

2013

## Cold Hardy Wine Grape Cultivar Trial

Paul A. Domoto  
*Iowa State University*, domoto@iastate.edu

Gail R. Nonnecke  
*Iowa State University*, nonnecke@iastate.edu

Paul Tabor  
*Tabor Home Vineyards*

Leah B. Riesselman  
*Iowa State University*, lriessel@iastate.edu

Follow this and additional works at: [http://lib.dr.iastate.edu/farms\\_reports](http://lib.dr.iastate.edu/farms_reports)

 Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), [Fruit Science Commons](#), and the [Horticulture Commons](#)

---

### Recommended Citation

Domoto, Paul A.; Nonnecke, Gail R.; Tabor, Paul; and Riesselman, Leah B., "Cold Hardy Wine Grape Cultivar Trial" (2013). *Iowa State Research Farm Progress Reports*. 1915.  
[http://lib.dr.iastate.edu/farms\\_reports/1915](http://lib.dr.iastate.edu/farms_reports/1915)

This report is brought to you for free and open access by Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State Research Farm Progress Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

---

# Cold Hardy Wine Grape Cultivar Trial

## **Abstract**

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) and Tabor Home Vineyards and Winery (THV) near Baldwin, IA. The Iowa trial evaluates the performance of Corot noir, La Crescent, Marquette, Petit Ami™, NY 95.0301-01, MN-1189, MN-1200, MN-1220, MN-1235, MN-1258 with Frontenac, and St. Croix serving as controls. This report summarizes the results for the 2012 growing season.

## **Keywords**

RFR A1214, Horticulture

## **Disciplines**

Agricultural Science | Agriculture | Fruit Science | Horticulture

## Cold Hardy Wine Grape Cultivar Trial

### RFR-A1214

Paul Domoto, professor  
Gail Nonnecke, university professor  
Department of Horticulture  
Paul Tabor, Tabor Home Vineyards  
Leah Riesselman, ag specialist  
Horticulture Research Station

### 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) and Tabor Home Vineyards and Winery (THV) near Baldwin, IA. The Iowa trial evaluates the performance of Corot noir, La Crescent, Marquette, Petit Ami™, NY 95.0301-01, MN-1189, MN-1200, MN-1220, MN-1235, MN-1258 with Frontenac, and St. Croix serving as controls. This report summarizes the results for the 2012 growing season.

### Materials and Methods

The vines were spaced 8 × 10 ft apart (545 vines/acre) with three vines/replication. Treatments were replicated 6 times (18 vines/cultivar) in a randomized complete block design. Vines were trained to the high-wire bilateral cordon with the trellis wire 6.0 ft above the ground.

### Results and Discussion

Although the 2011-12 winter was considered mild, a potentially stressful freeze occurred on

January 21, 2012 (-8°F) at HRS. The lowest temperature recorded at THV was -3°F on January 14, 15, and 20. No additional vine mortality occurred at either site and primary bud injury was minimal at HRS (Table 1). Based on cumulative vine mortality, pruning weights, and length of established cordon, vines were performing better at HRS than at THV.

Following an unusually warm March and very early bud break, the vines were exposed to 21°F at HRS and 27°F at THV on Apr 11. At HRS, bud development ranged from first swell to third leaf with Marquette, MN-1235, and La Crescent being the most advanced (Table 1). Marquette and NY95.0301-01 vines had the highest mortality of primary shoots while MN-1258 and Frontenac had the lowest mortality. At THV, injury was not as severe, although Marquette vines had the highest mortality of primary shoots.

At HRS, a combination of low yields and unusually warm growing conditions contributed to favorable harvest indices for northern hybrid cultivars (Table 2).

### Acknowledgements

Funding for the vines and partial funding for annual expenses has come through grants from the USDA Viticulture Consortium-East awarded to the NE 1020 regional research group. Thanks to the ISU Horticulture Research Station staff and employees of Tabor Home Vineyards for their assistance in maintaining the plantings.

