‘Eudora’ Muscadine Grape

Stephen J. Stringer¹ and Donna A. Marshall

USDA-ARS Southern Horticulture Laboratory (SHL), 810 Highway 26 West, Poplarville, MS 39470

Dennis J. Gray

Mid-Florida Research and Education Center, University of Florida IFAS, 2725 Binion Road, Apopka, FL 32703-0370

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‘Eudora’, a purple-fruited muscadine grape (*Vitis rotundifolia* Michx.) intended for the fresh market, has been approved for joint release as a public domain cultivar by the University of Florida Experiment Station and the USDA-ARS (Fig. 1). ‘Eudora’ ripens in midseason (late August in southern Mississippi), is high-yielding, and is resistant to Pierce’s disease and many fruit rots. The most outstanding features of ‘Eudora’ that make it desirable for the fresh market are its excellent taste and texture, high sugar content, and relatively large berries (10 g) that are borne on tight clusters. Eudora berries also have the potential to be processed into juice and jelly. However, the potential of ‘Eudora’ for juice and wine-making is doubtful because the pedicels strongly adhere to berries. Although overall ripening among clusters is uneven, ripening within clusters is generally uniform making it most suitable for manual harvesting. Cluster harvesting of muscadine grapes for the fresh market has advantages over individually harvesting berries. First, cluster harvested berries may have a greater shelf life because rolling and bruising during harvest, processing, and packaging is less than that of individually harvested berries. Second, cluster-harvested grapes have no exposed scars or tears that may result from pedicel detachment and lead to deterioration and fungal infection. Third, clusters of grapes are less expensive to clean, sort, and pack than are individual berries (Morris and Blevins, 2001). ‘Eudora’ is not recommended for individually harvested berries unless fruit have fully ripened and percentage of dry picking scars increases. Eudora is amenable to organic and low-input sustainable systems; plants at the Mississippi State University and forestry Experiment Station (MAFES) in McNeill, MS, for instance, show resistance to insects and diseases and have required no applications of insecticides or fungicides. ‘Eudora’ is suitable for use in both homeowner and commercial settings where self-fertile pollenizer cultivars are interplanted and where cluster harvesting is practiced.

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¹To whom reprint requests should be addressed; e-mail Stephen.Stringer@ars.usda.gov.

Origin

‘Eudora’ originated from the grape breeding program at the central Florida Research Station in Leesburg from a cross between Fry, a female bronze-fruited cultivar with large berries, and Southland, a purple-fruited self-fertile cultivar with medium-sized berries. It was selected by J.A. Mortensen in 1981 and designated as FL CD8-67 and is a sibling of ‘Polyanna’, which is also purple-fruited but is self-fertile. Fry is a pistillate cultivar with small, nonfunctional stamens. ‘Fry’ produces large bronze berries and is among the most widely grown fresh-market muscadine grape cultivars. However, ‘Fry’ is susceptible to many fungal diseases, is low in vigor, and susceptible to cold injury. ‘Southland’ is self-fertile (perfect hermaphroditic) and produces medium-sized dark purple fruit. Because of its high sugar content, excellent flavor, productivity, and disease resistance, plants of FL CD8-67 were propagated for further trial. FL CD8-67 was established in a replicated field trial in 1994 at the MAFES McNeill Unit at McNeill, MS [(lat. 30°39.6’, long. 89°38.8’) USDA hardiness zone 8b (Cathy, 1990)]. Vines were managed by standard production practices except that no insecticides or fungicides were applied. FL CD8-67 was periodically evaluated for its horticultural attributes from 1998 to 2006 at this location. Although noted to have excellent flavor (J.A. Mortensen, unpublished data), FL CD8-67 was not advanced for testing further in Florida as a result of a relatively high percentage of wet picking scars on individually harvested berries.

‘Eudora’ has a semirecumbent growth habit with 3- to 8-cm internodes. Leaves average 8 cm in length and width, respectively, are rugose, cordate with denate margins, and are apubescent. Upper leaf surfaces are dark green, whereas lower leaf surfaces are light green and glabrous. Tendrils are unbranched and develop opposite the leaves but are somewhat discontinuous along the shoot. Flowers are pistillate. Berries of ‘Eudora’ are oval and purple with visible lenticels on the skin surface, weigh ≈ 10 g, and typically have three or four seeds.

