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# 2003 Wine Grape Cultivar Trial Performance

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**Abstract**
To assess the regional adaptation of wine grape cultivars in Iowa, a trial was established in 2003 through an Iowa Department of Agriculture and Land Stewardship (IDALS) specialty crops grant awarded to the Iowa Wine Growers Association (IWGA). The trial was designed to evaluate up to 20 cultivars or advanced selections at four Iowa State University (ISU) farms representing different geographic, climatic, and soil conditions: Horticulture Research Station (HRS), Ames; the Armstrong Research Farm (ARF), Lewis; the Southeast Research Farm (SERF), Crawfordsville; and the Northeast Research Farm (NERF), Nashua. The SERF and NERF plantings also included the 15 cultivars being evaluated in the 2002 grape cultivar by management system trial. This report summarizes the results for the 2010 growing season.

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# 2003 Wine Grape Cultivar Trial Performance

**RFR-A1039**

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## Introduction

To assess the regional adaptation of wine grape cultivars in Iowa, a trial was established in 2003 through an Iowa Department of Agriculture and Land Stewardship (IDALS) specialty crops grant awarded to the Iowa Wine Growers Association (IWGA). The trial was designed to evaluate up to 20 cultivars or advanced selections at four Iowa State University (ISU) farms representing different geographic, climatic, and soil conditions: Horticulture Research Station (HRS), Ames; the Armstrong Research Farm (ARF), Lewis; the Southeast Research Farm (SERF), Crawfordsville; and the Northeast Research Farm (NERF), Nashua. The SERF and NERF plantings also included the 15 cultivars being evaluated in the 2002 grape cultivar by management system trial. This report summarizes the results for the 2010 growing season.

## Materials and Methods

The vines were spaced 8 × 10 ft apart (545 vines/acre) with three vines/replication. Treatments were replicated four times at each site (12 vines/cultivar). Vines were trained to a bilateral cordon system on a two-wire trellis with wires at 3.5 ft and 6.0 ft above the ground. Vines with a procumbent growth habit were being trained to the top wire, while those with a semi-upright to upright growth habit were trained to the mid-level wire with vertical shoot positioning (VSP) practiced.

In mid-March, five proximal (basal) buds on two canes per vine (30 buds/replication) were dissected and evaluated for primary bud injury. Bud retention was based on pruning weight, and adjusted for primary bud mortality when injury exceeded 15 percent for American cultivars and 20 percent for French-American hybrid cultivars. Date of bud break was recorded at ARF and HRS. Following *veraison*, berry samples were collected from the mid-cluster position to test for maturity based on percentage soluble solids (% SS), initial pH, and titratable acids (TA). Time of harvest was based on these measurements and fruit condition. At harvest, the number of clusters per vine were counted and weighed.

## Results and Discussion

During the 2009–10 winter, vines were exposed to significant freezes in early October, December, and January with NERF followed by HRS recording the lowest temperatures (Table 1). When cane buds were examined for injury prior to pruning, greater injury was found at NERF and HRS, than at ARF or SERF (Table 2). At all four sites, the injury was generally greatest on cultivars classified as being “slightly hardy” to “moderately hardy,” while those classified as being “very hardy” exhibited the least bud injury. Bud injury following the 2009–10 winter was generally greater than the previous winter when lower temperatures were recorded. The early October freeze was probably the contributing factor because the 2009 growing season was cooler than normal and many cultivars matured much later than normal.

On May 9, vines at HRS and NERF were exposed to a spring frost (Table 1). Injury at HRS was greater with most primary shoots killed (Table 2).

Based on pruning weights, vines generally grew better at ARF than at the other sites in 2010 (Table 3). However, considerable cane die back was observed, particularly at HRS and NERF. Based on the length of established cordon per vine, the less hardy cultivars continue to perform better at ARF and SERF than at HRS or NERF.

