

BUNCH GRAPES IN THE HOME GARDEN

E. B. Poling, Extension Horticultural Specialist

Introduction: Grapes are welcome summer treats that can be eaten fresh, processed into jellies, jams, juice or even fermented into wine. Grapes are adapted to many soil types, and can be quite long-lived. There are basically two kinds of grapes grown in North Carolina, bunch grapes and muscadine. Bunch grapes produce berries in large clusters, and grow best in the mountains and piedmont areas. In coastal plain areas, Pierce's disease kills or shortens the life expectancy of many popular bunch grapes. Muscadine grapes, exemplified by the Scupper-nong variety and noted for having smaller clusters, are not affected by this disease. In these areas the kinds of grapes that may be expected to give the best results are muscadine (see Muscadine Grapes in the Home Garden - Hort. Leaflet No. 8203).

Your success with bunch grapes will depend upon the attention you give to all phases of production — including variety selection, soil management, fertilization, training, pruning, and pest control. This leaf-let presents detailed suggestions for the establishment and care of bunch grapes.

Variety Selection: The choice of variety depends on a number of factors including its adaptation to your area and the type(s) of grape you prefer. There are seedless table varieties, native Fox-type table grapes such as Concord, muscats and many wine varieties. Newer hybrid bunch varieties resulting from crosses of European vinifera (the old-world grape)

with native American varieties are known as French-American hybrids. Both vinifera and French-American hybrids are used primarily for winemaking purposes. However, vinifera type grapes are more difficult to grow and require regular chemical sprays throughout the growing season to control dis-eases. Vinifera are easily injured by fluctuating winter temperatures and typically sustain greater losses to spring frost events than French-American hybrids. Vinifera should be grown on a rootstock (Couderc 3306, 3309, or SO4).

The bunch grapes listed in Table 1 are the most suitable for growing in piedmont and western North Carolina. Six grapevines should furnish enough fruit for most families. A mature vine can yield 10 pounds or more of fresh fruit. Early season table grapes will begin ripening in mid-summer, while a number of the wine varieties do not begin to ripen until late summer. All bunch grapes are self-fertile and may be planted alone or with other varieties.

Soil And Site: Good air circulation, sun exposure and a soil that is well drained are desirable for quality crops of grapes. Air circulation is best if the location has a gentle slope; avoid low frosty pockets. Plant the vines away from trees so that they will receive full sunshine. Grapes are not as particular to soils as other fruit crops; as long as the soil is best; rich soils stimulate excessive vine growth at the expense of fruit quality. Grapes require a soil pH of 5.5 to 7.0.

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Table 1. Bunch grapes recommended for piedmont areas and western North Carolina

Variety	Season	Color	Size	Use	Remarks
Alwood	E. Mid	Purple	Med	FF,J	Resembles Concord
Catawba	Late	Red	Med	FF,J,W	All purpose grape
Cabernet-Sauvignon	V. Late	Black	Sm	W	Vinifera, excellent
Chambourcin	Late	Purple	Med	W	French hybrid, red wine
Chardonnay	Late	White	Sm	W	Vinifera, excellent wine
Concord	E. Mid	Black	Med	FF,J	Not recommended in piedmont
Delaware	Mid	Red	Sm	FF,J,W	Good wine or table grapes
Fredonia	E. Mid	Purple	Lge	FF,J	Heavy producer
Himrod	V. Early	White	Sm-Med	FF	Seedless, disease susceptible
Lakemont	E. Mid	White	Sm-Med	FF	Seedless, good quality
Leon-Millot	Late	Black	Sm	W	French hybrid, red wine
Moored	Early	Red	Med-Lge	FF	Fruity, productive
Niagara	Mid	White	Med	FF,J	Popular, fruit, hardy
Seyval	Late	White	Sm-Med	W	French hybrid, good wine
Suffolk Red	E. Mid	Red	Med	FF	Seedless, good quality
Venus	Mid	Black	Med-Lge	FF	Seedless, avoid overcropping

*Designations used: FF = fresh fruit; J = juice; W = wine

Planting: Plant grapevines in late winter and early spring. Vigorous one-year-old plants are best. Planting will be easier if the soil is spaded or tilled beforehand. Bunch grape roots rapidly grow out several feet in the first two years, so working compost or fertilizer into the planting hole will be of little value. Open a hole large enough to let the roots spread out naturally (root pruning is not recommended except to remove damaged roots). Plant the vines the same depth or slightly deeper than they grew in the nursery. Keep the topsoil separate to place over and around the roots. Be sure not to place fresh manure or fertilizer in the hole. Tamp the soil firmly around the roots, and water if dry. After setting the vine, prune it to one stem and cut this stem back to two or three buds.