**Table 1. Performance of 12 wine grape cultivars in the NE-1020 cold hardy cultivar trial at two Iowa locations in 2012.**

Rootstock	Horticulture Research Station							Tabor Home Vineyards			
	Vine mortality (cum)	% Dorm. bud injury	Pruning wt. (lb)	Estab. cordon (ft)	Date 50% bud burst	Bud dev. stage <sup>y</sup>	% live 1 <sup>o</sup> shoots	Vine mortality (cum)	Pruning wt. (lb)	Estab. cordon (ft)	% live 1 <sup>o</sup> shoots
Corot noir	2	7.1	1.2	3.1	4/9	3.2	34	6	.4	.0	51
La Crescent	0	6.7	2.1	4.8	4/2	5.1	30	4	1.4	.8	47
Marquette	0	10.0	2.5	6.4	3/30	5.8	15	1	1.3	1.6	36
Petit Ami	0	7.5	.5	3.2	4/10	3.2	65	4	.2	.1	63
MN1189	0	11.5	1.3	4.2	4/8	3.6	45	4	.5	.0	48
MN1200	0	2.5	2.0	4.8	4/5	4.1	37	2	1.2	2.9	66
MN1220	0	5.0	1.6	6.2	4/3	4.6	38	0	1.1	1.4	64
MN1235	0	2.3	1.1	5.3	3/31	5.5	35	0	1.2	5.6	65
MN1258 <sup>z</sup>	0	.0	.8	3.3	4/9	3.6	78	2	.3	.3	69
NY95.0301-01 <sup>z</sup>	1	.	.4	.6	4/9	2.9	17	7	.2	.0	.
Frontenac	0	5.2	1.5	6.2	4/7	4.2	72	1	1.3	5.1	78
St. Croix	0	5.7	1.9	6.2	4/2	4.8	43	1	1.3	4.1	67
LSD .05		.8	.5	1.3	1	.4	8		.4	1.4	14

<sup>z</sup>Planted in 2009.<sup>y</sup>Bud development stage at the time of the April 11 freeze: 1 = 1<sup>st</sup> swell, 2 = full swell, 3 = bud burst, 4 = 1<sup>st</sup> leaf, 5 = 2<sup>nd</sup> leaf, 6 = 3<sup>rd</sup> leaf, 7 = 4th leaf as described by Zabadal.**Table 2. Fruit development and harvest characteristics of 12 wine grape cultivars in the NE-1020 cold hardy cultivar trial at the ISU Horticulture Research Station in 2012.**

Rootstock	Date of			Indices at Harvest <sup>y</sup>			Yield/Vine (lb)	Average cluster wt. (lb)
	Initial bloom	Early veraison	Harvest	Brix <sup>o</sup>	pH	TA (g/liter)		
Corot noir	5/24	7/22	8/31	19.9	3.3	6.5	9.9	.32
La Crescent	5/20	7/17	8/31	24.8	3.3	11.6	4.3	.20
Marquette	5/21	7/10	9/6	28.0	3.3	9.8	2.8	.10
Petit Ami	5/20	7/17	8/7	19.0	3.2	8.1	11.1	.21
MN1189	5/20	7/9	8/17	20.4	3.2	7.5	10.4	.25
MN1200	5/16	7/11	9/6	24.4	3.3	8.3	1.4	.05
MN1220	5/21	7/16	8/17	24.8	3.4	9.1	9.9	.22
MN1235	5/17	7/15	9/13	25.2	3.4	10.1	5.7	.12
MN1258 <sup>z</sup>	5/18	7/16	9/6	28.8	3.5	9.6	4.7	.10
NY95.0301-01 <sup>z</sup>	5/27	7/22	8/31	21.8	3.4	7.4	1.6	.11
Frontenac	5/17	7/13	9/13	28.4	3.5	11.1	10.9	.20
St. Croix	5/18	7/16	8/17	20.4	3.4	7.6	8.0	.19
LSD .05	1	1	2				1.8	.01

<sup>z</sup>Planted in 2009.<sup>y</sup>Parameters are non-replicated values obtained during maturity testing for determining when to harvest.