The 2010 growing season was characterized by warmer than normal growing conditions with the departure from normal for growing degree days being the greatest at ARF (Table 1). The greatest number of days with the temperature above 86°F was recorded at SERF followed by ARF and NERF. As a result, harvest was advanced compared with previous years at ARF (Table 4) and SERF (Table 5). With vines at HRS and NERF being exposed to the May 9 frost, harvest at both sites was delayed. Yield per vine and average cluster weights were generally lower than in previous years at each of the sites, and was a reflection of the high primary bud injury recorded at each site, and the frost that occurred at HRS and NERF. Generally, yields per vine were greater on cold hardy cultivars than on moderately hardy cultivars.

## Acknowledgements

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**Table 1. Significant minimum temperatures (°F) recorded during the 2009-10 winter and accumulated growing degree days from May 1 to October 1, 2010.**

| Date | ARF | HRS | SERF | NERF |
|---|---|---|---|---|
| Minimum temperatures (°F): | | | | |
| Oct 10 | 25 | 24 | 25 | 22 |
| Dec 10 | -11 | -10 | -6 | -9 |
| Jan 2 | -18 | -21 | -18 | -20 |
| May 9 | 35 | 29 | 35 | 30 |
| | | | | |
| Growing Degree Days (base 50°F, cap. 86°F): | | | | |
| May 1 to Oct 1[z] | 3,018 | 2,943 | 3,026 | 2,775 |
| Departure from avg. | 163 | 112 | -84 | 100 |
| Days above 86 °F | 25 | 11 | 29 | 20 |

[z]From the ISU Ag Climate Network.

**Table 2. Primary bud injury following exposure to freezes during the 2009–10 winter for 20 cultivars in the ISU 2003 wine grape cultivar trial planted at the Armstrong Research Farm (ARF) and Horticulture Research Station (HRS), and the 35 cultivars at the Southeast (SERF) and Northeast (NERF) Research Farms; bud break at ARF and HRS; and frost injury rating at HRS and NERF following a May 9 freeze.**

| | | % Primary Bud Injury | | | | Bud Break[y] | | Frost Injury Rating[x] | |
|---|---|---|---|---|---|---|---|---|---|