Training and Pruning: To simplify installation and avoid damage to young vines, build and set the trellis system before the vines are planted. Use wood treated to resist decay or a durable type of wood such as cedar or locust. Construct the trellis according to the diagram in Figure 1. Set the line posts 20 feet apart down the row. Brace the end posts as shown.

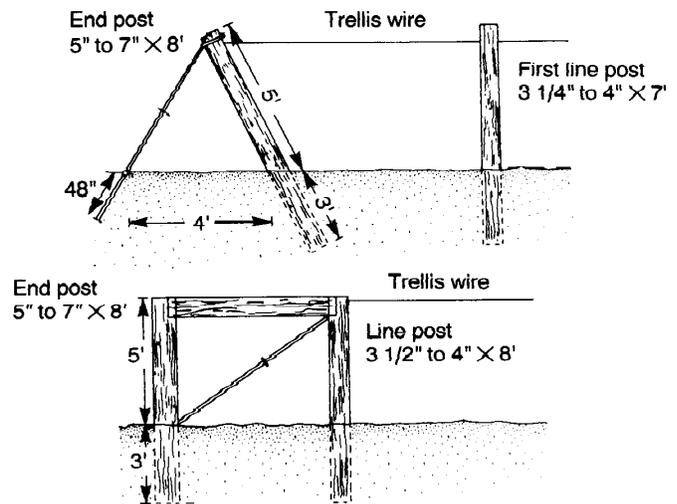
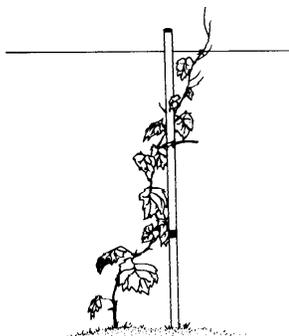


Figure 1. Dimensions for the end post construction for a grape trellis that can be used for either midwire or high-wire cordon training systems.

During the first season, the primary objective for grapevine growth is development of a healthy root system and straight trunk. After setting the vine, prune it to one stem and cut this stem back to two or three buds. When new growth begins and the first shoots from the two-bud cane reach 6 to 10 inches in

length, select the most vigorous and prune away the others. Tie the shoot gently to the training stake several times during the first season (Figure 2). Pinch lateral shoots back to the leaf growing from the main shoot. This allows the main shoot to grow more rapidly, possibly saving as much as a year in establishing a healthy vine.

Figure 2. Train the new grape shoot by twisting it around the training stake as it grows. Tie it loosely every 8 to 10 inches.



Mid-trellis Cordon System (for use with French hybrid vines such as Seyval and vinifera vines such as Chardonnay and Cabernet Sauvignon). Allow the main shoot to grow until it reaches 3 feet (Figure 3). Tie it there, pinch off the tip, and allow several of the lateral shoots to grow. Begin training in the second year by evaluating the extent of growth achieved during the first year. If no cane has reached the first wire, remove all but one cane. Prune this cane back to two buds and treat it as a new vine.

In the winter following the first season of growth, remove all but a few good canes the diameter of a pencil. No added training is necessary, but it is vital to remove flower clusters in the second growing season. Vines that grew extensively in the first year will likely have one or more canes suitable for retention as a trunk. If a cane is long enough to reach the lowest trellis wire and is of adequate diameter (approximately

¼ inch), retain the cane as a trunk. The distal (tip) portion of such canes can be trained horizontally along the training wire to serve as the basis for a cordon (see Figures 3 through 5).

Cordon establishment begins in the second season of growth and should continue over a two-year period for best results. To establish a 3-foot-long cordon, begin with an 18-inch cane (or trunk extension) in the second year, and complete the cordon in the third year with another 18-inch cane from the distal end of the short cordon (Figures 4 and 5). Canes that are used to establish the cordons should be wrapped loosely around the trellis wire and tied securely at the end with wire to prevent the cordon from rotating or falling from the wire.

During the second growing season, shoots that develop below the lowest trellis wire should be pruned to one or two near the graft union. Retain 10 or more shoots that develop on the cordon in the second year.

