

Commercial Fresh Market Wine, Juice, and Jelly Grape Cultivars for Florida¹

J. Breman and P. C. Andersen²

Commercial grape production requires cultivars that have high yield and quality and are also adapted to Florida's unique soils, weather, insects, and disease pressures. Other desired cultivar characteristics depend upon type of market and use. Fresh-fruit markets require a large-sized grape with high sugar content, a pleasing taste, an attractive, thin skin, and a dry scar-end that allows the grapes a minimum of one week of shelf life (1). Wine, juice, and jelly cultivars require consistently high yields. For muscadine cultivars to be economically viable, commercial yields should be at least eight tons/acre. Berries must have a minimum of 14° Brix at harvest and a favorable sugar:acid ratio (1). Color stability and the ability to maintain a good taste in the finished product are also requirements for grape juice or wine.



Figure 1. Muscadine grapes (assorted cultivars) after harvest at the UF/IFAS North Florida Research and Education Center, Suwannee Valley, Live Oak, FL, on Grape Field Day, August 2006.

Southern bunch grapes (*Vitis* sp. hybrids) have been bred for resistance to Pierce's disease (2). Pierce's disease is caused by a bacterium, *Xylella fastidiosa*. Most southern bunch grapes require a spray program for fungal diseases, especially during wet growing seasons. Perhaps the most serious disease of bunch grapes is anthracnose (*Elsinoe ampelina* [deBary] Shear). One advantage of bunch grapes is that they are all self-fruitful and do not require pollinizer rows planted next to them.

Muscadine grapes (*Vitis rotundifolia*) may only need an occasional fungicidal spray or none at all, depending on the rainfall during the growing season and the disease problem (1, 4). The disadvantage of muscadine grapes is that many of the large-fruited cultivars are pistillate, or female, and require self-fruitful companion rows in order to pollinize flowers sufficiently for commercial berry yields (1). Self-fruitful cultivars may often yield 40–50% more berries than female cultivars. However, many female cultivars tend to have larger berries, which is important for the commercial fresh-fruit market.

Grape root borer is the main insect pest for both bunch and muscadine grapes. Other insects may become minor problems, depending on the season (1). For more detailed information on insect and disease pests of grapes, the reader is referred to references (1) and (4).

1. This document is HS1152, one of a series of the Horticultural Sciences Department, UF/IFAS Extension. Original publication date November 2008. Revised June 2015 and June 2018. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. J. Breman, emeritus Extension agent IV, UF/IFAS Extension Columbia County, Horticultural Sciences Department; and P. C. Andersen, professor, Horticultural Sciences Department, North Florida Research and Education Center; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office.

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

Cultivars for processing are listed in Tables 1 and 2. All listed cultivars are self-fruitful. Bunch weights are listed for bunch grapes only. A large bunch grape berry would be equivalent to a small muscadine grape berry.

Cultivars recommended by UF/IFAS for the fresh market are listed in Table 3. The type of pollination is identified for each cultivar to help the producer plan the vineyard rows. Rows of self-fruitful cultivars can be planted next to rows of female cultivars to increase berry yield.

Fresh-market muscadine cultivars recommended for trial plantings are listed in Table 4. Limited trial plantings are recommended before expanding acreage to determine whether those cultivars are adapted to the grower's location. Additional cultivar information can be obtained from the reference EDIS publication (1).

A successful fresh-market cultivar also must have high consumer preference. 'Fry', the cultivar standard for the fresh-market industry, along with recommended cultivars, 'Tara' and 'Southern Home', were compared to berries from trial plantings of 'Ison' and 'Nesbitt' in a controlled consumer-panel test (3). The ratings ranged from 1, the lowest, to 9, the highest. Results of that test are presented in Table 3. 'Ison' and 'Nesbitt' were rated higher than 'Fry', but the difference was not statistically significant. 'Tara' and 'Southern Home' were rated significantly lower than 'Fry'. Consumer ratings of berry color, sweetness, and flavor were indicators of the overall cultivar-preference score.

Commercial producers for the fresh market might consider consumer preferences before expanding their plantings of any cultivar. Data in Table 5 show that two trial cultivars, 'Ison' and 'Nesbitt', were significantly more preferred by consumers over 'Tara' and 'Southern Home'.

