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## 'CHARDONEL' Grape

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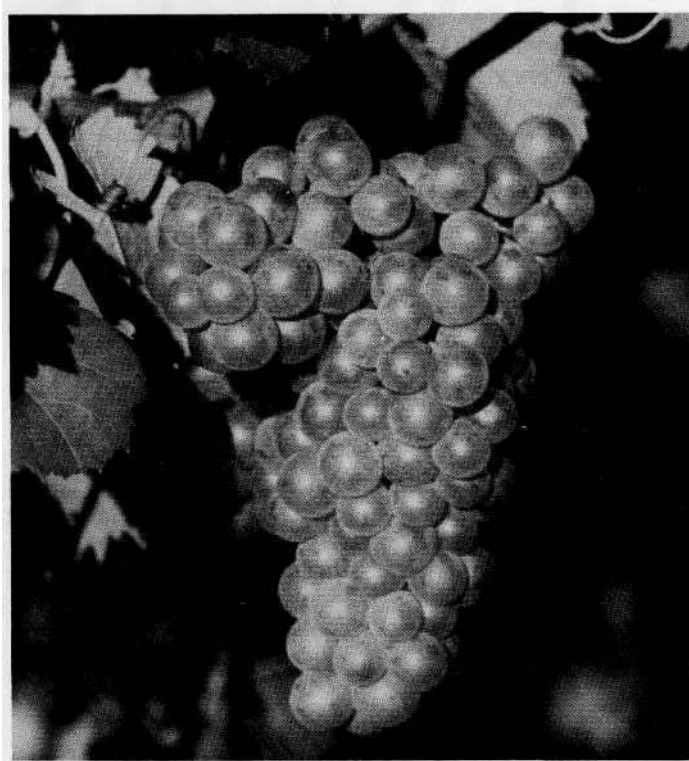


Figure 1. Fruit clusters of 'ChardoneV' grape.

### INTRODUCTION

'Chardonel' is a late ripening white wine grape (Fig. 1) which can produce a high quality wine with varietal character. 'Chardonel' is distinguished by its superior wine quality combined with high productivity and cold hardiness superior to its acclaimed parent, 'Chardonnay.' It is the fourth wine grape cultivar to be named by the New York State Agricultural Experiment Station and follows the release of 'Cayuga White' (1) 'Horizon' (2), and 'Melody' (3).

### ORIGIN

'Chardonel' resulted from the cross, 'SeyvaT x 'Chardonnay,' made in 1953. Fruit were first observed in 1958, and the original vine was propagated in 1960 under the number NY 45010. In later testing, it was re-named GW 9 (Geneva White 9) for ease of identification in cooperatively run yield trials. The vine was initially described as vigorous and productive with large clusters.

### DESCRIPTION

Own-rooted vines grown in phylloxera (*Daktulosphaira vitifoliae* Fitch.) infested soils are productive and moderately vigorous. Annual cane pruning weights averaged 1.7 pounds per vine over a five year period in a replicated trial of 50 wine varieties and selections at Dresden, NY (Table 1). This compared favorably to 'Cayuga White' and other cultivars in that trial. Vines are more vigorous in Arkansas and Michigan. Five year yield averaged 5.2 tons/acre at Dresden, about the same as 'Cayuga White' (Table 1). In Michigan and Arkansas, 'Chardonel' is more productive than 'Cayuga White'. At Geneva, vines of 'Chardonel' have averaged 4.8 tons/acre (1987-1989). 'Chardonel' vines are moderately winter hardy at Geneva, but trunk injury is occasionally a problem. However, it is considerably hardier than 'Chardonnay' and nearly as winter hardy as its 'SeyvaT' parent. In Michigan, it is rated as hardier than 'SeyvaT' and 'Vidal blanc' Following extensive winter cold damage at Geneva in 1981, vines of 'Chardonel' had 74 per cent shootless nodes, comparable with 'Cayuga White' (74%) and 'Vidal Wane' (77%), but worse than 'Aurore' (30%), 'Catawba' (39%), 'Horizon' (49%), and 'Concord' (28%). Trunks of 'Chardonel' are susceptible to damage from low temperatures which may cause trunk splitting or provoke crown gall disease. After eight years at Dresden, NY under commercial practices suitable for growing interspecific hybrid grapes, one of 15 (winter tender) 'White Riesling' vines had trunk damage and 11 were dead, while one of

15 'Chardonel' vines had trunk damage and 1 was dead. Vines of 'Cayuga White', 'Horizon', 'Aurore' and 'Concord' had no trunk damage while one of 15 vines of 'Vidal blanc' had trunk damage. Flowers of 'Chardonel' are perfect and self-fertile with medium late bloom following late bud-break. Clusters are shouldered and medium-large (0.44 lbs.), averaging 1.6 clusters per shoot. Very little crop is borne on lateral shoots, and cluster thinning is required only infrequently. The amber berries are medium sized and spherical.

