only. The primocane grows throughout early and midsummer. The upper part fruits in late summer and fall. Following harvest, this part of the cane will die back. It should be pruned off prior to the start of growth in spring. If the canes are left in place, the lower part of the cane will fruit during the early summer months of the following year (the floricanes year). The primocane crop tends to be the larger of the two crops. (Diagram 5A)

In areas where disease pressure tends to be high, it may be advisable to grow for the primocane crop only. With this system, the entire planting should be mowed off about 1 to 2 inches above ground in spring and the clippings removed. Disease carryover will be reduced with this system. Also, the primocane crop will be larger than it would under the two-crop system, although not as large as the primocane and floricanes crops combined. (Diagram 5B)

### **Trellising**

Support systems (trellises) perform several important functions for semi-erect blackberries and red raspberries. They minimize crop loss due to wind damage and make operations such as pruning and harvesting easier. Light relationships throughout the canopy are better with a trellis than without, thus increasing the potential for high-quality fruit and reducing disease problems. Yields on a supported system tend to be higher than with a non-supported system.

Several good trellis systems exist. The two outlined below are relatively easy to construct and maintain:

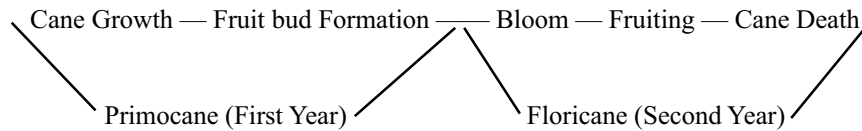
The **two-wire vertical trellis** is very similar to the kniffin system used with grapes. It is probably best suited for semi-erect blackberries. Posts are set about 20 to 25 feet apart. End posts should be 8 feet long with at least 2 feet in the ground. Line posts should be 7 feet long with at least 1½ feet in the ground. Use 12-gauge galvanized wire for the upper support and 14-gauge galvanized wire for the lower one. Position the bottom wire 3 feet from the ground and the upper wire 5 feet above ground. Fan out primocanes on the wires and tie them loosely to the wire. These primocanes should be topped during the growing season once they get about 4 to 6 inches above the top wire (Diagram 6A) to force formation of lateral branches (Diagram 6B). Laterals should be pruned back (8 to 10 inches for black and purple raspberries and 12 to 18 inches for blackberries.) Remove laterals on the lower 12 to 18 inches of canes (Diagram 6C).

The **single cross-arm trellis** appears best suited to red raspberries. Trellis design is very similar to that used for the Geneva Double Curtain system of training grapevines. Posts are set about 20 to 25 feet apart. They should extend above ground from 3½ to 5 feet. End posts should be set at least 2 feet in the ground and line posts should be in the ground at least 18 inches. An 18-inch-long cross-arm should be firmly attached to the top of the post. Attach 12-gauge galvanized wire to ends of the cross-arms on each side of the row. Canes should be positioned between the wires and may either be loosely tied to the wires or held in place by clips between the wires to help keep them from spreading and to hold the canes in position (Diagram 7.)

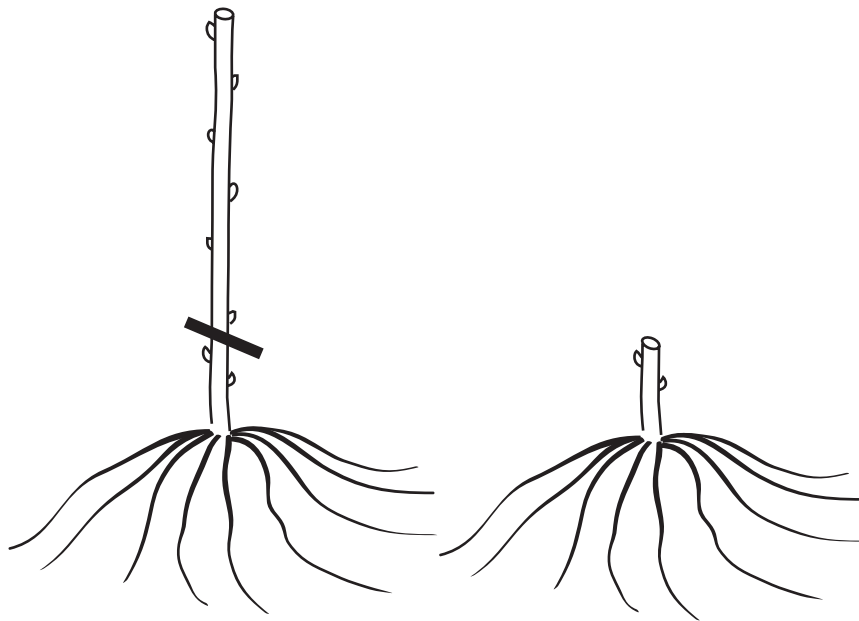
A variation of the single cross-arm trellis is the **double cross-arm trellis**. The cross-arms should be between 12 and 18 inches long. The bottom one should be positioned at 3 feet above