In the third year the cordon system should be completed. For the trellis mid-wire cordon, canes that rise from the upper side of the cordon arms should be pruned to one- or two-node spurs (see Figure 5). These spurs should be 4 to 6 inches apart. Develop a second trunk and cordon from a cane that originates near the graft union. Keep a small crop of fruit (for example, one cluster for every two shoots) on vines that had at least 1 pound of cane prunings from the second-year growth. Tie shoots to wires as necessary during the growing season. Treat weak vines as second-year vines and remove all crop.

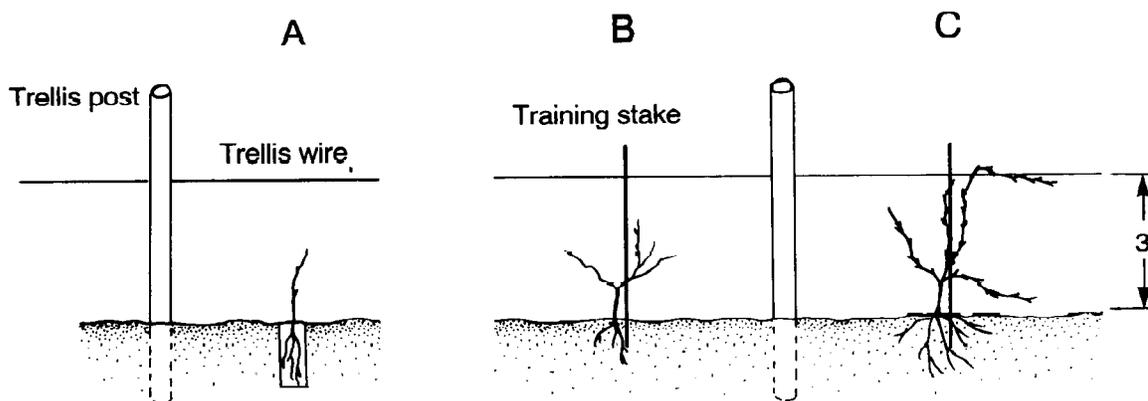


Figure 3. Bilateral cordon training system for grape vines, year 1. (A) Spring, at planting; (B) Fall, weak vine at end of growing season; (C) Fall, vigorous vine at the end of growing season.

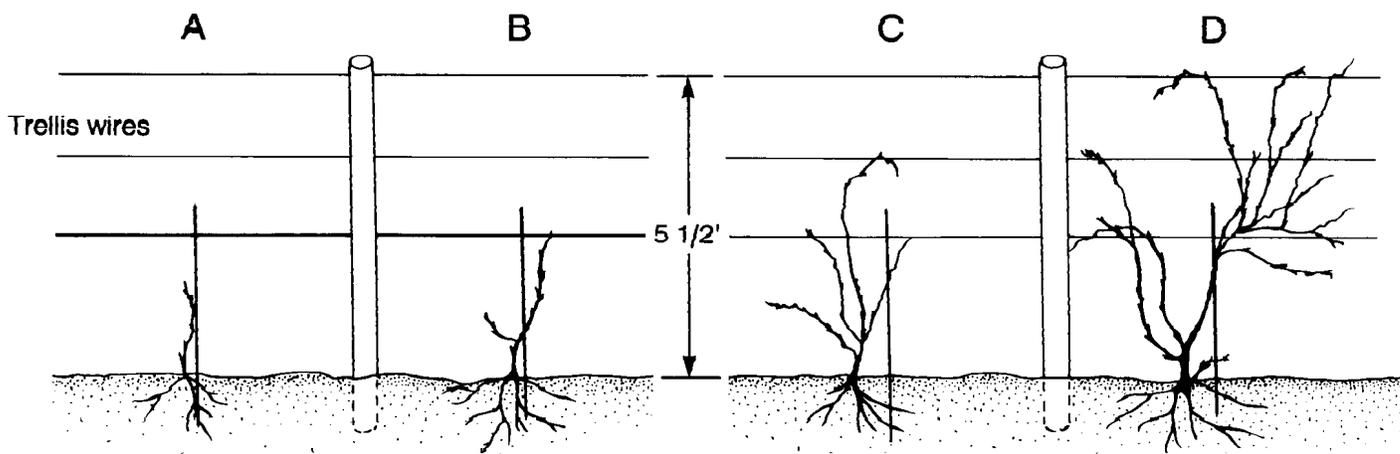


Figure 4. Bilateral cordon training system for grape vines, year 2. (A) Spring, weak vine after pruning; (B) vigorous vine after pruning; (C) Fall, weak vine; (D) Fall, vigorous vine.

