

Evaluation of Wines from the Cold Hardy Wine Grape Cultivar Trial

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Introduction

In conjunction with the Northeast Regional Research project NE-1020 “Multi-state Evaluation of Wine Grape Cultivars and Clones,” Iowa State University established a cold hardy wine grape cultivar trial in 2008 at the ISU Horticulture Research Station (HRS), Ames, Iowa, and Tabor Home Vineyards and Winery (THV), Baldwin, Iowa. Wines were made from the 2012 crop from six selections growing in the THV plot and were evaluated by winemakers and wine grape growers and non-grower/winemakers at two field days in 2013.

Materials and Methods

In 2012, grapes from three red cultivar selections from the University of Minnesota grape breeding program MN1200, MN1235, and MN1258, and three white cultivar selections MN1220 (from the U MN program), Petit Ami[™], and NY95.0300.01 (a very cold hardy selection from the Cornell U. at Geneva, NY grape breeding program) were harvested from the THV plot. The protocol for wine production was chosen to produce wines with a focus on showing the varietal fruit characteristics of the cultivars. Grapes of white cultivars were crushed, pressed, and the juice allowed to settle for six hours before racking and fermentation. Grapes of red cultivars were crushed and the must fermented for two days. The must was then pressed and the juice allowed to finish fermentation. For all wines, the fermentation temperature range was 68°-76°F. Based on the initial Brix of the

must, sugar was added, if necessary, to raise the Brix level to 21.0° (Table 1). Must or juice from all grape varieties was inoculated with yeast strain 71B. Wines were fermented to dryness. Potassium metabisulfite was added to 100 ppm free SO₂. Wines were racked twice, cold stabilized, and fined with bentonite for heat stabilization. Wines were not filtered before bottling. Free SO₂ was adjusted to 80 ppm before bottling.

At the Northern Grapes viticulture field day held on July 13, 2013, in central Iowa (CI), 36 of 57 participants composed of growers, winemakers, and non-grower/winemakers tasted the wines and scored them on the University of California (UC), Davis 20-point Scale System for Organoleptic Evaluation Scoring Guide for Wine. Similarly, at a NE-1020 viticulture field day held on August 11 at THV, 16 of 26 participants tasted and scored the wines.

Results and Discussion

Average total scores at both tastings were within or near the UC Davis “standard” rating for wine (Tables 2 and 3). At the CI tasting, the scores for the wines were generally lower than the scores for the respective wines at the THV tasting. Differences in scores between the two tasting events were most evident for appearance, aroma and bouquet, and general quality. There was a difference in the procedure for preparing the wines for tasting for the two events. The wines at the CI tasting were poured directly from the bottles into glasses and the participants in the tasting could detect sulfites in the wine and sediments because the wines were unfiltered. In contrast, at THV, the wines were decanted into pitchers one-half hour before pouring leaving the sediments in the bottles. Also as a result of the

decanting, the sulfites dissipated from the wines and were not detected by participants.

In addition to the organoleptic evaluation scoring, participants made specific comments. Numerous participants suggested that some of the experimental white wines could be finished with residual sweetness to improve them. Also, participants made specific comments that the experimental red wines could be improved by malolactic fermentation, tannin additions, and barrel aging. All of the participants recognized potential for making quality wines from all of the selected experimental cultivars. Many participants at both tasting events indicated that wines from one or more of the selected cultivars were superior to wines from cultivars currently used in the production of wines from

Iowa-grown grapes. The results of this evaluation of wines from the cultivars in the NE-1020 program show these cultivars have significant potential and results from more comprehensive winemaking trials with these cultivars would be valuable to the Iowa wine industry.

Acknowledgements

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Table 1. Harvest indices for grapes grown in the NE-1020 cold hardy wine grape trial at Tabor Home Vineyards and Winery, Baldwin, Iowa in 2012 and used to make the test wines.

Selection/Cultivar	Skin color	Harvest date	°Brix	Initial pH	TA (g/liter)
MN1220	white	8/28	22.9	3.33	7.35
Petit Ami™	white	8/28	21.2	3.27	6.40
NY95.0300.01	white	8/28	20.4*	2.97	12.5
MN1200	blue	8/31	25.2	3.45	6.60
MN1235	blue	8/31	19.5*	3.18	9.15
MN1258	blue	8/31	25.1	3.22	9.10

*Sugar was added to increase Brix to 21.0° at the start of fermentation.

Table 2. Average scores from an organoleptic evaluation of wines made from selections in the NE-1020 cold hardy wine grape trial performed by 35 participants at the SCRI Northern Grapes viticulture field day held on July 13, 2013 in central Iowa using the University of California, Davis 20 point scale^z.

Characteristic	Weight ^y	White wines			Red wines		
		MN1220	Petit Ami™	NY95.0300.01	MN1200	MN1235	MN1258
Appearance	2	1.7	1.4	1.4	1.8	1.8	1.7
Color	2	1.9	1.6	1.6	1.9	1.8	1.7
Aroma & bouquet	4	2.4	2.5	2.3	2.3	2.3	2.1
Volatile acidity	2	1.8	1.7	1.7	1.4	1.6	1.4
Total acidity	2	1.4	1.4	1.5	1.1	1.3	1.4
Sweetness	1	0.6	0.6	0.6	0.5	0.7	0.6
Body	1	0.9	0.8	0.8	0.7	0.8	0.8
Flavor	2	1.2	1.2	1.0	0.8	1.4	0.9
Astringency	2	1.2	1.1	1.1	0.9	1.2	1.2
General quality	2	1.2	1.2	1.1	1.0	1.3	1.0
TOTAL SCORE	20	14.3	13.6	13.0	12.4	14.3	12.9
Range		9-17	6-19	6-18	8-17	11-18	4-18

^zRating based on total score: Superior (17-20); standard (13-16); below standard (9-12); unacceptable (5-8); spoiled (1-5).

^yMaximum score for each characteristic evaluated.

Table 3. Average scores from an organoleptic evaluation of wines made from selections in the NE-1020 cold hardy wine grape trial performed by 16 participants at a viticulture field day held on August 11, 2013 at the NE-1020 trial site at Tabor Home Vineyards and Winery, Baldwin, Iowa using the University of California, Davis 20 point scale^z.

Characteristic	Weight	White wines			Red wines		
		MN1220	Petit Ami™	NY95.0300.01	MN1200	MN1235	MN1258
Appearance	2	1.7	1.6	1.7	1.7	1.7	1.4
Color	2	1.9	1.9	1.8	1.6	1.8	1.4
Aroma & bouquet	4	2.4	2.9	2.7	3.0	2.4	2.6
Volatile acidity	2	1.7	1.8	1.7	1.6	1.5	1.9
Total acidity	2	1.6	1.6	1.5	1.8	1.4	1.7
Sweetness	1	0.5	0.8	0.5	0.8	0.7	0.8
Body	1	0.9	0.9	0.8	1.0	1.0	1.0
Flavor	2	1.3	1.5	1.2	1.5	1.3	1.2
Astringency	2	1.5	1.4	1.1	1.6	1.4	1.8
General quality	2	1.7	1.7	1.6	1.6	1.5	1.5
TOTAL SCORE	20	15.2	16.1	14.6	16.0	14.6	15.1
Range		12-18	13-19.5	10-18.5	11-20	9-20	12-19

^zRating based on total score: Superior (17-20); standard (13-16); below standard (9-12); unacceptable (5-8); spoiled (1-5).

^yMaximum score for each characteristic.