ground. The top cross-arm should be situated at 5 feet above ground. Wires extend down each row and on each side of the cross-arms for both cross-arms. Canes are positioned between the wires and are either loosely tied or restrained from moving very far by clips (Diagram 8.)

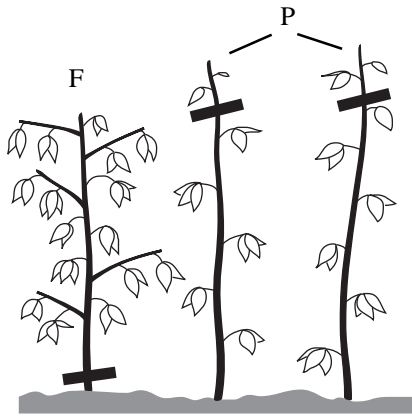
A **temporary trellis** designed similar to the cross-arm or double cross-arm trellis can be used in primocane-bearing raspberries being grown for the fall crop only. Holes should be dug 3 feet deep about every 25 feet down the row and lined with a piece of plastic pipe. At midsummer, insert posts 8 feet long in the holes. Posts should have 18-inch-long cross-arms at 30 and 60 inches above ground. Attach heavy twine instead of wire to each end of the cross-arms on each side of the row. Following harvest and before new primocane growth begins in spring, remove the twine and lift the posts to permit mowing down the entire planting (Diagram 9).



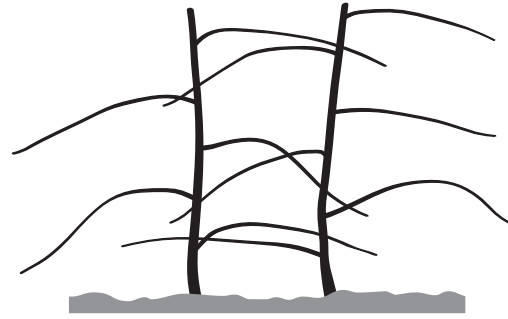
**Diagram 1. Biennial life cycle of a bramble cane\***  
\* excluding everbearing types



**Diagram 2. Head the rooted cutting just above the ground line to force bud break from crown buds.**

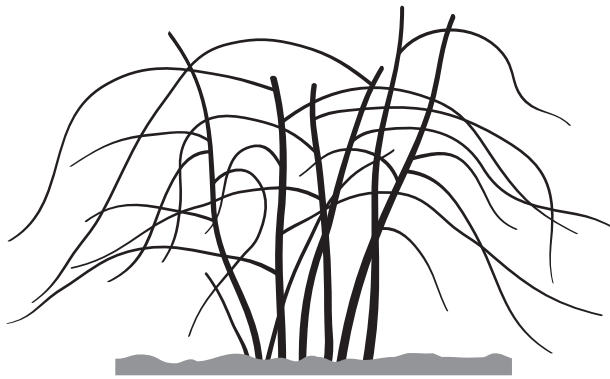


(A) Remove floricanes (F) immediately after harvest. Head primocanes (P) during the summer.



(B) Lateral branching as a result of primocane heading.

