

# Muscadine Grape Production in the Home Garden

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Muscadine grapes have been grown successfully in Arkansas home gardens for many years. This fruit is an excellent addition to home fruit gardens due to its low susceptibility to diseases and insects. Muscadine grapes are native to Arkansas and grow in all parts of the state except the most northern counties. Muscadine fruit are eaten fresh or processed into juice, jelly, jam and wine by homeowners.

## Varieties

Cultivated muscadines have plants of two types: vines producing imperfect flowers (pistillate – only female parts) and plants producing perfect flowers (both male and female parts or self-fertile). Imperfect-flowered muscadines require a perfect-flowered plant for pollination. One vine of a perfect-flowered variety can pollinate eight surrounding pistillate plants. Within a row, plant 3:1 (pistillate to perfect) to ensure adequate pollination.

## Black Varieties

**Sugargate** – This variety has very large fruit and is popular for the fresh market; imperfect flower, early season; excellent flavor; inconsistent yields; moderate vine vigor; good winter hardiness.

**Supreme** – Very large fruit of excellent quality; imperfect flower, mid-late season; moderate vine vigor; undetermined winter hardiness in Arkansas.

**Black Beauty** – Large-fruited, imperfect flower, early-mid season; excellent flavor; high vine vigor; fair winter hardiness.

**Cowart** – Yields well; perfect flower; medium-large fruit; mid-season; moderate vine vigor, fair winter hardiness; good pollinator; processing type used for juice and jelly. Also, acceptable for fresh use.

**Nesbitt** – Consistently performed well in Arkansas trials; perfect flower with large berries; high vine vigor; good winter hardiness; mid-late season; very good flavor for fresh eating.

**Noble** – This variety is popular with juice and wine makers; small fruit size; perfect flower, late season; excellent flavor; high yields; high vine vigor; good winter hardiness.

## Bronze Varieties

**Sweet Jenny** – Imperfect flower; large fruit; early-season; high vine vigor; excellent flavor; fair winter hardiness.

**Summit** – Large-fruited variety popular for the fresh market; imperfect flower; mid-season; high vine vigor; good flavor; good disease resistance; good winter hardiness.

**Fry** – Yields well; imperfect flower; large fruit; mid-season; moderate vine vigor; fair winter hardiness; good flavor; standard for fresh market; susceptible to fruit rot.

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**Granny Val** – Perfect flower; late-season; large berries and high yield; good disease resistance and flavor; poor to fair winter hardiness and low-medium vine vigor.

**Carlos** – Used for processing into juice, jelly and wine; early season; perfect flower; high yield; medium-size berry; high vine vigor and good winter hardiness.

## Site Selection and Planting

Muscadine grapes are adapted to almost any well-drained, moderately fertile soil. Good internal soil drainage is very important for successful muscadine grape production. Vine injury and mortality can be expected in sites where water stands for even short periods of time after heavy rainfall. Soil pH should be between 5.8 and 6.5 for optimum growth and fruit production. A soil test should be done at least six months prior to planting. Follow the recommendations on the soil test report to correct any nutrient deficiencies or adjust soil pH.

Sites where muscadine grapes will be grown should receive full sunlight. Fruit set and production will be reduced if vines are grown in an area that is shaded for more than several hours each day during the growing season. Another important factor to consider is the potential for low temperature injury during winter. The minimum temperature that vines can withstand depends largely on vine condition and weather conditions preceding the low temperature. Muscadine grapes should only be planted in regions where temperatures rarely go lower than 10°F and never below 0°F.

Muscadine vines are available as bare-root or container-grown plants. One-year-old container-grown plants are generally easier to use and are preferred for home garden fruit production. Container-grown plants are hardier and can be planted any time during the season as long as irrigation is available.

Bare-root plants can also be used successfully if the roots are kept moist (not wet) and the plants are refrigerated until planting. Optimum planting time for bare-root plants is prior to budbreak (March).

At planting, prune the vines to a single vigorous stem, 1 to 1.5 feet in length with a root spread of about 1 foot. Holes large enough to receive the spread-out roots can be opened with a shovel. The hole should be large enough to spread the roots without crowding. Plant vines at the same depth that they grew in the container or nursery row. Fill loose soil around the roots and pack firmly as the hole is being filled to ensure good soil-root contact. Water each vine after it is planted.

