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Characterization of Muscadine Grape Varieties Grown in Florida[1]

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Introduction

Muscadine grapes (*Muscadinia rotundifolia* Michx.) are native to the southeastern United States (Figure 1). Their production in Florida is estimated to comprise over 1,000 acres, cultivating varieties for both fresh market and processing. Muscadines are well-suited to Florida's warm, humid climate. Additionally, their resistance to biotic and abiotic stresses, including heat, pests, and diseases, makes them highly adaptable. Muscadine grapes are known not only for their sweet and distinctive taste, but also for their richness in bioactive compounds such as anthocyanins, gallic acid, resveratrol, and dietary fiber. These compounds help protect the body and support human health (Clavijo-Herrera et al. 2026; Stewart et al. 2023), making them popular for fresh consumption and for processing juice, wine, jam, and dried snacks.



Figure 1. 'Granny Val' muscadine vines at the time of harvest in late summer.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

Commercial muscadine varieties grown in Florida exhibit considerable variation in fruit size, yield potential, and fruit quality characteristics. However, information on the characteristics of widely grown commercial varieties under Florida growing conditions remains limited. This publication provides information about important commercial muscadine varieties grown in Florida. It contributes to a better understanding of variety-specific characteristics and supports informed decision-making in variety selection and commercial production for growers, Extension agents, and industry stakeholders.

Botany of Muscadine Vine and Fruit

The muscadine vine is woody and deciduous. It is polygamous, in that it produces different flower types on new growth branches (i.e., male, female, and sometimes perfect [hermaphroditic] flowers) on the same plant or on separate plants. The vine differs from other grape species, being characterized by warty shoots; tight, non-shedding bark; single, unbranched tendrils; and round, serrate leaves. Muscadine leaves generally grow to between 2 and 5 inches (6–13 cm) in length. The petiolar sinus (the gap, indentation, or notch located at the base of a leaf blade where the petiole [leaf stem] attaches to the leaf) is typically shallow, wide-angled, and absent of major lobes. The space between these lobes is referred to as the sinus. In contrast, common grapes have a petiole at the point of attachment to the leaf that divides into five large veins, with one extending to each of the five leaf lobes.

A muscadine fruit, botanically classified as a berry, consists of a tough, leathery peel that is covered by a layer of waxy material known as the cuticle. Beneath the peel is a fleshy mesocarp containing up to five seeds. Unlike common grape varieties (*Vitis vinifera* L.) that produce berries in bunches, muscadines produce large, individual berries in clusters. Due to uneven ripening rates, muscadine grapes are harvested individually as they ripen, whereas common grape varieties are harvested as clusters at full ripeness.

Desirable Attributes for Muscadine Variety Selection and Planting

Considerable variation exists among varieties, and identifying desirable attributes is essential for optimizing productivity, fruit quality, and overall market acceptance. Selection of muscadine varieties for commercial planting should be based on a combination of several attributes, including berry size, sweetness and flavor, peel color and appearance, ripening uniformity, and texture-related characteristics.

Varieties with uniform ripening are advantageous, as they allow for more efficient, once-over harvesting when feasible. Flower type is an important consideration in variety selection. Self-fertile varieties bearing perfect flowers are generally preferred because they do not require pollinizer cultivars and typically produce 40%–50% higher yields than pistillate (female-flowered) varieties. In commercial vineyards, pistillate varieties must be planted in proximity to self-fertile pollinizer cultivars to ensure adequate pollination, fruit set, and consistent productivity. Resistance to pests and diseases, including Pierce's disease, powdery mildew, downy mildew, and grape phylloxera, is another critical attribute, as it reduces reliance on chemical inputs and lowers production costs.

Harvest timing is an important consideration in variety selection. Planting early-season varieties may help reduce market overlap, whereas combining early-, mid-, and late-season varieties can extend the harvest window and improve market availability. Ask IFAS publication HS763, "The Muscadine Grape (*Vitis rotundifolia* Michx.)," provides a thorough description of cultivars and production practices.

For fresh-market consumption, varieties with a thin, tender peel and firm flesh are preferred, as is a dry stem scar (indicating that the berry separated cleanly from the vine) since it reduces juice leakage during postharvest handling. Berry size is a critical factor, with larger berries generally commanding higher market value. Peel color may be bronze, red, or dark purple, depending on the variety (Figure 2), and should be uniform and visually appealing. Although most muscadine varieties are seeded, seedless or partially seedless types have gained increased interest due to consumer preference for convenience. High and consistent yields are essential for the commercial success of muscadine varieties.