References

1. Andersen P. C., T. E. Crocker, and J. Breman. 2017. *The Muscadine Grape*. HS763. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <http://edis.ifas.ufl.edu/HS100>
2. Andersen, P. C. 2017. *The Bunch Grape*. HS17A. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <http://edis.ifas.ufl.edu/mg105>.
3. Breman, J. W., A. Simonne, R. C. Hochmuth, L. Landrum, M. Taylor, K. Evans, C. Peavy, and D. Goode. 2007. "Quality characteristics of selected muscadine grape

cultivars grown in north Florida." *Proceedings of the Florida State Horticulture Society*. 120: 8-10.

4. Cline, W. O. 2010. "2010 Southeast Regional Muscadine Grape Guide." https://grapes.ces.ncsu.edu/wp-content/uploads/2013/09/2010-muscadine-IMG-Draft-2feb2010-Cline_-2.pdf?fwd=no

Table 1. Commercial wine cultivars.

Grape Type	Color	Cultivar	Type	Berry size	Berry weight (grams)	Bunch weight (grams)
Bunch	Purple	Conquistador	SF	Small-medium	2.5	*118
	Light green	Stover	SF	Small-medium	2.3	117
		Blanc du Bois	SF	Medium	2.9	133
		Suwannee	SF	Medium	3.0	113
		Lake Emerald	SF	Small	1.8	184
Muscadine	Black	Alachua	SF	Medium	6.5	---
		Noble	SF	Small	4.0	---
	Bronze	Carlos	SF	Medium	5.0	---
		Welder	SF	Small	4.2	---

SF = Self-fruitful
*Applies only to bunch grapes

Table 2. Commercial juice and jelly cultivars.

Grape Type	Color	Cultivar	Type	Berry size	Berry Weight (grams)	Bunch weight (grams)
Bunch	Purple	Conquistador	SF	Small-medium	2.5	*118
		Blue Lake	SF	Small	2.0	122
	Light green	Suwannee	SF	Medium	3.0	113
		Lake Emerald	SF	Small	1.8	184
Muscadine	Black	Alachua	SF	Medium	6.5	---
		Noble	SF	Small	4.0	---
	Bronze	Carlos	SF	Medium	5.6	---
		Welder	SF	Small	4.2	---

SF = Self-fruitful
*Applies only to bunch grapes

Table 3. Muscadine cultivars recommended for commercial fresh market.

Color	Cultivar	Type	Berry size	Berry weight (grams)
Black	Black Beauty	F	Very large	12.5
	Black Fry	F	Large	12.5
	Southern Home	SF	Medium	6.5
Dark purple	Polyanna	SF	Medium-large	9.5
	Supreme	F	Very large	15.0
	Farrer	F	Large	12.5
Bronze	Fry	F	Very large	12.7
	Granny Val	SF	Large	12.5
	Pineapple	SF	Medium-large	10.0
	Summit	F	Medium-large	10.0
	Sweet Jenny	F	Very large	15.0
	Tara	SF	Medium-large	10.0
Pam	F	Very large	15.0	

SF = Self-fruitful
F = Female

Table 4. Fresh-market muscadine cultivars for planting on a trial basis.

Color	Cultivar	Type of pollination	Berry size	Berry weight (grams)
Black	African Queen	F	Medium-large	11.5
	Ison	SF	Medium-large	11.5
	Nesbitt	SF	Medium-large	11.5
	Delicious	SF	Medium-large	10.0
	Eudora	F	Medium-large	10.0
	Majesty	F	Large	16.0
	Southern Jewel	SF	Medium-large	11.0
Purple	Creek	SF	Small	3.0
Red	Big Red	F	Large	12.5
Pink	Darlene	F	Very large	15.0
Bronze	Doreen	SF	Small-medium	5.0
	Early Fry	F	Large	12.5
	Florida Fry	SF	Medium-large	11.5
	Golden Isles	SF	Small-medium	6.5

SF = Self-fruitful
F = Female

Table 5. Sensory evaluation results of selected standard and trial fresh-market muscadine grape cultivars.

Cultivar	Fruit Color	Color	Sweetness	Sourness	Flavor	Firmness	Overall preference
Ison	Black	*6.6a	5.7a	4.8a	5.9a	5.7b	6.3a
Nesbitt	Black	6.4ab	6.2a	4.8a	5.8a	5.2bc	5.9a
Fry	Bronze	5.9b	5.8a	5.0a	5.8a	5.6b	5.8a
Tara	Bronze	5.1c	4.5b	4.3a	4.8b	4.7c	4.9b
Southern Home	Black	4.8c	4.8b	4.3a	4.8b	6.3a	4.9b

*Means separation in columns by Duncan's multiple range test, at 95% confidence level. Means followed by the same letter are not significantly different. Subjects balanced for age and gender. Total consumer panel number (n) = 75.