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# virginia home food production



## GRAPES

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MH 407

### ENVIRONMENTAL PREFERENCES

**LIGHT:** sunny, but northern slopes preferred

**SOIL:** deep sandy loam

**FERTILITY:** medium-rich

**pH:** 5.5-6.5

**TEMPERATURES:** American grapes and French-American Hybrids can withstand humid summers and cold winters. Muscadine grapes also grow well in humid summers but prefer winter temperatures above 10°F. European grapes are generally not very winter hardy in most Virginia climates.

### CULTURE

**PLANTING:** propagate cutting or buy 1 or 2-year old plants, set out in late winter or early spring.

**SPACING:** depends on training system  
8-10 ft. x 8-10 ft.

**HARDINESS:** hardy-very hardy  
perennial

**FERTILIZER NEEDS:** heavy feeder  
mainly nitrogen, sidedress after growth begins in spring, repeat 6 weeks later (½ cup or 2 oz.

BLACKSBURG, VIRGINIA



(16-0-0) per vine, 4 oz. second year, 8 oz. in years thereafter. Use 10-10-10 in low P & K soils). Adjust amount to obtain at least 3' of vine growth each year.

### CULTURAL PRACTICES:

Three types of grapes may be grown successfully in Virginia - the American bunch grape, the French-American hybrids, and the Muscadine grape. All are easy to grow, are adapted to many soil types, and are rather long lived. The Muscadine grape cannot be successfully grown where temperatures fall below 10°F., however. This limits its production in Virginia to the southeastern portion of the state

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### Soil Management

Mulching is the preferred soil management practice in the home grape planting. Almost any organic material may be used. Cover the area with mulch to a depth of 4 to 6". Black plastic is a satisfactory mulch material. However, it does not add to the humus content of the soil upon deterioration.

Although grapes are deep-rooted plants, they do not thrive in competition with weeds and grass. If mulch material is unavailable, some cultivation should be done. It should be shallow and only as necessary to eliminate undesired vegetation.

### Training and Pruning

To be most productive, grapes must be trained to a definite system and pruned rather severely. There are several training systems used. The two most common are the vertical trellis and the overhead arbor. Both of these are satisfactory in the home planting if it is kept well pruned.

Of the many variations of the vertical trellis, the single trunk, four-arm Kniffin system is the most popular. All types of grapes grown in Virginia do well under this system of training. Posts are set 15 to 20' apart and extend 5' above the ground. Two wires are stretched between the posts, the lower being about 2½' above the ground and the upper wire, at the top of the posts. Set between the posts, the vine is trained to a single trunk with four semipermanent arms, each cut back to 6 to 10" in length. One arm is trained in each direction on the lower wire, and one in each direction on the upper wire (See Figure on following page).

During the annual winter pruning, one cane is saved from those that grew from near the base of each arm the previous summer. This cane is cut

back to about 10 buds. The fruit in the coming season is borne on shoots developing from these buds. Select another cane from each arm, preferably one that grew near the trunk, and cut it back to a short stub having two buds. This is a renewal spur. It should grow vigorously in the spring and be the new fruiting cane selected the following winter. All other growth on the vine should be removed. This leaves four fruiting canes, one on each arm with eight to 10 buds each, and four renewal spurs, one on each arm cut back to two buds each.

Muscadine grapes are more vigorous than bunch grapes and require more space in which to spread. They are trained in a similar manner. Do not cut back the arms, however. Allow them to grow horizontally along the wires to a length of 5' or more, or until they meet arms from other vines trained to the same wire. By the end of the second year, the arms should be established and should have reached their full length. Annual pruning then consists of removing all dead wood and the tendrils that encircle the arms and trunk, thinning out the weak canes and spurs, and cutting all remaining canes back to two or three buds each. (See figure - Pruning Muscadine Grapes).

The same training and pruning techniques may be effectively used in training grapes to the arbor system. The only difference is that the wires supporting the arms are placed overhead and parallel with each other instead of in a horizontal position. Overhead wires are usually placed 6 to 7' above the ground.

If an arm dies or for any reason needs to be replaced, choose the largest cane that has grown from the trunk near the base of the dead arm and train it to the trellis wire.