**Diagram 3. Summer pruning blackberries, black raspberries and purple raspberries.**

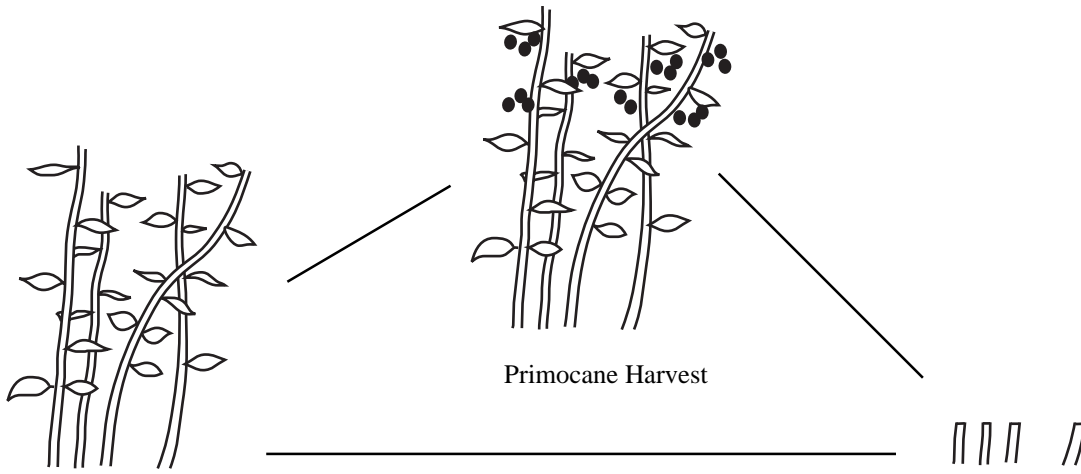


(A) Before dormant pruning



(B) Head laterals.  
Remove laterals on lower 12 - 18 inches of canes.  
Remove excess canes.

**Diagram 4. Dormant pruning of blackberries, black raspberries and purple raspberries.**

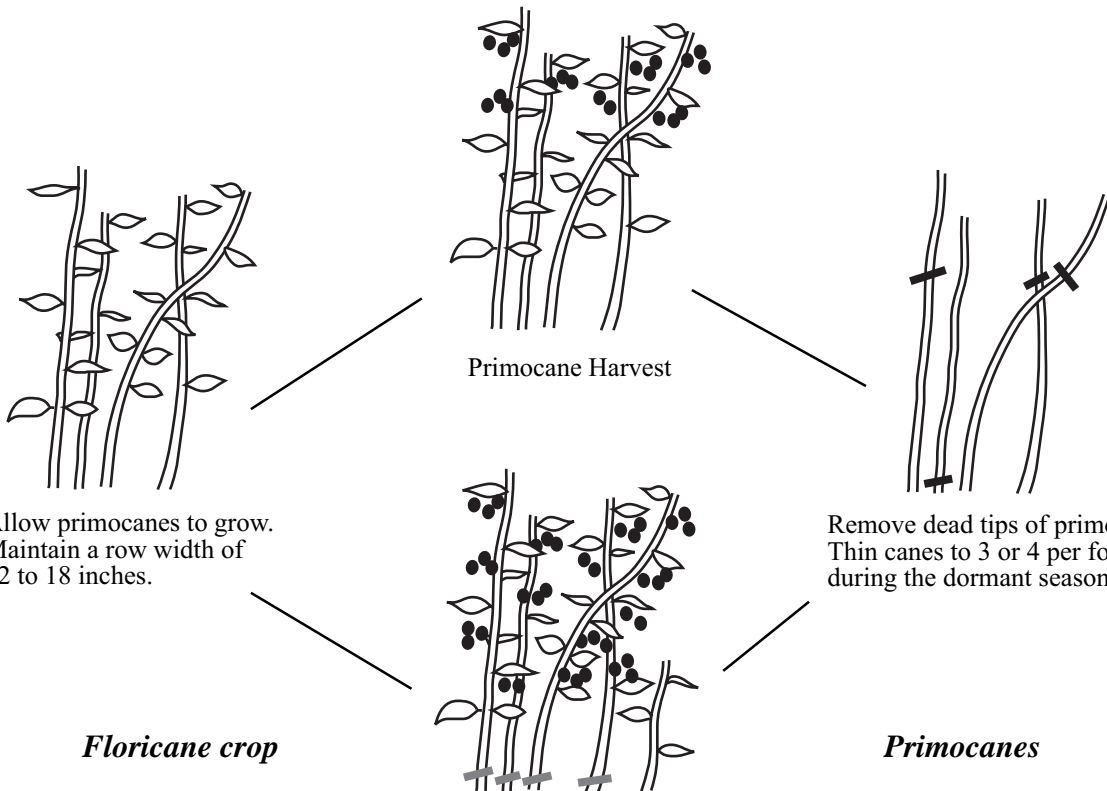


Allow primocanes to grow.  
Maintain a row width of 12 to 18 inches.

Primocane Harvest

Mow down the planting late  
in the dormant season.