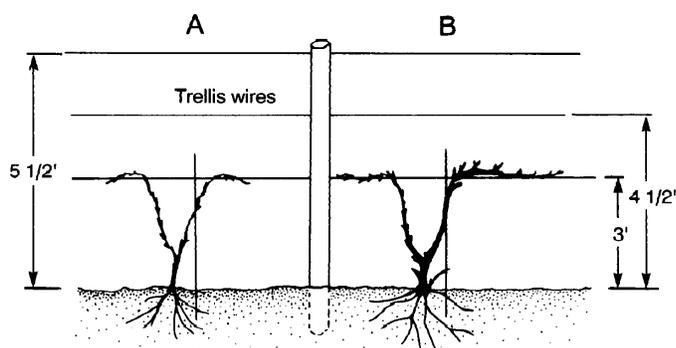


Figure 5. Bilateral cordon training system for grape vines, year 3. (A) Spring, weak vine after pruning; (B) Spring, vigorous vine after pruning.

Cordons may be either unilateral or bilateral; in either case, cordons should ultimately span the distance between two adjacent vines in a row.

High-Trellis Cordon System (for use with American bunch grapes and Muscadine). The initial training of the trunk is the same as used with the midwire trellis system, but in this system cordons are trained along the *top* wire of the trellis. Spurs (short canes) are retained on the *lower* sides of the cordons to promote downward growth in American bunch varieties.

The vine must be pruned every year to avoid alternate-year bearing and to make harvesting easier (Figure 6). Pruning mature vines consists of three operations. The first step is pruning last season's growth. In the dormant season, prune back all canes that grew during the previous summer to 4 or 5 inches in length. Leave the remaining spurs at a 6-inch spacing on young vines. As the vines age, they will

develop clusters of spurs. These spurs must be thinned after the third season to force new spur growth. This process also minimizes the labor necessary for cane tying and keeps fruit and renewal regions at a uniform height, facilitating harvesting and pruning. The second step is to remove suckers or shoots growing from the trunk and any damaged arms. A new cane must be trained (from the renewal canes at graft union height) to replace the removed arm. As the third step, remove all tendrils that attach themselves to the trunk *or* fruiting arm of the vine.

Overcropping will greatly reduce fruit quality. Some cluster thinning in years of heavy fruit set (thinning to one cluster per shoot) is the simplest way to ensure that those remaining will develop into larger, more fully ripened clusters. A good rule of thumb for mature vines is to allow no more than two clusters per shoot. Excess clusters should be removed before bloom (early May in the piedmont, late May in the mountains).