'Chardonel' ripens between October 1 and October 15 in New York and Michigan. Juice soluble solids and titratable acidity are usually higher than for 'Cayuga White' (Table 2). Wines, which were first made in 1966, have been described as pleasant and delicate with light fruitiness. In some years, the wine is slightly grassy. The wine has good body and very little of the flavor characteristics of interspecific hybrid grapes. 'Chardonel' when harvested at the appropriate stage, may have potential for sparkling wine production because it retains a good acid balance during ripening. At Geneva, wines have been rated good to excellent in taste panels. In Arkansas, the better wines have been likened to 'Chardonnay,' and lesser quality samples are as good as 'Seyval.'

Foliage and fruit are moderately susceptible to powdery mildew (*Uncinula necator* [Schw.] Burr.), downy mildew (*Plasmopara viticola* [Berk. and Curt.] Berl. & de Toni) and botrytis bunch rot (*Botrytis cinerea* Pers.). Since the foliage is not susceptible to sulfur injury, powdery mildew can be controlled with sulfur applications.

Five growers from Maryland, New Jersey, Pennsylvania, and Missouri were surveyed and have indicated satisfaction with the viticultural and winemaking characteristics of 'Chardonel.' Productivity was rated as medium to high, disease was well controlled by a regular spray program, and wine quality was rated excellent (clean and crisp, with 'Chardonnay' character). In New York, 'Chardonel' is presently recommended only for sites with longer than average growing seasons, and moderate cold stress. Only on these better sites will 'Chardonel' develop its best fruit quality.

## AVAILABILITY

Cornell University has applied for a plant patent on 'Chardonel.' Virus-tested stocks are available from the New York State Fruit Testing Cooperative Association, Hedrick Hall, Geneva, NY 14456, as well as from commercial nurseries.

## LITERATURE CITED

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**Table 1. Viticultural production data for 'Cayuga White' and 'Chardone1' grown at three locations.**

Cultivar	Cane pruning weight (lbs/vine)			Clusters per vine			Yield (t/a)		
	NYz	MIy	ARx	NY	MI	AR	NY	MI	AR
Cayuga White	1.6a <sup>w</sup>	1.1	1.3	44.0a	-	89.7	5.36a	3.02	10.22
Chardone1	1.7a	3.1-4.0	6.6	40.2a	-	69.8	5.22a	7.16	8.46

z New York data - pruning weights, cluster numbers and yield based on five years in a replicated trial of 22 white wine cultivars.

y Michigan data - collected at the Sodus Horticultural Experiment Station, Michigan. 'Cayuga White' data were collected 1983-1985 (inclusive). 'Chardone1' data were collected 1983-1988 (inclusive).

x Arkansas data - based on two years, 1986 and 1987, at Fayetteville, Arkansas.

w Means within columns followed by the same letter are not significantly different at  $p < 0.05$  according to Duncan's Multiple Range Test. Statistics are presented only where they could be calculated from the available data.

**Table 2. Juice soluble solids and wine pH and acidity for 'Cayuga White' and 'Chardone1' grown at three locations.**

Cultivar	Soluble solids (%)			pH			Titratable acidity (g/liter)		
	NYz	MIy	ARx	NY	MI	AR	NY	MI	AR
Cayuga White	18.9	17.3	16.6	3.26	3.04	3.39	7.9	7.9	6.1
Chardone1	19.6	20.8	21.4	2.97	3.12	3.43	11.7	10.6	5.3

z New York data for 'Chardone1' - Soluble solids data based on 11 years (1976-1988 except 1977, 1984); pH data based on 5 years (1982,83,85,87,88); total acidity based on 9 years (1976, 78-82, 86-88). Wine data for 'Cayuga White' - Soluble solids data based on 10 years (1975-1983 and 1986); pH data based on 2 years (82,83); total acidity based on 7 years (1976, 77, 79-82, and 86).

y Michigan data - collected at the Sodus Horticultural Experiment Station, Michigan. 'Cayuga White' data were collected 1983-1985 (inclusive). 'Chardone1' data were collected 1983-1988 (inclusive).

x Arkansas data - based on two years (1986 and 1987) for 'Cayuga White' and four years (1986-89) for 'Chardone1.'