**(A) Primocane crop**



Allow primocanes to grow.  
Maintain a row width of  
12 to 18 inches.

Primocane Harvest

Remove dead tips of primocanes.  
Thin canes to 3 or 4 per foot of row  
during the dormant season.

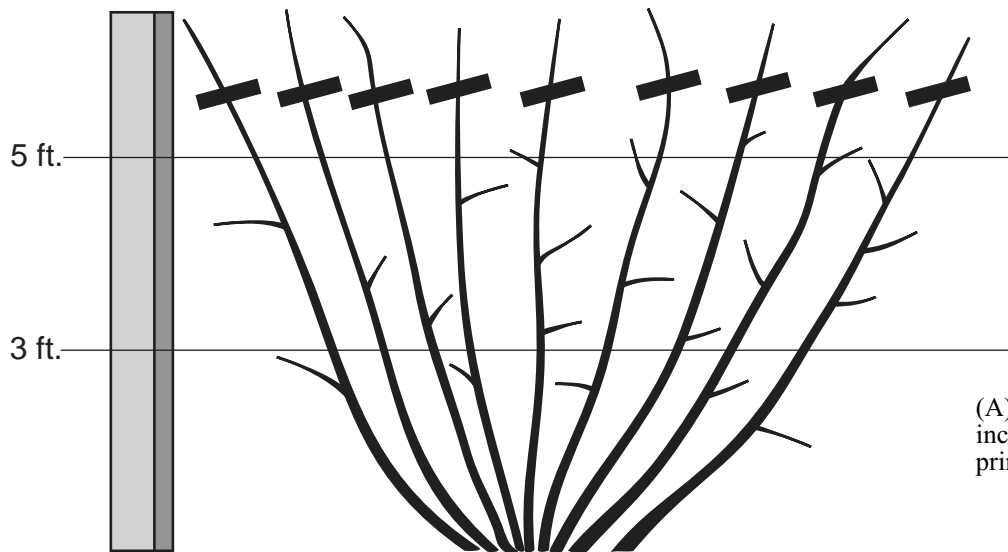
*Floricanes crop*

*Primocanes*

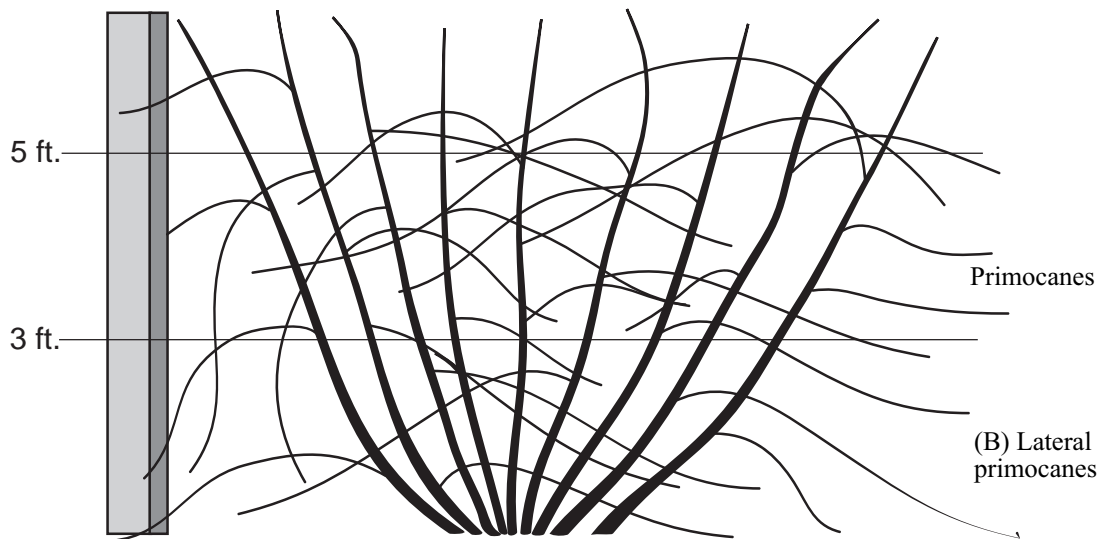
Harvest summer crop.  
Remove floricanes after harvest.  
Retain developing primocanes.

