

Evaluation of Clonal Selections of Merlot, and Performance of Sangiovese, Tempranillo, Syrah, and Viognier in Southern Oregon

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Objectives:

The objectives of the trial are to evaluate Merlot clones and the varieties Sangiovese, Tempranillo, Syrah, and Viognier for production characteristics, maturity and fruit composition at harvest, and wine composition and wine quality in order to evaluate their potential for commercial wine grape production in warmer wine growing regions in Oregon. The wines in the first year of this trial from vines in their fourth leaf are being produced as demonstration trials to be evaluated by industry members at regional meetings. As the trial matures, future proposals will be presented for wine production and analysis of replicate lots of the clones and varieties and for sensory evaluation by the Food Science Sensory Laboratory.

Introduction:

A wine grape varietal trial which included 22 varieties was established in western Oregon from 1969 to 1974 at vineyard sites in the Willamette Valley, the Umpqua Valley, and the Rogue Valley. Maturity evaluations and experimental wine production and analysis of the varieties were conducted from 1976 to 1982 at the pilot plant winery facilities at the Department of Food Science and Technology at Oregon State University. In this study Merlot was identified as a recommended variety for Oregon winegrowing regions with heat unit accumulations of 2,400 degree days or greater, including warmer sites in the Umpqua Valley, the Rogue Valley, and the Illinois Valley, and eastern Oregon. At cooler sites in western Oregon Merlot was characterized by frequent poor fruit set and low and inconsistent yields (Lombard, 1986). More recently differences among Merlot clones have been described in California studies including differences in average yields, number of berries per cluster, cluster weights, and in wine color, phenols, and sensory characteristics (Bettiga, 1995; Roberts, 1995).

In 1989 a winegrape varietal trial was established at the Southern Oregon Research and Extension Center to evaluate a range of warmer climate winegrape varieties for Oregon. The trial included 18 varieties and numerous southern French and Italian varieties. The varieties were evaluated for production characteristics and fruit composition at harvest. Experimental wines were produced and analyzed during three vintages (1994-1996) by the OSU experimental winery and the wines were evaluated by industry members at regional meetings. Several of the varieties were identified as promising for commercial production, including Merlot, Tempranillo, Syrah, Sangiovese, and Viognier (Sugar, 1996).

A clonal and varietal trial was established with Wine Advisory Board funding in 1998 in southern Oregon which includes nine clonal selections of Merlot and one clone each of Sangiovese, Tempranillo, Syrah, and Viognier at several grower cooperator sites.

The phenology, production, maturity characteristics, and growing conditions for 2001 are presented in *Evaluation of clonal selections of Merlot in southern Oregon and performance of Sangiovese, Tempranillo, Syrah, and Viognier at various locations in southern Oregon*, Sugar, Vasconcelos, and Watson.

Progress Report:

Fruit composition at harvest

In 2001, 9 Merlot clones and the varieties Sangiovese, Tempranillo, Syrah, and Viognier were harvest from Quail Run Vineyards in Talent, Oregon and delivered to the Department of Food Science and Technology in Corvallis. Approximately 100-125 lbs of each was processed and fermented to produce demonstration wine lots. The fruit was in excellent condition and fully ripened. Must analysis at harvest is shown in Table 1. Overall, Brix levels were moderately high, titratable acidities low, and pH's moderate. The low acidity at harvest was primarily due to low malic acid content due to respiration of malate during the very warm growing conditions in 2001. The malate content at harvest for the Merlot clones was 1g/L or less. The exception to this was the variety Sangiovese which typically has higher acidity and lower pH under warmer conditions. Viognier had moderately low acidity and low pH at harvest.

Wine production and analysis

Red varieties were crushed, destemmed, 50ppm sulfur dioxide added, inoculated with yeast and fermented on the skins at 25-32^o C, punched down 2 X daily and pressed at dryness after 7 days on the skins. Viognier was pressed from the skins and fermented at 18^o C. The new wines were racked off the gross yeast lees and inoculated with malolactic bacteria (except Viognier). After completion of MLF the wines will be racked, cold stabilized clarified, and bottled with the addition of 25 ppm sulfur dioxide. New wines analysis includes percent alcohol, titratable acidity, pH, color intensity, anthocyanin content, phenolic content, residual sugar, and volatile acidity. Analysis of new wines is shown in Tables 2 and 3.