Furthermore, muscadine varieties should produce berries with a characteristic flavor and an attractive appearance. Characteristic flavor corresponds to soluble solids content, which range from 13% to 20%, combined with a balanced sugar-acid ratio and typical aroma and flavor compounds.

Varieties intended for processing into juice, wine, or jelly must produce consistently high yields to ensure economic viability. In addition, color intensity and stability are important quality parameters, particularly for wine and juice, as they directly influence final product appearance. Although muscadine grapes are often marketed for fresh use shortly after harvest, varieties like 'Supreme' and 'Paulk' maintain fruit quality during short-term storage and handling and are compatible for both fresh-market and processing channels. For detailed descriptions on the postharvest physiology and physiological disorders of muscadine fruit, refer to Ask IFAS publication HS1504, "Muscadine Grape: Postharvest Physiology and Handling Practices."



Figure 2. Peel color diversity across muscadine fruits, such as 'Paulk' (top left), 'Gold Delight' (top right), 'Hall' (bottom left), and 'Carlos' (bottom right).
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

Characterization of Commercial Muscadine Varieties Grown in Florida

Muscadine varieties are specifically bred to meet the diverse demands of fresh fruit markets, wine production, and juice processing. Varieties suitable for fresh-market consumption have large berry size, firm flesh, and more attractive peel color (Clavijo-Herrera et al. 2026). They are commonly classified based on peel color when ripe: Purple and red varieties contain anthocyanin pigment, while bronze varieties lack anthocyanin. This color-based classification reflects important differences in fruit composition. Understanding these horticultural differences provides a framework for selecting varieties that best match grower objectives (fresh-market consumption, U-pick operations, and processing) and regional growing conditions in Florida.

The following variety descriptions are based on field observations and scientific experiments for vines grown under Florida conditions. The varieties were evaluated at the UF/IFAS Plant Science Research and Education Unit in Citra, Florida, where vines were grown under typical commercial management practices for the region. Based on ripening date or first harvest, these varieties are grouped into five categories:

- early-season (third week of July)
- early- to mid-season (third week of July to first week of August)
- mid-season (first week of August)
- mid- to late-season (first to second week of August)
- late-season (third week of August)

Table 1 summarizes select comparisons among the varieties.

'Hall'

'Hall' (Figure 3) is a self-fertile, bronze muscadine variety that produces medium to large berries, averaging about 10 g. Soluble solids content typically reaches around 15%. 'Hall' ripens in early-season.



Figure 3. Characterization of 'Hall' muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

'Triumph'

'Triumph' (Figure 4) is a self-fertile, bronze muscadine variety that produces medium to large berries, averaging about 9 g. Soluble solids content typically reaches about 16%. This variety ripens in early- to mid-season.



Figure 4. Characterization of 'Triumph' muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Gold Delight’

‘Gold Delight’ (Figure 5) is a self-fertile, bronze muscadine variety that produces very large berries, averaging about 15 g. Soluble solids content typically reaches about 15%. It ripens in early- to mid-season.



Figure 5. Characterization of ‘Gold Delight’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Noble’

‘Noble’ (Figure 6) is a self-fertile muscadine variety that produces small, deep purple-to-black berries, averaging about 3 g. Soluble solids content typically reaches around 17%. ‘Noble’ ripens mid-season and is widely used for juice and wine production.



Figure 6. Characterization of ‘Noble’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Carlos’

‘Carlos’ (Figure 7) is a self-fertile, bronze muscadine variety that produces medium-sized berries, averaging about 6 g. Soluble solids content typically reaches about 14%. This variety ripens mid-season and is primarily used for juice and wine production.



Figure 7. Characterization of ‘Carlos’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Supreme’

‘Supreme’ (Figure 8) is a female (pistillate) muscadine variety that produces large, deep purple-to-black berries, averaging about 16 g. Soluble solids content typically reaches around 15%–16% at maturity. This variety ripens in mid- to late-season and is widely grown for fresh-market consumption due to its large berry size and attractive appearance.



Figure 8. Characterization of ‘Supreme’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Paulk’

‘Paulk’ (Figure 9) is a self-fertile muscadine variety that produces very large, deep purple-to-black berries, averaging about 15 g. Soluble solids content typically reaches about 16%–17%. ‘Paulk’ ripens in mid- to late-season and is valued for its large berry size and consistent productivity.



Figure 9. Characterization of ‘Paulk’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Alachua’

‘Alachua’ (Figure 10) is a self-fertile muscadine variety that produces medium-sized black berries, averaging about 6 g. Soluble solids content typically reaches about 15%. This variety ripens in mid- to late-season.