The spacing for muscadine plantings will vary according to the equipment that will be used for row middle management. Row width can vary from 10 to 14 feet, but 12 feet is recommended for efficient land utilization and prevention of damage to vines by cultivation or mowing equipment. The minimum spacing in the row is 20 feet between vines. It is important to leave sufficient space for equipment to turn around at the end of rows.

## Trellising

Erect trellises before or soon after planting. Trellises provide protection during the critical first two years and encourage rapid establishment of the permanent vine framework. Vines not under the trellis wire may be damaged or destroyed by equipment used for cultivation. Train the trunk in a straight, upright position. Usually the end posts are 8 feet and the line posts 7 feet long, with 3 and 2 feet, respectively, in the ground, leaving the posts 5 feet high. Brace the end posts so that the weight of the vines and fruit will not pull the post from the ground. The distance from the end post to the brace post must be greater than the height of the post above ground. The end post should be angled slightly outward. Use a 6.5 foot post as the inside brace post. Place it 6 feet

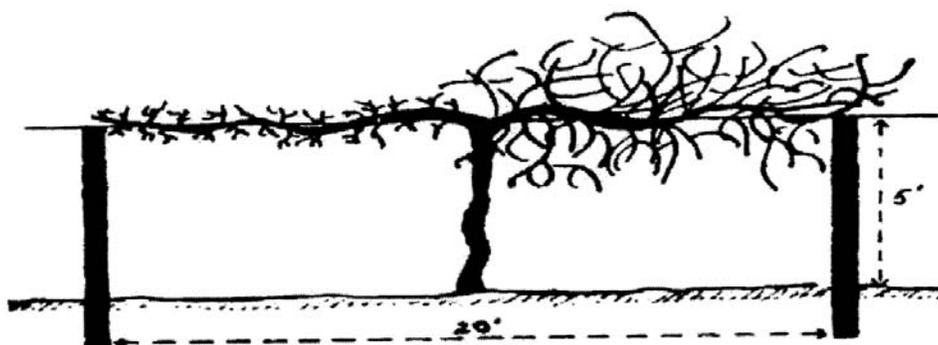


Figure 1. One-wire trellis showing method of training, distance between posts and height of trellis. This diagram also shows a partially pruned muscadine vine. Note the lateral shoots or spurs that are left after pruning. Each year, weak spurs and shoots should be removed and the vigorous shoots headed back to two strong buds.

from the end post and position a 4 x 4 inch piece of lumber between the top of the two posts as a brace. Run a double No. 9 gauge wire from the top of the inside brace post to the bottom of the end post and twist it to tighten the entire brace system.

The one-wire trellis (Figure 1) is the recommended trellis system for muscadine production in the home garden. This trellis system is simple and requires less wire and reduced pruning time than a divided canopy system such as the Geneva Double Curtain System. Set the posts 20 feet apart and plant the vines midway between them. A No. 9 wire should be used on the one-wire trellis system.

## Training

The purpose of training is to establish the framework of the vine as soon as possible. This is done by pruning during the growing season for the first two years. The summer pruning consists of the removal of all lateral growth along the newly forming trunk and then on the trellis arms to three or four nodes at about 14-21 day intervals during the growing season.

When training young muscadine grapevines, follow as closely as possible the step-by-step procedure listed below:

1. After planting, prune the vine to a single stem and a short stub. Cut the stem back to leave at least two buds. This balances the root system with the top, limits the number of growing points and forces new, strong wood that rapidly develops into a permanent trunk.
2. Tie a durable string, such as nylon or new binders twine, from the stub of the new plant to the trellis wire. Do not tie to the stem below the retained buds or girdling will occur.
3. As the new trunk grows, tie loosely to the training string and pinch or clip out side-shoots that develop in the leaf axils. Do not remove the leaves that are growing on the main trunk and do not pinch the terminal growth of the main trunk until it reaches the trellis wire. Repeat the side shoot removal process once every two or three weeks throughout the summer.
4. When the new trunk reaches the trellis wire, pinch it back to four inches below the wire. Tie a string from the top of the vine to the wire and place enough tension on the string to straighten the trunk. This encourages shoot development. Train the new shoots at the top

of the trunk to the trellis wire to form the permanent fruiting arms or cordons.

5. Train the cordon along the wire by tying it loosely to the wire as it grows. Pinch lateral shoots about 1 foot from the cordon to promote rapid growth and development. This practice should be done every two weeks to allow maximum cordon development. Allow the cordons to eventually meet halfway between the vines.