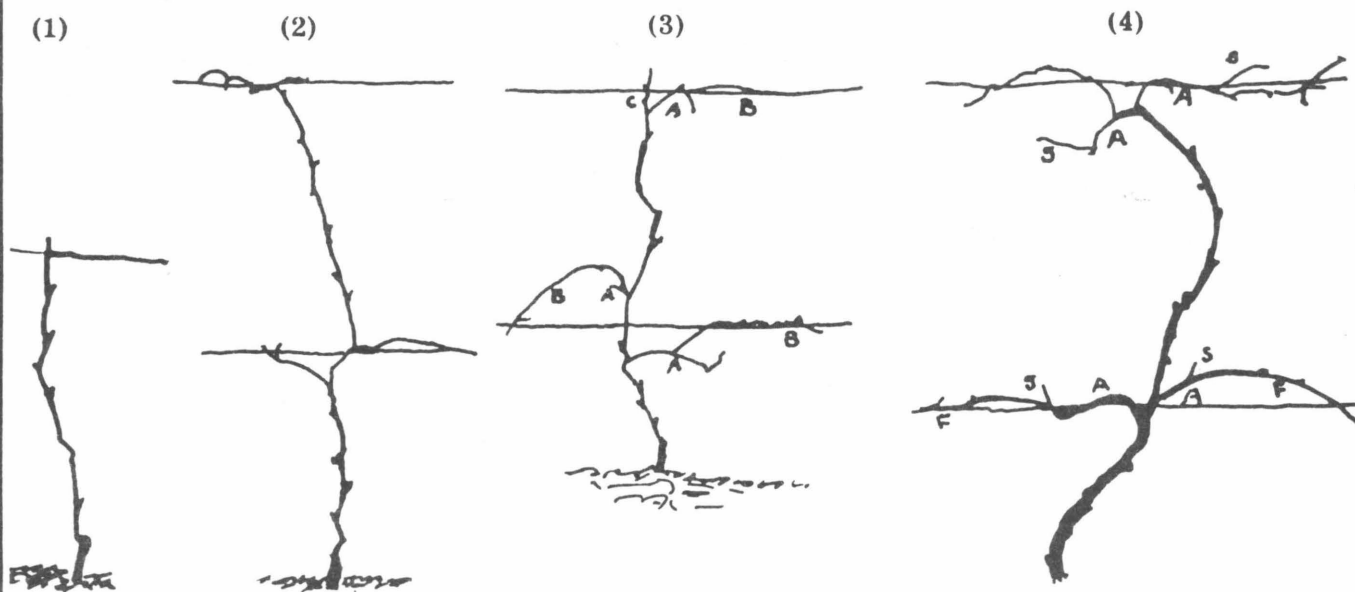
To renew the trunk, train a strong shoot from the base of the old trunk to the trellis as though it were the cane of a new vine. Establish the arms in the same manner as for a new vine, and cut off the old trunk.

Pruning may be done anytime after the vines become dormant. In areas where there is danger of winter injury, pruning may be delayed until

early spring. Vines pruned very late may "bleed" excessively, but there is no evidence that this is permanently injurious.

For current recommendations on the chemical control of insects and diseases of grapes, contact your local Extension Agent.

#### FOUR-ARM KNIFFIN SYSTEM



Stages in training the young vine to the single trunk, four-arm Kniffin system.

- (1) After pruning the first winter. The single cane is cut back and tied to the lower wire. If the cane has grown less than 3' during the first summer, it should again be cut back to two buds.
- (2) After pruning the second winter. Two new canes of four or five buds each are tied on the bottom wire. A third new cane is tied up to the top wire and cut off.
- (3) After pruning the third winter. Three of the arms (A) and the fruiting canes (B) have been formed. A cane (C) with four or five buds is left to establish the fourth arm.
- (4) A fully formed vine after pruning the fourth winter. The arms (A) should be shorter than those shown. The vine consists of a single permanent trunk (T), four semipermanent fruiting arms (A), four annual fruiting canes (F), and four renewal spurs (S), with two buds on each.

## COMMON PROBLEMS

DISEASES: Black rot, downy mildew  
anthracnose

INSECTS: Leaf hoppers, grape berry  
moth

CULTURAL: Excessive vine growth  
(too much fertilization or  
overpruning). Overloaded  
vines (thin clusters of fruit  
to 1 or 2 per shoot).

## NUTRITIONAL VALUE

Raw Grapes, American Type .. 1 cup

<u>Grams</u>	<u>Calories</u>	<u>% U.S. RDA</u>	
153	70	<u>Vitamin A</u>	<u>Vitamin C</u>
		2	6

## HARVESTING AND STORAGE

DAYS TO MATURITY: Partial crop  
third season after planting,  
full bearing in fifth or  
sixth year.

HARVEST: Allow to remain on vine  
to ripen. Color change may  
occur long before full mature,  
so go by taste also. For juice  
or wine, use a refractometer or  
Balling hydrometer, 15% soluble  
solids is desirable. Cut  
clusters off, avoid bruising  
fruit or damaging vine. Muscadine  
grapes are shaken from the  
vines onto a cloth. For jellies,  
pick slightly underripe because  
of higher pectin content.

### APPROXIMATE YIELDS:

Concord 10-20 lbs/plant  
Muscadine 7-28 lbs/plant

### AMOUNT TO RAISE PER PERSON:

10-20 lbs. table use, 60-80 lbs. processing

STORAGE: Cool (32°F), moist  
(85-95% RH) conditions,  
2-8 weeks for American  
Grapes

PRESERVATION: Can as jams and  
jellies, ferment  
to wine, concentrate  
and freeze juice.

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### PRUNING MUSCADINE GRAPES