Figure 10. Characterization of ‘Alachua’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Southern Home’

‘Southern Home’ (Figure 11) is a self-fertile muscadine hybrid that produces medium-sized black berries, averaging about 7 g. Soluble solids content typically reaches around 16%. ‘Southern Home’ ripens in mid- to late-season. This variety is recommended for homeowners because it has beautiful foliage (cut-leaf pattern) and is suitable for growing on a pergola or gazebo.



Figure 11. Characterization of ‘Southern Home’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

‘Granny Val’

‘Granny Val’ (Figure 12) is a self-fertile, bronze muscadine variety that produces large berries, averaging about 13 g. Soluble solids content typically reaches about 13%. This variety ripens in late-season and is often used to extend the harvest period.



Figure 12. Characterization of ‘Granny Val’ muscadine variety.
Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

Comparative Summary of Commercial Muscadine Varieties

A visual comparison of muscadine varieties highlights clear differences in berry size and color (Figure 13) that are important for grower and consumer preferences.

Table 1 provides a summary of major horticultural differences among commercial muscadine varieties. This comparison allows growers to quickly identify varieties that best match their production goals and target markets.



Figure 13. Size and peel color diversity within muscadine fruit varieties. The bronze fruit (top row, from left to right) are 'Gold Delight', 'Granny Val', 'Hall', 'Triumph', and 'Carlos'. The purple fruit (bottom row, from left to right) are 'Supreme', 'Paulk', 'Southern Home', 'Alachua', and 'Noble'. Credit: Fariborz Habibi and Ali Sarkhosh, UF/IFAS.

Table 1. Comparative characteristics of selected muscadine varieties (Clavijo-Herrera et al. 2026).

Variety	Harvest season	Berry color	Flower type	Berry size	Average berry weight (g)	Soluble solids content (%)	Yield	Stem scar appearance	Flavor and quality	Primary use	Key strengths	Main limitations
Hall	Early	Yellow/ light bronze	Self-fertile	Medium-large	10	15.2	Moderate-high	10% wet	Excellent, sweet	Fresh market	Excellent flavor, early ripening, high usable yield	Susceptible to fruit rots, needs fungicides
Triumph	Early–mid	Pink/ bronze	Self-fertile	Medium-large	9	15.8	High	Dry	Very sweet, crunchy	Fresh market	Very sweet, crunchy texture, early harvest	Shelling if harvest is delayed
Gold Delight	Early–mid	Bronze/ golden	Self-fertile	Very large	15	15.2	Moderate-high	5% wet	Sweet flavor, firm peel, good eating quality	Fresh market	Large berries, sweet flavor, excellent firmness retention, low chance of fruit rot	New variety, limited long-term performance data
Noble	Mid	Black	Self-fertile	Small	3	17.2	High	~28%–43% wet	Mild muscadine, stable color	Wine, juice	Color stability, high yield, disease resistance	Wet scar is common, not ideal for fresh market
Carlos	Mid	Bronze	Self-fertile	Medium	6	14.2	Very high	Dry	Sweet	Juice, wine	Mechanical harvest, high yield, uniform ripening	Berry rots in some years, small size for fresh market
Supreme	Mid–late	Deep purple to black	Female	Very large	16	15.6	Very high	5% wet	Excellent, sweet	Fresh market	Excellent flavor, firm pulp, crisp edible skin	Uneven ripening, needs pollinator, overcropping

Variety	Harvest season	Berry color	Flower type	Berry size	Average berry weight (g)	Soluble solids content (%)	Yield	Stem scar appearance	Flavor and quality	Primary use	Key strengths	Main limitations
Paulk	Mid–late	Deep purple to black	Self-fertile	Very large	15	16.6	High	<10% wet	Good flavor, slightly softer flesh than 'Supreme'	Fresh market	Large berry size in a self-fertile variety, high usable yield, low chance of rot and splitting, its long pedicel improves harvest efficiency	Narrow harvest window, berries do not hang long on the vine
Alachua	Mid–late	Black	Self-fertile	Medium	6	15.4	Moderate-high	Dry	Strong flavor	Processing, home use	Uniform ripening, good disease resistance	Too small for fresh market, tough skin
Southern Home	Mid–late	Black	Self-fertile	Medium	7	15.8	Moderate-high	Dry	Good, non-muscadine flavor	Home gardens, ornamental	Ornamental foliage, good flavor, crisp texture	Berry size too small for commercial market
Granny Val	Late	Bronze	Self-fertile	Large	13	13.2	Extremely high	Moderate	Average, sometimes sharp	Late-season fresh and processing	Extends harvest season, large berries	Overcropping, low sugar, sharp flavor

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