Muscadine Grape Tour

Barbara Smith, UF/IFAS - Baker County Horticulture Agent, Phone: 904-259-3520
May 1, 2007

- Muscadine grapes are a sustainable fruit crop in north Florida because they tolerate insects and disease well. As a result, they can be grown without spraying pesticides. That makes muscadines an easy, rewarding crop for home vineyards and small farmers.

- There are a few commercial plantings (less than 500 acres in the state), with the most successful ones growing large fruited cultivars for the fresh fruit market. U-Pic operations are common, and many growers sell directly to the consumer at roadside stands or farmers markets. Commercial muscadine grape vineyards growing for the processing market (wine, juice, jelly) have not been profitable because of the low prices offered for this product.

- Bunch grapes do not grow well in Florida because they are susceptible to many diseases, including Pierce’s Disease. This disease, for which there is no cure, is caused by a bacterium, vectored by leafhoppers.

The grape vineyard here at NFREC has 15 varieties of grapes, 14 muscadines and one, (Southern Home), that is a cross between a muscadine and a bunch grape hybrid. All are suited to the North Florida growing area. Many are recommended varieties, others have shown promise and are being trialed.

- A muscadine grape cultivar grown for fresh market consumption should be large, sweet, and attractive with a relatively thin skin. Yields should be consistently moderate to high and vine vigor and disease resistance should be satisfactory. Many of these grapes are female varieties and require a pollenizer (male plant). Female cultivars yield only 50% that of a self-fertile cultivar.

- A muscadine grape cultivar adapted for processing into wine, juice, or jellies must produce consistently high yields. Berries should contain at least 14º Brix (sugar content), have a favorable sugar to acid ratio, and should taste good. Berry ripening should be uniform so that multiple harvests are not required. Juice and wine made from the grape must have high color stability. Berry appearance is not critical for this purpose.
Recommended Cultivars for Fresh Market

Row 2  Fry. Fry is the most popular muscadine grape cultivar. Produces a very large bronze grape. Yield, vigor, and disease resistance is moderate. The period from first ripening to last ripening can extend to 6 weeks. Needs a pollinizer.

Row 3  Summit. Summit is an excellent fresh fruit cultivar that produces a slightly smaller bronze grape than Fry, but with higher yields and disease resistance. Needs a pollinizer.

Row 12  Nesbitt. Nesbitt produces a black grape that is medium-large in size. Yields are high and crop is mid season. It is self-fertile. This is a multi-use grape for fresh market or processing.

Row 14  Southern Home. Southern Home is from the University of Florida grape breeding program and is a patented interspecific V. rotundifolia x V. vinifera hybrid. This cultivar has a leaf more like a bunch grape and is valuable as an ornamental as a result. It is a female cultivar and produces a black berry with more berries per cluster than usual (about 12). Berry size is medium and berry flavor is different from the flavor of other muscadine grapes. Yield is moderate to high and ripening period is from August to November.

Recommended Cultivars for Processing into Wine, Juice and Jellies

Row 6  Carlos. Carlos is an extremely heavy producer of medium-sized bronze grapes. It is self-fertile and will provide the tonnage and quality required for juice or wine production. Carlos is the number one bronze juice or wine grape in the southeastern United States. (In years of heavy production, drought, or mineral stress it has shown symptoms of Pierce’s disease.) It came from the North Carolina State breeding program.

Row 7  Doreen. Doreen is a self-fertile, black muscadine cultivar that produces a large crop of small to medium-sized berries. Harvest season is late. Doreen is one of the best cultivars for juice production. From NC State breeding program.

Row 4  Noble. Noble is the most popular red muscadine grape for wine or juice production. It is self-fertile. Yields and disease resistance are high and berry ripening is fairly uniform. Flavor is less musky than most muscadine grapes.

Row 13  Welder. Welder is a self-fertile, bronze grape cultivar which makes a good juice and wine. Yield is moderate and the berry ripening period can be much extended such that three harvests may be required. From UF breeding program.
Fresh Market Cultivars Recommended for Trial

Row 5  Black Beauty. Black Beauty is patented. It produces an attractive, very large black grape of high overall quality. Quantitative yield data are lacking. Vine vigor is high and harvest season is mid to late. From the UGA breeding program. Needs a pollenizer.

Row 9  Early Fry. This is a patented cultivar that resembles Fry, but ripens earlier. It is a female cultivar that produces a dark bronze fruit. Vine vigor is high. Yield estimates appear good, although quantitative data are lacking. Needs a pollenizer.

Row 10  Ison. Ison is a patented cultivar from a private grape breeding program at Ison’s Nursery in Brooks, GA. It is a self fertile cultivar that produces a large black grape. Yields are said to be high, although quantitative data are lacking. Harvest season is early and vine vigor is high.

Row 11  Darlene. Darlene is a patented Ison’s Nursery cultivar. It produces a very large pink grape and needs a pollenizer. Darlene ripens early to mid season and vine vigor is high. Quantitative yield data are lacking for Florida, although yields have been erratic in southern Georgia.

Row 1  Tara. Tara is a self-fertile cultivar from UGA that produces a large bronze grape mid season. Yields are reported to be high, although yields at the NFREC-Monticello have been low to moderate.