**(B) Primocane and floricane crops**

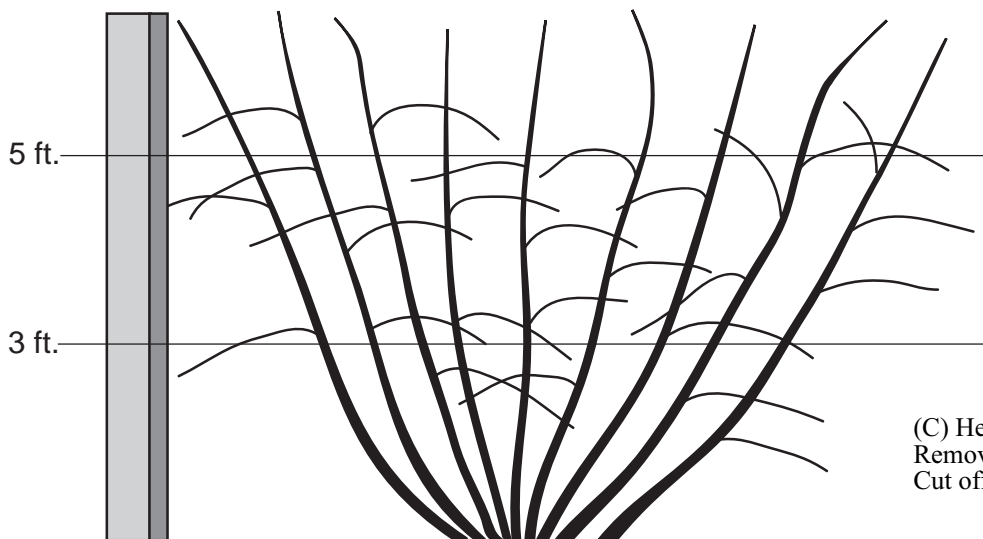
**Diagram 5. Pruning everbearing raspberries for the primocane crop only (A) or the primocane crop and floricane crops (B).**



(A) During summer, tip primocanes 4 to 6 inches above the top wire. of tipping primocanes.