| Treatment | Relative hardiness[z] | ARF | HRS | SERF | NERF | ARF | HRS | HRS | NERF |
| Vidal Blanc | 4 | 51 | 97 | 80 | 50 | 121 | 119 | 5.0 | 1.0 |
| Cayuga White | 4 | 73 | 100 | 63 | 93 | 120 | 128 | . | 1.0 |
| Landot 4511 | 4 | 76 | 97 | 77 | 90 | 123 | 128 | . | 1.0 |
| Noiret | 4 | 65 | 88 | 50 | 78 | 114 | 115 | 5.0 | 2.5 |
| NY84.0101.04 | 4 | 48 | . | 43 | 53 | 122 | 120 | . | 2.0 |
| Corot noir | 4 | 40 | 98 | 40 | 69 | 120 | 113 | 5.0 | 1.7 |
| NY76.0844.24 | 4 | 47 | 91 | 49 | 53 | 115 | 110 | 4.8 | 2.3 |
| De Chaunac | 4 | 48 | 93 | 28 | 52 | 114 | 110 | 5.0 | 3.3 |
| St. Vincent | 4 | 51 | 97 | 41 | 54 | 115 | 117 | 5.0 | 2.6 |
| Léon Millot | 5 | 29 | 65 | 21 | 32 | 112 | 108 | 4.8 | 3.8 |
| Esprit | 5 | 56 | 83 | 41 | 53 | 115 | 109 | 5.0 | 2.7 |
| GR-7 | 5 | 38 | 92 | 34 | 66 | 111 | 107 | 5.0 | 3.3 |
| Chancellor | 5 | 35 | 72 | 10 | 19 | 113 | 110 | 5.0 | 2.5 |
| Brianna | 6 | 20 | 38 | 21 | 15 | 110 | 107 | 4.8 | 2.8 |
| Swenson White | 6 | 36 | 68 | 18 | 33 | 112 | 109 | 5.0 | 2.8 |
| MN-1198 | 6 | 39 | 70 | 24 | 32 | 109 | 107 | 4.8 | 3.1 |
| Marquette | 6 | 30 | 22 | 19 | 11 | 108 | 107 | 3.4 | 3.0 |
| Prairie Star | 6 | 28 | 29 | 11 | 12 | 114 | 108 | 5.0 | 3.7 |
| La Crescent | 6 | 23 | 20 | 21 | 37 | 109 | 105 | 4.1 | 3.0 |
| Frontenac Gris[w] | 6 | 18 | 48 | 10 | 31 | 111 | 107 | 4.8 | 2.7 |
| Chambourcin | 3 | | | 51 | 100 | | | | 1.0 |
| Seyval Blanc | 4 | | | 70 | 94 | | | | 3.2 |
| Vignole | 4 | | | 27 | 81 | | | | 1.5 |
| Traminette | 4 | | | 42 | . | | | | . |
| Cynthiana | 4 | | | 23 | 79 | | | | 1.0 |
| Maréchal Foch | 5 | | | 38 | 26 | | | | 3.9 |
| St. Croix | 6 | | | 28 | 28 | | | | 2.5 |
| Edelweiss | 5 | | | 23 | 28 | | | | 3.4 |
| La Crosse | 5 | | | 10 | 37 | | | | 3.7 |
| Frontenac | 6 | | | 25 | 22 | | | | 2.4 |
| Marquis | 4 | | | 63 | 65 | | | | 1.3 |
| Vanessa | 4 | | | 98 | 90 | | | | 1.3 |
| Reliance | 4 | | | 55 | 83 | | | | 2.1 |
| Mars | 4 | | | 48 | 54 | | | | 2.7 |
| Jupiter | 4 | | | 80 | 85 | | | | 1.8 |
| LSD, P < .05 | | 14 | 17 | 17 | 19 | 2 | 2 | 0.3 | 0.7 |