If you are considering planting a muscadine vineyard with hopes of selling the grapes:

- Look for your market first, then choose the variety that suits the market.
- Plant a small vineyard at first, and expand with the increase in demand.
Planting

- Muscadine grapes tolerate a wide range of soils, test for pH (5.5 to 6.5 is best)
  - sandy loam, loamy sand best
  - clay and sandy soils okay (provide drainage or irrigation as needed)
  - grapes do not do well in calcareous or waterlogged soils

- Plant bare root vines Dec – Feb, containerized vines anytime…just keep watered.
- Put up your supports before you plant.
- Dig planting hole large enough so whole root system fits (about 2 ft deep and 2 ft wide), may want to add water to bottom of hole before putting plant in. Water well.
  - Most critical elements are irrigation and weed control
  - Space between rows depends on the trellising system you choose in your vineyard design.

Three systems of vineyard design:

- Bilateral cordon training system has a smooth, galvanized, No. 9 wire 5-6 ft above the ground stretched between two posts. Vines grow out in both directions onto wire. Simplest to set up and maintain. Pruning and harvesting much easier with this system.

- 2 –wire vertical system – wire at 2-3 ft in addition to top wire. Vines grow out in both directions on two wires. Weed control difficult with this system and it requires leaning or kneeling to do pruning and harvesting at the lower wire.

- Geneva double curtain has a V-shaped support with two wires so vine grows horizontally between supports. Highest per acre yields, but higher maintenance costs.

Spacing

- for the bilateral cordon and 2-wire systems
  - Space plants 12-20 feet apart
  - Leave 10-15 feet between rows

- for Geneva double curtain system.
  - Space plants 12-20 feet apart
  - Leave at least 12 feet between rows
Training to a Bilateral Cordon System

- Choose strongest, straightest vertical shoot, train upward toward wire, supported by a string or stake
- Prune off all other shoots. This upright shoot becomes the trunk of the grapevine.
- As it reaches the wire, prune tip to facilitate side shoots.
- Choose two side branches, growing in opposite directions. These will become cordons

Pruning

- New shoots grow from past year’s growth
- Grapes grow on current year’s growth
- Prune mid-Feb to mid-March before bloom (late April)
- Pruning cuts may bleed; it’s okay
- Prune back canes to spurs with 2-4 nodes each, space spurs 6 inches apart along cordon
- Gas powered trimmer or chain saw can be used to do the “rough” prune
  - Use to cut back all growth 8-12 inches away from cordon,
  - Follow up with hand pruning on the spurs
- New growth from the cane spur forms “antler” shape
- 2nd Year – Prune canes back to spurs with 2-4 nodes each
- Eventually, new nodes get farther & farther away from the cordon. These will lose productivity & also make the vine unwieldy. Every 3-6 yrs, cut back spurs to 1 ft or less
- After 5-10 yrs – a cordon may lose vigor and die from injury or disease. Select another young shoot to train along the wire as a replacement.
**Irrigation**

- Essential during the entire first year & also beneficial for fruiting vines
- Critical time: May – June
- Drip or micro-irrigation most efficient
  - can install upside down, so it sprays toward roots, to reduce water on leaves
- One emitter within 1 ft of vine first year, two emitters 3 feet on each side after that
- Limit irrigation to bearing vines in August & September to facilitate berry ripening and sugar accumulation

**Fertilization**

1\(^{st}\) year:
- Apply ¼ lb 8-8-8 or 10-10-10 in April (after growth starts) in bands 1 ft on each side of vine.
- May want to use fertilizer with micronutrients
- Repeat in June and August

2\(^{nd}\) year:
- Apply ½ lb fertilizer in March and again in June or July

Subsequent years:
- Apply up to 3 lbs fertilizer in March and again in June or July

**Weed control**

- Very important for vine growth and productivity
- A 5 to 6 foot wide in-row strip should be kept weed-free using either herbicide or shallow hoeing so as not to injure grape roots.

**Insect Control**

- Aphids on new shoots, controlled by natural enemies
- Root borer – adult is a moth that looks like a wasp, larvae bores into roots, damages vines by eating root tissue. Can be monitored so pesticide application is timed correctly
  - in-row strip maintained weed-free with herbicide may minimize borers numbers
  - can also use soil insecticide
**Disease Control**

Minimize diseases with cultural practices:

1. Plant disease resistant cultivars

2. Facilitate air circulation through vine canopy:
   - use bilateral cordon system for best air circulation
   - keep vineyard floor clean under vines to allow air flow

3. Use drip or microjet irrigation instead of overhead irrigation that wets foliage

4. Pick all grape berries at harvest and remove mummified berries, dead wood, and prunings from the vineyard

**Harvesting**

- Harvest in late June to late September, depending on cultivar
- Pick singly or in bunches by hand or by shaking berries loose onto a tarp
- Mechanical harvester may also be used
- Cultivars in which the fruit stem (pedicel) detaches without tearing the fruit will not degrade as quickly once picked (higher % dry scar is better)
- Harvest early or late in day to preserve fruit quality
- Refrigerate grapes after harvest & on the way to market
- May be stored up to 3 wks at 33 degrees if no wet scars present
- Most fresh market cultivars have a shelf life of about one week

For more information about growing muscadine grapes, visit one of these websites:

Florida Grape Growers Association website (has lists of U-Pic operations and wineries)
http://www.fgga.org/index.html

UF/IFAS Extension website:
http://www.solutionsforyourlife.com

Reference material for this publication included UF/IFAS publication, HS763, *The Muscadine Grape* by Peter C. Anderson and Timothy E. Crocker, *Growing Muscadine Grapes in Florida* by Jiang Lu, Cynthia Conolly, and Joe Spinelli at the Center for Viticulture, FAMU, and personal communication with UF/IFAS Commercial Horticulture Agent – Alachua County, Gary Brinen.