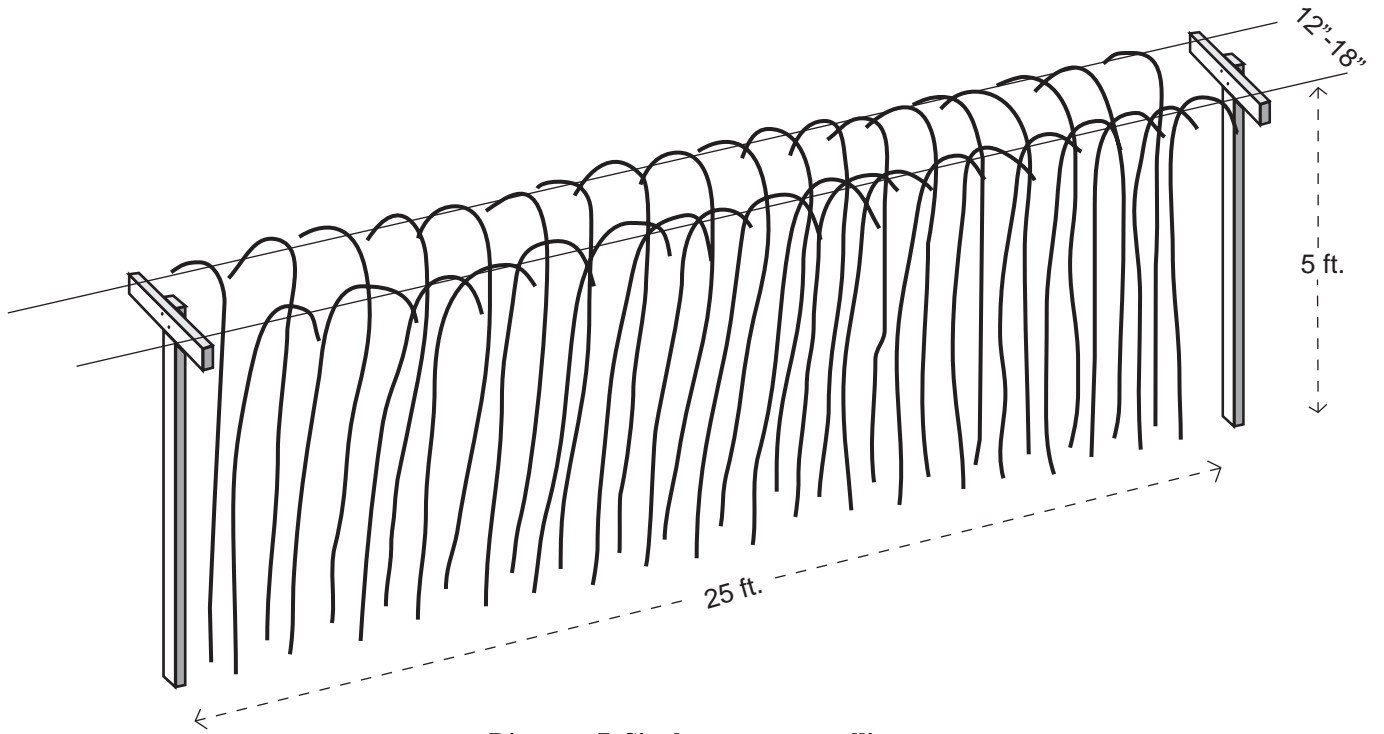


(B) Lateral branching as a result of tipping primocanes.

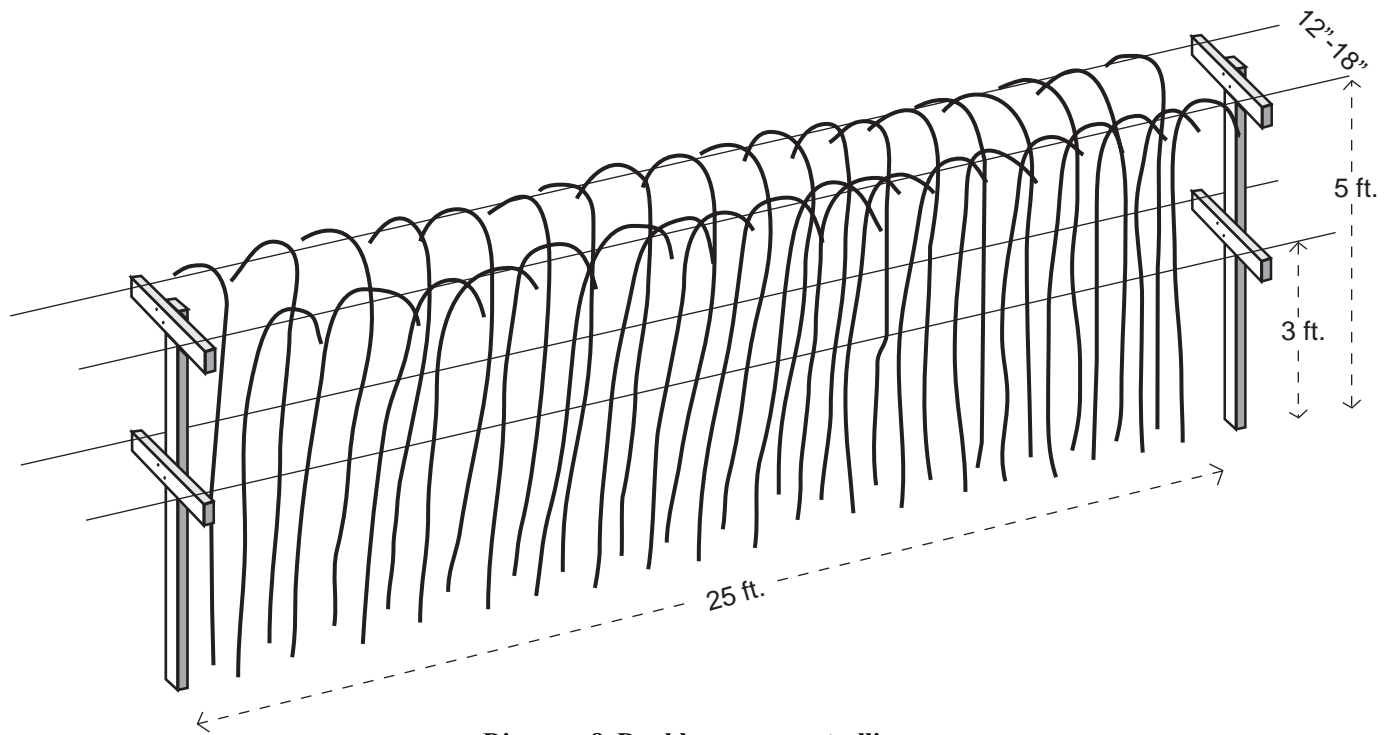


(C) Head laterals to 12- 18 inches in length. Remove laterals on the lower 18 inches of canes. Cut off weak and diseased canes.