Description

Studies were conducted in 2001, 2002, and 2006 to evaluate and compare attributes

and characteristics of 37 muscadine grape cultivars and selections (Stringer et al., 2008). Vigor ratings of mature vines were higher for ‘Eudora’ than all other cultivars except ‘Southern Home’, a *Muscadinia* $\times$ *Euvitis* hybrid noted for its ornamental value (Mortensen et al., 1994). Average yield at the MAFES McNeill Unit was 35 kg/vine, which was comparable to that of the highest yielding cultivars (Table 1). Average berry weight was 10.3 g less than ‘Black Beauty’ (14.6 g) but larger than most other cultivars, including other pistillate varieties. As a result of fruit heavy damage resulting from nectar scavenging by bumble bees (*Bombus impatiens*), it was necessary to harvest vines before berries were fully ripe and had attained their highest sugar content. ‘Eudora’ averaged 17.4% soluble solids, consistently the highest of all cultivars. Early ripe fruit have a semicrunchy pulp and edible skin. In comparison, fully ripened fruit have a softer flesh and higher juice and soluble solids content.

Symptoms of Pierce’s disease have not been observed in ‘Eudora’. Fruit are highly resistant to berry rot diseases, including ripe rot [*Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc.], bitter rot [*Greeneria uvicola* (Berk. & Curt.) Punithalingam], and black rot [*Guignardia bidwellii* (Ellis) Viala & Ravaz f. *muscadinii*], based on comparative conditions in which no disease control measures were used. ‘Eudora’ is also resistant to leaf-feeding insects. During harvest, the sweet berries ‘Eudora’ may be magnets for fruit-scavenging insects, mostly bees and vespids wasps that can damage berries during their insatiable hunt for nectar. Unsprayed ‘Eudora’ vines harbor numerous beneficial insectivores such as ladybugs, non-vespid wasps, and spiders. Winterhardiness of ‘Eudora’ has been good in southern Mississippi but in other states remains untested. ‘Eudora’ is readily propagated from herbaceous cuttings under mist during June and July or by air-layering. It does not require grafting.

Availability

‘Eudora’ was publicly released by the USDA-ARS and the Cultivar Release Committee of the Florida Agricultural Experiment Station, an agricultural research program of the University of Florida’s Institute of Food

Fig. 1. Typical fruit cluster of ‘Eudora’ muscadine grape.

Table 1. Flower type, yield, type of ripening, vine vigor, berries per cluster, fruit characteristics, and yield of ‘Eudora’ muscadine grape compared with six purple-fruited muscadine cultivars for fresh fruit consumption.^z

Cultivar	Flower type ^y	Vine vigor ^x	Berries per cluster	Berry wt. (g)	Fruit with dry scar (%)	Soluble solids content (%)	Yield per vine (kg)	Type of ripening	Harvest season
Eudora	F	7.8 ab ^w	10.6 b	10.3 b	68.5 b	17.4 a	34.8 ab	Uneven	M ^v
Alachua	S	6.9 b	11.3 ab	6.7 c	84.6 a	15.9 b	29.6 b	Even	M
Black Beauty	F	5.7 bc	9.6 b	14.6 a	47.8 b	17.1 a	31.7 b	Even	E-M
Ison	S	5.4 c	13.1 a	7.7 c	67.5 b	16.5 ab	26.1 c	Even	E-M
Nesbit	S	6.8 b	9.5 b	8.3 bc	62.7 b	16.1 b	39.9 a	Uneven	M-L
Polyanna	S	6.8 b	7.1 c	9.1 b	65.3 b	16.8 a	35.3 ab	Even	M
Southern Home	S	8.8 a	11.4 ab	6.6 c	58.1 bc	15.9 b	38.4 a	Even	L

^zData are means from four vines of each cultivar from each of the 2001, 2002, and 2006 harvest seasons with 30 berries per vine evaluated for fruit quality characteristics.

^yS = self-fertile (perfect hermaphroditic); F = female (pistillate hermaphroditic).

^xRatings are based on a scale of 1 to 10 where 10 = excellent, 5 = average, and 1 = very poor.

^wMeans within columns followed by a common letter do not differ significantly (Duncan’s new multiple range test, $P \leq 0.05$).

^vE = early; M = middle; L = late.

and Agricultural Sciences on 24 Oct. 2006. Inquiries regarding the availability of ‘Eudora’ should be directed to P.O. Box 287, Poplarville, MS 39470. Genetic materials of this release are deposited in the National Plant Germplasm Repository in Davis, CA, where it is available for research purposes and commercial development.

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