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'Marquis' Grape

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'Marquis' is a mid-season, white seedless grape with large, spherical berries borne on large clusters. It has excellent flavor, good cold hardiness, and is best suited for home gardens and u-pick commercial operations.

Origin

'Marquis' was developed by the breeding program in the Department of Horticultural Sciences, Cornell University, New York State Agricultural Experiment Station, Geneva, NY. 'Marquis' resulted from the 1964 cross of 'Athens' with 'Emerald Seedless' designed and made by George Remaily. 'Athens', a blue seeded *V. Labruscana* grape, is a cross of Hubbard x Portland which originated in 1938 from the New York State Agricultural Experiment Station. 'Emerald Seedless', a white seedless *V. vinifera* cultivar, originated in 1968 from the University of California, Davis, as a cross of '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, NY) on May 5, 1969. Fruit were first observed in 1974 and the original vine was vegetatively propagated from hardwood cuttings for further testing in 1980. 'Marquis' had been known 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 in 1994 and. 1995 in southwestern Michigan (Benton Harbor, MI). Between 1991 and 1995, yields ranged from approximately 4.9 to 12.4 tons/acre (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 (non-phylloxera 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 not been observed through the end of 1995. Bud cold hardiness ranks at least with 'Himrod' and other relatively cold hardy seedless grapes. In April, 1990, 'Marquis' had 4% shootless nodes, while 'Himrod', 'Canadice', 'Einset Seedless' and 'Chardonnay' had 18%, 11%, 19% and 60% shootless nodes, respectively. In May, 1989, 'Marquis' had 18%

Table 1. Fruit yield, cluster weight, berry number/cluster and berry weight for 'Marquis' and 'Himrod' vines pruned to 40 nodes and grown at the Southwest Michigan Research and Extension Center, Benton Harbor, MI. Data are means for 1993 to 1995.

Cultivar	Flower cluster thinning	Cluster weight (lbs./cluster)	Berries/ cluster	Berry wt. (g)	Yield (tons/acre)
Marquis	No	0.54	60	4.1	12.1
Marquis	Yes	0.86	78	4.9	9.6
Himrod	No	0.34	55	2.8	6.4
Himrod	Yes	0.38	61	2.8	4.0
LSD (0.05)		0.01	10	0.3	1.9

shootless nodes, 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' are perfect, self-fertile, and bloom in mid-season. Clusters are shouldered, large and moderately loose with large (3.0 to 5.0 g), amber, spherical berries. In Michigan, berry weight is significantly greater than that of 'Himrod' (Table 1). Mean berry weight in Arkansas was 5.4 g in an irrigated research vineyard (Dr. John Clark, University of Arkansas, personal communication). Cluster weight ranged from 0.60 to 1.34 lbs. at Geneva, NY, and 0.46 to 0.97 lbs. at Benton Harbor, MI. Over a four-year period, cluster weights in Michigan averaged 0.54 lbs. on 40 node vines, and 0.86 lbs. on 40 node vines which were flower cluster thinned (Table 1), comparing favorably to '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 between 15 Sept. and 30 Sept. in Geneva, NY. 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. 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 results in an increase in berry weight (Table 1). Juice soluble solids range between 14 and 19 °Brix when ripe, and the acidity is very low, 3.6 grams/liter (at 18.6 °Brix) in southwestern Michigan in 1995.

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

Availability

Cornell University 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). Requests for cuttings and/or a list of licensed nurseries may be addressed to B. Reisch.

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