**Diagram 6. Fan system of pruning and training semi-erect brambles on a two-wire vertical trellis.**

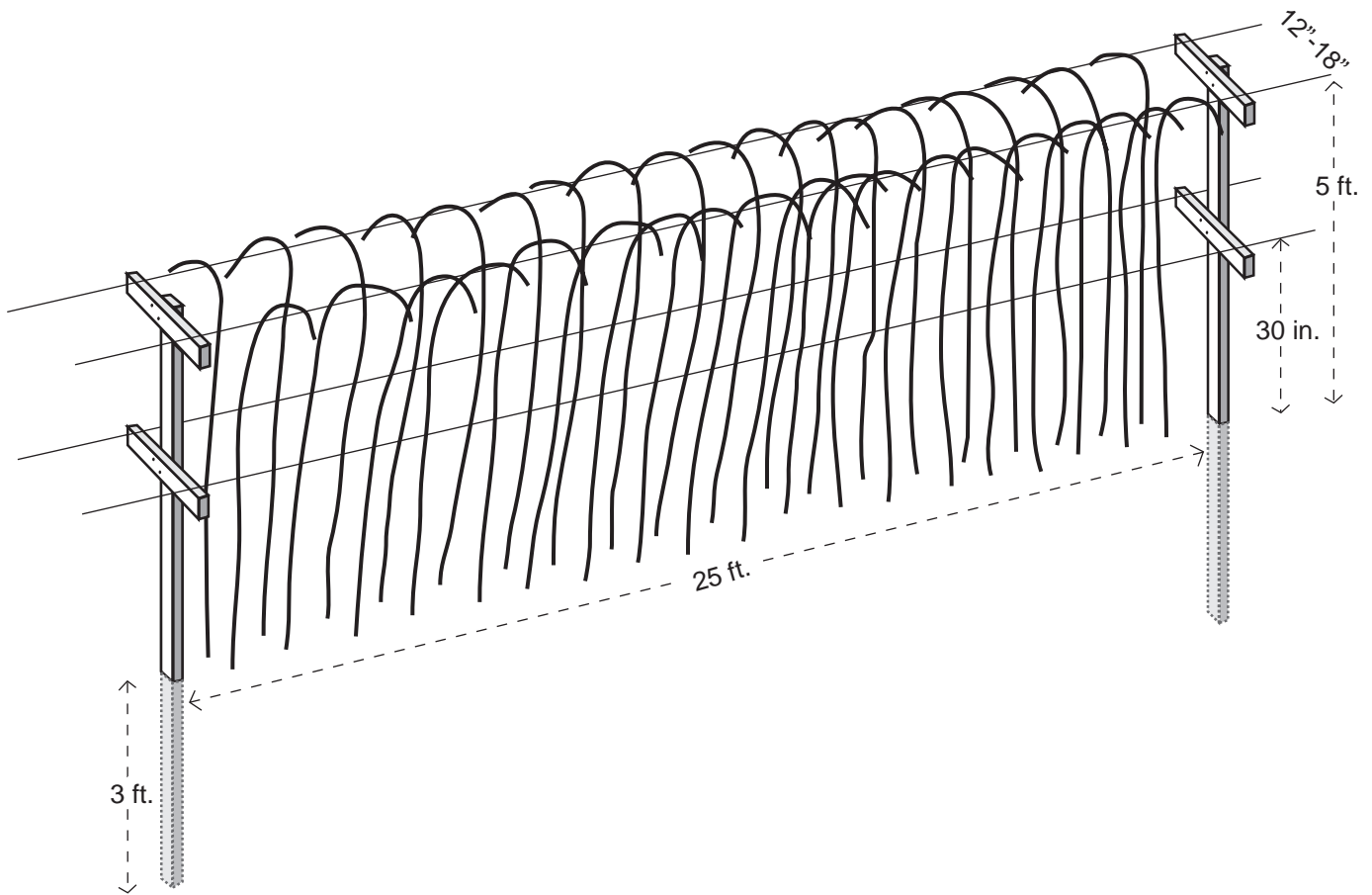


**Diagram 7. Single cross-arm trellis.**



**Diagram 8. Double cross-arm trellis.**





**Diagram 9. Temporary trellis for everbearing raspberries.**

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