[z]Relative cold hardiness (temperature range at which injury begins to occur): 3 = cold tender/slightly hardy (-5°F); 4 = moderately hardy (-10°F); 5 = hardy (-15°F); 6 = very hardy (-20°F).

[y]Julian date; 121 = May 1, 2010.

[x]Frost injury rating: 1 = no injury evident; 2 = slight, most clusters survived; 3 = moderate; most clusters killed, most shoots alive; 4 = severe, all clusters killed, some shoots alive at the base; 5 = very severe, all shoots killed to the base.

[w]Planted in 2004 at the Horticulture Research Station and in 2006 at the other sites.

**Table 3. Pruning weight and feet of established cordon following the 2009 growing season for 20 cultivars in the ISU 2003 wine grape cultivar trial planted at the Armstrong Research Farm (ARF) and the Horticulture Research Station (HRS), and 35 cultivars at the Southeast (SERF) and Northeast (NERF) Research Farms.**

| | Pruning weight (lb) | | | | Feet of cordon per vine | | | |
|---|---|---|---|---|---|---|---|---|
| Treatment | ARF | HRS | SERF | NERF | ARF | HRS | SERF | NERF |
| Vidal Blanc | 2.8 | 1.1 | 2.1 | 0.4 | 7.1 | 1.4 | 6.1 | 0.3 |
| Cayuga White | 1.9 | 1.2 | 1.5 | 0.5 | 5.7 | 0.5 | 6.3 | 1.3 |
| Landot 4511 | 3.8 | 1.2 | 1.8 | 0.5 | 7.5 | 1.3 | 6.7 | 1.3 |
| Noiret[w] | 3.3 | 1.3 | 2.6 | 1.1 | 7.9 | 1.4 | 7.7 | 5.4 |
| NY84.0101.04 | 2.0 | 0.7 | 1.2 | 0.6 | 4.8 | 0.0 | 5.7 | 0.9 |
| Corot noir[w] | 2.7 | 1.1 | 2.2 | 0.7 | 8.0 | 1.6 | 6.5 | 4.6 |
| NY76.0844.24[z] | 1.6 | 1.9 | 0.8 | 0.4 | 6.8 | 7.2 | 7.0 | 3.8 |
| De Chaunac | 5.0 | 3.4 | 5.0 | 2.4 | 7.7 | 1.5 | 7.1 | 7.8 |
| St. Vincent | 4.1 | 3.5 | 3.1 | 1.6 | 6.4 | 3.5 | 7.6 | 4.2 |
| Léon Millot | 3.4 | 2.1 | 2.5 | 1.1 | 7.9 | 7.2 | 7.6 | 7.0 |
| Esprit | 3.6 | 3.2 | 3.2 | 1.0 | 8.0 | 7.9 | 7.3 | 6.7 |
| GR-7 | 4.0 | 3.3 | 3.3 | 1.8 | 8.0 | 7.3 | 7.0 | 7.7 |
| Chancellor | 2.8 | 1.3 | 0.6 | 0.2 | 8.0 | 5.8 | 6.8 | 6.1 |
| Brianna[z] | 3.0 | 2.9 | 3.0 | 0.8 | 8.0 | 7.8 | 7.1 | 7.4 |
| Swenson White[x] | 2.6 | 2.1 | 2.7 | 1.0 | 8.0 | 7.3 | 6.0 | 7.3 |
| MN-1198[y] | 1.5 | 0.7 | 0.8 | 0.3 | 7.8 | 7.2 | 7.5 | 5.7 |
| Marquette[z, w] | 2.5 | 4.0 | 2.0 | 0.5 | 7.4 | 7.8 | 7.2 | 6.3 |
| Prairie Star | 3.4 | 5.8 | 2.9 | 2.1 | 7.9 | 7.7 | 6.8 | 7.6 |
| La Crescent | 3.6 | 2.8 | 3.8 | 2.0 | 8.0 | 7.8 | 7.1 | 6.4 |
| Frontenac Gris[y] | 1.1 | 1.2 | 0.6 | 0.2 | 7.8 | 7.3 | 4.0 | 4.4 |
| Seyval Blanc | | | 1.4 | 0.8 | | | 7.4 | 4.9 |
| Chambourcin | | | 1.4 | 0.7 | | | 4.8 | 0.2 |
| Vignole | | | 1.7 | 1.0 | | | 7.6 | 4.0 |
| Traminette | | | 1.7 | 0.5 | | | 6.6 | 0.0 |
| Cynthiana | | | 2.4 | 1.0 | | | 6.7 | 1.4 |
| Maréchal Foch | | | 0.6 | 0.2 | | | 6.4 | 6.2 |
| St. Croix | | | 2.4 | 1.4 | | | 7.8 | 8.0 |
| Edelweiss | | | 2.7 | 1.2 | | | 7.5 | 7.2 |
| La Crosse | | | 2.8 | 1.9 | | | 7.3 | 7.6 |
| Frontenac | | | 1.6 | 0.6 | | | 7.4 | 7.2 |
| Marquis | | | 1.4 | 0.3 | | | 5.0 | 0.8 |
| Vanessa | | | 1.9 | 0.4 | | | 4.5 | 1.1 |
| Reliance | | | 1.7 | 0.9 | | | 7.2 | 7.3 |
| Mars | | | 4.0 | 2.1 | | | 7.8 | 7.8 |
| Jupiter | | | 2.6 | 0.7 | | | 7.0 | 1.7 |
| LSD, P < .05 | 0.7 | 0.8 | 0.9 | 0.4 | 1.2 | 1.3 | 1.4 | 1.5 |

[z]Planted in 2004.
[y]Planted in 2004 at the Horticulture Research Station and in 2006 at the other sites.
[x]Planted in 2005.
[w]Named and released in 2006: Noiret (NY73.136.17); Corot noir (NY70.0809.10); and Marquette (MN-1211).