Alcohol levels were relatively high, titratable acidities low, and pH's moderately high due to the advanced state of maturity at harvest and the warm growing season. Sangiovese had higher TA and lower pH than the Merlot clones or the other red varieties. Tempranillo had the lowest TA and highest pH for the red varieties and is known to be an earlier ripening variety. All the Merlot clones and the Sangiovese, Tempranillo, and Syrah had excellent color intensity in 2001 with relatively high anthocyanin and total phenolic content.

Sensory Evaluation

The wines will be presented at regional meetings for industry sensory evaluation in the summer of 2002.

Literature Cited:

Bettiga, L.J. 1995. Comparison of Merlot and Chardonnay clones in Monterey county: A preliminary report. Proceedings of the International Symposium on Clonal Selection. American Society for Enology and Viticulture. pp.93-95.

Lombard, P.B., B.T. Watson, D.A. Heatherbell, and R. Garren. 1986. Production, maturity, and wine composition of winegrape varieties in western Oregon. Circular of Information 701. June 1986. Agricultural Experiment Station, Corvallis.

Roberts, D, and R. Blazer. 1995. The interaction of crop level and clone on the enological and viticultural characteristics of Merlot. Proceedings of the International Symposium on Clonal Selection. American Society for Enology and Viticulture. pp.133-136.

Sugar, D., P. Lombard, and B.T. Watson. 1996. Winegrape variety trial in southern Oregon. February 1996. Oregon State University Agricultural Experiment Station. pp.69-74.

Table 1. 2001 Merlot Clones Must Analysis at Harvest

Clones*	Brix g/100g	TA g/L	pH	Malate g/L
M1	23.4	5.25	3.31	0.61
M3	22.4	5.30	3.35	0.64
M6	23.1	5.53	3.38	0.78
M8	23.1	4.16	3.61	0.72
M9	23.2	5.38	3.48	1
M11	23.3	4.90	3.68	0.59
M12	23	4.45	3.58	0.56
M14	23	5.15	3.41	0.66
M181	23.5	5.86	3.41	0.67

*Quail Run Vineyards, Talent, OR

2001 Must Analysis at Harvest

Variety*	Brix g/100g	TA g/L	pH
Viognier	23.4	5.50	3.2
Tempranillo	21.8	4.88	3.69
Syrah	23.8	5.80	3.29
Sangiovese	24	7.65	3.43

*Quail Run Vineyards, Talent, OR

Table 2. 2001 Merlot Wine Analysis

Clones*	Alcohol %	TA** g/L	pH**
M1	14.7	5.2	3.68
M3	14.2	4.95	3.74
M6	13.6	5.85	3.72
M8	13.6	5	3.93
M9	13.8	5.6	3.74
M11	14.1	4.95	3.86
M12	13.6	4.9	3.83
M14	14.2	5	3.88
M181	14.2	5.2	3.8

*Quail Run Vineyards, Talent, OR

**pre malolactic fermentation

2001 Wine Analysis

Variety*	Alcohol %	TA g/L	pH
Viognier	13.8	4.9	3.18
Tempranillo	13.4	3.8	4.11
Syrah	13.8	5	3.89
Sangiovese	14.6	7.2	3.48

*Quail Run Vineyards, Talent, OR

Table 3. 2001 Merlot Wine Analysis

Clone*	Phenols mg/L	Anthocyanin mg/L	Color Intensity 520+420nm	Hue 420/520
M1	2750	399	8.9	0.642
M3	2780	392	9.19	0.653
M6	2940	396	10.11	0.636
M8	3010	354	8.55	0.778
M9	3440	386	9.45	0.644
M11	3240	364	8.3	0.722
M12	2790	354	7.9	0.71
M14	3450	349	8.21	0.75
M181	4190	417	9.83	0.652

*Quail Run Vineyards, Talent, OR

2001 Wine Analysis

Variety*	Phenols mg/L	Anthocyanin mg/L	Color Intensity 520+420nm	Hue 420/520
Tempranillo	2830	475	7.46	0.715
Syrah	2980	526	10.87	0.622
Sangiovese	4520	580	15.11	0.511

*Quail Run Vineyards, Talent, OR