Dormant season pruning the first two years consists of the removal of side-growth on the trunk and cutting back all current season's lateral shoots on the cordons to two or three buds (see Figure 1). When summer training and pruning are not followed, form a trunk with no side shoots almost to the top wire and cordons to follow the wires.

## Pruning

After the framework has been established, prune each year during the dormant season. Cut back all shoot growth during pruning (Figure 1). Remove completely all shoots not needed for spurs and cordons. Cut other shoots back to short spurs, each with two or three buds.

As the vines get older, they develop clusters of spurs or spur systems. Eventually, overcrowding will result unless some of the spurs, or entire clusters of spurs, are removed. Overcrowding causes weak shoot growth, reduced fruit-bud formation and poor fruit set after flowering. When weak shoots are noticed, remove some of the weaker spurs or parts of spur clusters to induce the growth of strong new shoots from the remaining two or three bud spurs.

Too many vigorous spurs frequently are left at the top of the trunk. Prevent this condition by removing most of the spur system at the top of the trunk.

To prevent death by girdling, remove all tendrils that encircle the trunk or arms. Tendrils also girdle and kill spurs, but the loss of a spur is comparatively unimportant.

Vines may be pruned at any time during the dormant season. Late spring pruning may cause the vine to bleed heavily in mild weather, but there is no evidence that the bleeding injures the vine. Also, late spring pruning will reduce the potential for winter injury to vines. If the need for a new cordon or fruiting arm becomes evident, allow a new one to grow from a new shoot arising near the original trunk.

## Fertilization

Young plants should receive a complete fertilizer, such as 12-12-12 (NPK) or some other commonly available mixture, in early spring of the first growing season. Use this mixture at the rate of 1/2 pound in a wide band around each vine. About mid-June, side-dress with 1/8 pound of ammonium nitrate, or its equivalent of other nitrogen sources, per vine in a similar manner.

Make fertilizer applications the first year in a circle 3 or 4 feet in diameter. Roots grow 2 to 3 feet long in all directions the first year. In the second year increase amounts to 1 pound of the complete fertilizer and 1/4 pound ammonium nitrate. Increase the area of application to 5 feet.

The third year, apply 2 pounds of the complete fertilizer. For succeeding years, 2 to 4 pounds should be sufficient, depending on the vigor of the vine and soil test results. This application should be broadcast along each side of the row before vine growth starts in the spring. Do not let fertilizer come in direct contact with the roots or within 12 inches of the trunk of the vines. Individual shoot growth on a mature vineyard should average 30 to 36 inches per year. If more growth than this occurs, cut down on the nitrogen; if less, increase it.

## Weed Control

Frequent, shallow, clean cultivation is necessary the first two years. Keep all grass and weeds from around the plants. Never cultivate deep at any time. Two inches should be the maximum depth, or you will damage the shallow root system.

After the second year, mowing the middles of the rows and along the rows is recommended instead of cultivation. Muscadines will benefit from the

application of 2-4 inches of mulch under the vine row. Additional information on weed control may be obtained from your local county Extension agent.

## Insect and Disease Control

Muscadine grapes can often be grown without spraying for insects or diseases. However, insect and/or disease pressure may become severe enough that spraying is required. There are many diseases which affect muscadine grapes; however, the most common are bitter rot, macrophoma rot, angular leaf spot and the leaf spot phase of black rot. Dense vine canopies which have high humidity and low wind speed increase the incidence and severity of fungal diseases. Canopy modification by use of proper pruning and fertility management can reduce disease problems. The latest information on insect and disease control can be obtained from your local Cooperative Extension office.

## Harvesting and Handling

Fruit may be harvested by shaking (primarily for making juice, jelly or wine) or by hand. Harvesting by shaking requires two 10 x 20 feet sheets, which may be cloth or plastic. Place a sheet along each side of the trellis or use a picking frame. Shake each arm of the vine with quick jerks. Separate leaves, twigs and other trash from the fruit.

Those varieties having large, compact clusters may be hand picked. Cut clusters with grape shears or knives into baskets or lugs.

Hand-picked fruit remains in good condition for several days after harvest. Keep in a cool place or under refrigeration. Some bruising and injury occur when fruit is harvested by shaking. If such fruit is not used quickly, decay is likely to develop. Handle the fruit carefully and rapidly.

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