'Marquis' Grape

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'Marquis' is a midseason, white seedless grape (*Vitis* sp.) (Fig. 1) with large, spherical berries borne on large clusters, excellent flavor, and good cold hardiness. It is best suited for home gardens and u-pick commercial operations.

Origin

'Marquis' was developed by a breeding program in the Dept. of Horticultural Sciences, Cornell Univ., New York State Agricultural Experiment Station, Geneva. 'Marquis' resulted from the 1964 cross of 'Athens' x 'Emerald Seedless' made by George Remaily. 'Athens', a blue-seeded *V. ×labruscana* (Bailey) grape, is a cross of 'Hubbard' x 'Portland' that originated in 1938 from the New York State Agricultural Experiment Station. 'Emerald Seedless', a white seedless *V. vinifera* L. cultivar, originated in 1968 from the Univ. of California, Davis, from the cross 'Emperor' x Pirovano 75 ('Sultana Muscata'). Seventeen vines were grown from seed in 1968 and transplanted to a permanent vineyard site (Lucey Farm, Sutton Road, Geneva, N.Y.) in May 1969. Fruit were first observed in 1974 and the original vine was vegetatively propagated from hardwood cuttings for further testing in 1980. 'Marquis' was tested as NY64.029.01.

Description

Own-rooted vines grown in phylloxera (*Daktulosphaira vitifoliae* Fitch.)-infested soils are productive and moderately vigorous. Cane pruning weights averaged between 1.1 and 1.4 kg/vine in 1994 and 1995 in southwestern Michigan (Benton Harbor, Mich.). Between 1993 and 1995, yields averaged 22 to 28

Mg·ha⁻¹ (Table 1), more than twice the yield of 'Himrod'. Since vines have been adequately vigorous on their own roots, they have not

been tested on commercial rootstocks. However, due to the *vinifera-labrusca* (nonphylloxera resistant) ancestry of 'Marquis', vines should be tested on a phylloxera-resistant rootstock in areas with severe phylloxera pressure.

The vines are moderately winter hardy at Geneva and trunk injury has been absent through the end of 1995. Bud cold hardiness ranks at least with 'Himrod' and other relatively cold hardy seedless grapes. In Apr. 1990, following a winter minimum of -19.4 °C, 'Marquis' had 4% shootless nodes, while 'Himrod', 'Canadice', 'Einset Seedless', and 'Chardonnay' had 18%, 11%, 19%, and 60% shootless nodes, respectively. Following a December 1988 low of -24.4 °C, 'Marquis' had 18% shootless nodes in May 1989, while 'Himrod', 'Canadice', 'Einset Seedless', and 'Lakemont' had 17%, 29%, 17%, and 81% shootless nodes, respectively.

Bud break in the spring occurs with or slightly after 'Concord'. Flowers of 'Marquis'

Fig. 1. Fruit cluster of 'Marquis' at maturity.

Table 1. Cluster mass, berries/cluster, berry mass, and fruit yield for 'Marquis' and 'Himrod' vines pruned to 40 nodes and grown at the Southwest Michigan Research and Extension Center, Benton Harbor, Mich. Data are means for 1993 to 1995.

Cultivar	Flower cluster thinning (1 cluster/shoot)	Cluster mass (g/cluster)	Berries/ cluster	Berry mass (g)	Yield (Mg·ha ⁻¹)
Marquis	No	245	60	4.1	27.5
	Yes	388	78	4.9	21.7
Himrod	No	154	55	2.8	14.5
	Yes	171	61	2.8	9.1
LSD (0.05)		44	10	0.3	4.4

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are perfect, self-fertile, and bloom in midseason. Clusters are shouldered, large, and moderately loose, with large (3.0 to 5.0 g), amber, spherical berries. In Michigan, berries were significantly heavier than those of 'Himrod' (Table 1). Mean berry mass in Arkansas was 5.4 g in an irrigated research vineyard (John Clark, Univ. of Arkansas, personal communication). Cluster mass on vines thinned to one cluster per shoot ranged from 270 to 610 g at Geneva, N.Y., and 290 to 441 g at Benton Harbor, Mich. Between 1993 and 1995, flower cluster thinning 'Marquis' vines to one cluster per shoot resulted in a significant increase in cluster mass (Table 1). 'Marquis' cluster mass in the same trial was higher than that of 'Himrod'. Very little crop is borne on secondary, tertiary, and base buds, yet cluster thinning is required due to the large cluster size.

'Marquis' ripens in midseason, between

15 and 30 Sept. in Geneva, N.Y. The flavor is very mild labrusca, but it develops a richer American flavor if left to ripen another 5 to 10 days. The skin is thick, flesh is melting and very juicy, and the seed traces are medium in size and soft. The skin softens as the berries continue to ripen. Clusters are highly sensitive to gibberellic acid application, which causes berry drop and distorted, thickened rachises. Trials in New York suggest that cane girdling and flower cluster thinning can be used effectively to increase cluster compactness. In addition, flower cluster thinning increases berry mass (Table 1). Juice soluble solids concentration (SSC) ranges between 14% and 19% when ripe, and the acidity is very low, 3.6 g·L⁻¹ at 18.6 %SSC in southwestern Michigan in 1995. 'Marquis' stores well (up to 2 months) at 0 °C only if harvested prior to onset of fruit rot or cracking.

Foliage and fruit are moderately susceptible to powdery mildew [*Uncinula necator* (Schw.) Burr.], downy mildew (*Plasmopara viticola* [Berk. and Curt.] Berl. and de Toni), and black rot (*Guignardia bidwellii* [Ellis] Viala and Ravaz), but moderately resistant to *Botrytis* bunch rot (*Botrytis cinerea* Pers.). Rainfall during the ripening period may result in skin cracking at the distal end of the berry.

Availability

Cornell Univ. has applied for a plant patent on 'Marquis'. Licensing information may be obtained from Cornell Research Foundation, Cornell Business and Technology Park, 20 Thornwood Drive, Suite 105, Ithaca, NY 14850 (telephone 607/257-1081). Nursery requests for cuttings and/or a list of licensed nurseries may be addressed to B.I.R.

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