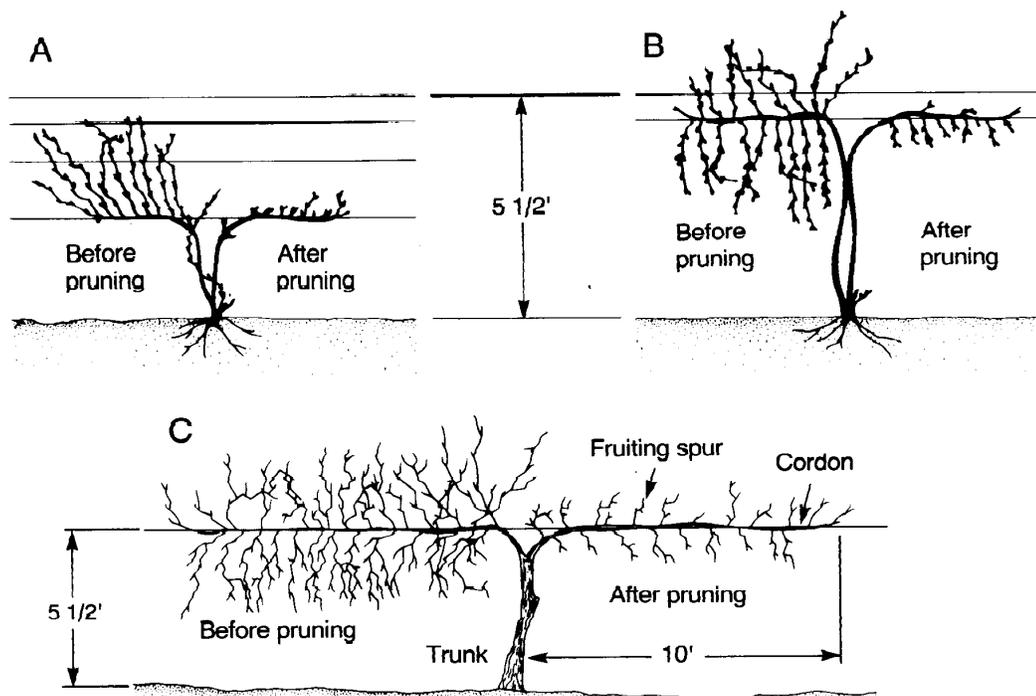


Figure 6. Completed bilateral cordon training system for grapes. (A) Midwire system for use with French vines such as Cabernet Sauvignon and Seyval. Spurs are trained upward. (B) High-wire system for use with American bunch varieties. Spurs are trained downward. Spurs should be pruned to four buds and spaced 4 to 6 inches apart along the cordon. (C) System for Muscadine varieties. Essentially a high-wire system, but the growth characteristics of these grapes prevents training spurs in a downward direction. Approximately 20 two-bud spurs should be retained for each 10-foot permanent arm (cordon); the spur orientation (upward or downward) is not important in Muscadine training.

Fertilization: Proper fertilization is essential to high yields and quality. Before planting vines, broadcast and work fertilizer and lime into the soil as indicated by the soil test (usually about 2 pounds of fertilizer and 5 pounds of dolomitic limestone per 100 square feet).

After setting the vines and just before growth starts, apply 1/2 cup (1/4 pound) of 10-10-10 fertilizer in a 20-inch circle around each vine. Repeat monthly until July 15th. In the second year, double the first year amounts but follow the same schedule. For bearing vines, scatter 1 to 2 pounds of 10-10-10 fertilizer per plant over the area. Repeat with 1 pound per vine in mid-June.

For at least the first two years, keep an area 1 to 2 feet in diameter around each vine free of weeds by hoeing, hand cultivation, or mulching. Black plastic is a satisfactory mulch material, but it does not add to the humus content of the soil. **DO NOT USE A COMBINATION FERTILIZER AND WEED KILLER** on lawn areas near grape vines; the weed

killer may be absorbed by the grape roots and injure the vine.

First year - after setting and just before growth starts, apply 1/2 cup (1/4 pound) 10-10-10 in a 20-inch circle around each vine. Repeat monthly until mid-July. Second year - double first year amounts. Follow same schedule as for first year. Bearing - in March apply 2 pounds 10-10-10 fertilizer per plant, scattered over the area beneath the vine. Repeat with 2 pounds per vine after fruit sets.

Cultivation: For at least the first 2 years, an area 1 to 2 feet around each vine should be kept free of weeds by hoeing, or with a heavy mulch of grass clippings (4 to 6 inches deep). Black plastic is a satisfactory mulch material, but it does not add to the humus content of the soil. Once established, the vine will shade out some weed growth. Recommended chemical herbicides may also be used for weed control in grapes, but mulching is the preferred management practice. Certain types of herbicides should not be used near grapes as they are very

sensitive (e.g. terbacil, 2,4-D). Do not use the combination of fertilizer plus weed killer on lawn areas near a grape vine; the weed killer may be picked up by the grape roots, and cause vine injury.

Cluster Thinning: Overcropping will greatly lower fruit quality and vine vigor. It is better, especially on young vines, to do some cluster thinning in years of heavy fruit set. Thinning to one cluster per shoot (a single shoot may carry three or four clusters), is the simplest way to ensure that those remaining will develop into larger, more fully ripened clusters. With mature vines a good rule of thumb is not to allow them to develop more than two clusters per shoot. Excess clusters should be removed prior to bloom (Piedmont - early May; WNC - late May).

Harvest: An acceptable taste is the main criterion for table use. On a vine that is not overcropped, the berries of black varieties lose their red color and white varieties will change from green to golden yellow. Ripe berries will soften and seeds become brown. Determining the harvest of wine grapes requires either experience or a means of measuring both sugar and acid content.

Insects and Diseases: Bunch grapes require frequent and thorough spraying to avoid diseases and insects. Current recommended spray programs are available through your local Cooperative Extension agent or the Plant Pathology and Entomology Departments, N.C. State University, Raleigh, N.C.