

Pruning

Grapes can be grown to conform to numerous shapes: arbors, fences, and decorative trellises are only a few of the possibilities.

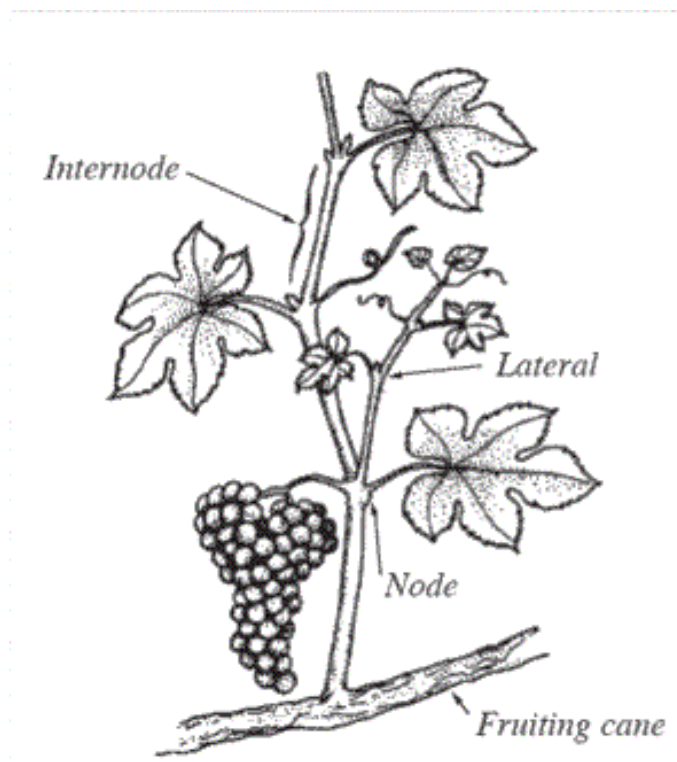


Figure 6.2. A grape shoot. Fruiting cane is last year's growth. The shoot emerges in spring. (Courtesy Oregon State University)

The grower's imagination is the only limit to how the vines can be trained. Since many home gardeners opt to use a less traditional training system, they should remember the following pruning and training principles:

- The structure to which you are training the grapevine should be reasonably filled but not overgrown. This is easier said than done because even though the vine initially grows fairly slowly, as it matures it can become a monster of vegetation. One to two layers of leaves for any area on the canopy are best for flower bud and fruit development.

- Mature grapevines, by their very nature, produce much more wood than they can support. Think of the wild grapevine growing in the woods—it produces a huge amount of wood just to climb to the sunlight. Your grapevines won't need to do that since you're cultivating them, but, nevertheless, they will produce much more wood than is necessary or desirable. Typically, 90 percent of the new growth of a mature grapevine is removed during dormant pruning. Plan on leaving about three to four buds per foot of cordon (the horizontal trunk on a grapevine).
- Grapes bear their fruit on one-year-old wood. Figure 6.2 shows the cane that is formed from a single bud on a one-year-old cane.
- Different grape varieties have different growth habits. American grape canes tend to grow in a willowy, downward direction, while those of European and many French-American hybrid grapes tend to grow directly up. Choose your training system with this in mind.

By way of guidance, some of the traditional training systems employed by commercial and backyard viticulturists (grape growers) are described below. All figures shown depict a vine in the early spring after dormant pruning, which is usually done in February or March in Pennsylvania.

Single-curtain Cordon or Hudson River Umbrella System

The top wire in this system should be galvanized, crinkle wire, or brite basic number 8 wire that has the property of low stretchability. This is because once this system is established, the wire cannot be retightened. In training a vine to this system, select two strong canes or arms and place them bilaterally along the top wire. Arms from one vine should not overlap with arms from adjacent vines. For first-year pruning, leave several branches (spurs) that are five to seven buds long. These spurs should be spaced 6 to 12 inches apart. For each seven-bud spur, also leave a one-bud renewal spur. In selecting arms, be careful to avoid scored wood where canes cross over the top wire. The fruiting shoots will hang like a "curtain" in groups from the spurs that originate from the arms along the top wire. The arms should be wrapped loosely around the wire and tied at each end. One and one-half turns should be sufficient for each arm. Using a bottom wire is necessary only for young vines or for trunk position control.



Shoots should be separated carefully and placed vertically downward from the top wire for a distance of 18 to 24 inches. Positioning should be carried out as soon as the shoots have toughened, usually 2 to 3 weeks after peak bloom. Peak bloom is when 50 percent of the fused petals (calyptras) have fallen, exposing the rest of the flower parts. Extreme care must be exercised during shoot positioning since any shoot lost at this time can result in a poorly filled trellis.

During the second year and thereafter, leave at least five buds on each spur along the arms of the vine for fruiting purposes. The total number of buds should be adjusted in accordance with the capacity of the vine, as explained for other systems.

Umbrella Kniffin System

This system is established by bringing the trunk up to the top wire and leaving four or more canes, bearing a final total of 50 to 60 buds, near the top of the trunk (head).

The Umbrella Kniffin (courtesy of Michigan State University)

Remove all other wood except two renewal spurs (short canes of two buds) near the head. After adjusting the number of buds, retie the trunk. Then, bend the canes rather sharply over the top wire so the outer bark cracks, and tie the tips to the bottom wire. The renewal buds will develop into shoots that probably will not be fruitful but should be allowed to grow. They are there to be used, if necessary, for retaining canes the next year. The buds on the four or more canes will form fruiting shoots that do not need to be tied because the vine already has been trained. Some of those shoots probably will be well located and can replace the original canes the following season, in which case the renewal shoots are not needed.

Four-cane Kniffin System

This is a variation of the umbrella Kniffin system, except that canes are selected from both the top and the middle of the trunk.

It is most often used on low-vigor varieties. Although the lower canes take advantage of the lower wire because they are shaded they might have less fruit, later fruit maturation, and/or lower fruit quality than the fruit from the top-wire-trained cordons.

The four-cane Kniffin (courtesy of Michigan State University)

Other Training Systems

Other useful training systems. (A) Head system, (B) Low-wire bilateral cordon, (C) Geneva Double Curtain. (Courtesy of Oregon State University and Michigan State University.)

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

This publication is available in alternative media on request.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.

© The Pennsylvania State University 2017

extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.