**Table 4. Fruit yield and harvest characteristics in 2010 for 20 cultivars in the ISU 2003 wine grape cultivar trial planted at the Armstrong Research Farm and Horticulture Research Station.**

| | Armstrong Research Farm | | | | | | Horticulture Research Station | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Treatment | Harvest date | % SS | pH[y] | TA[z] | Yield /vine (lb) | Cluster wt (lb) | Harvest date | % SS | pH | TA[z] | Yield /vine (lb) | Cluster wt (lb) |
| Léon Millot | 8/12 | 17.8 | 3.57 | 8.4 | 11.7 | .22 | 9/8 | 20.1 | 3.70 | 5.7 | 5.5 | .10 |
| Brianna[y] | 8/18 | 15.7 | 3.43 | 6.6 | 18.1 | .29 | 9/8 | 16.9 | 3.67 | 5.6 | 7.6 | .16 |
| NY84.0101.04 | 8/18 | 18.0 | 3.49 | 8.3 | 2.3 | .37 | . | . | . | . | 0.0 | . |
| Prairie Star | 8/19 | 15.9 | 3.63 | 9.6 | 11.5 | .19 | 9/8 | 18.9 | 3.72 | 7.1 | 13.7 | .14 |
| MN-1198[y] | 8/19 | 19.6 | 3.17 | 12.6 | 13.3 | .28 | 9/13 | 21.7 | 3.17 | 9.4 | 2.4 | .12 |
| Esprit | 8/23 | 14.9 | 3.42 | 10.1 | 18.4 | .58 | 9/17 | 18.4 | 3.42 | 7.1 | 9.7 | .40 |
| Swenson White[w] | 8/24 | 16.6 | 3.39 | 6.5 | 15.2 | .41 | 9/13 | 18.6 | 2.72 | 4.8 | 12.8 | .25 |
| NY76.0844.24[y] | 8/24 | 15.8 | 3.26 | 8.9 | 4.7 | .16 | 10/11 | 17.1 | 3.31 | 6.6 | 0.9 | .12 |
| Cayuga White | 8/25 | 16.8 | 3.17 | 8.9 | 6.1 | .47 | . | . | . | . | 0.0 | . |
| Marquette[y] | 8/30 | 23.5 | 3.57 | 7.4 | 7.3 | .13 | 9/17 | 23.2 | 3.61 | 7.5 | 10.0 | .09 |
| Landot 4511 | 8/30 | 18.7 | 3.65 | 6.1 | 8.1 | .28 | . | . | . | . | 0.0 | . |
| Frontenac Gris[x] | 8/30 | 23.5 | 3.42 | 9.6 | 13.6 | .25 | 9/17 | 25.3 | 3.40 | 8.6 | 8.4 | .13 |
| De Chaunac | 8/30 | 17.8 | 3.56 | 7.7 | 12.8 | .24 | 10/11 | 20.3 | 3.55 | 5.5 | 1.4 | .17 |
| La Crescent | 8/31 | 22.6 | 3.61 | 9.7 | 16.2 | .31 | 9/17 | 22.8 | 3.38 | 10.7 | 11.3 | .15 |
| GR-7 | 8/31 | 17.8 | 3.77 | 8.4 | 11.2 | .24 | 10/8 | 21.4 | 3.79 | 6.7 | 1.8 | .13 |
| Noiret | 9/1 | 16.1 | 3.44 | 8.7 | 4.4 | .25 | 10/8 | 17.5 | 3.51 | 7.0 | 1.4 | .17 |
| Corot noir | 9/1 | 16.4 | 3.70 | 5.4 | 18.3 | .45 | 10/8 | 19.5 | 3.53 | 6.0 | 0.9 | .18 |
| Chancellor | 9/1 | 18.7 | 3.51 | 7.1 | 29.9 | .44 | 10/8 | 17.6 | 3.2 | 9.0 | 0.2 | .16 |
| Vidal Blanc | 9/7 | 18.2 | 3.48 | 7.8 | 7.7 | .40 | 10/11 | 19.3 | 3.26 | 8.4 | 0.2 | .16 |
| St. Vincent | 9/30 | 18.6 | 3.49 | 7.6 | 12.5 | .47 | 10/8 | 20.1 | 3.24 | 6.7 | 1.8 | .23 |
| LSD, P < .05 | | | | | 4.0 | .06 | | | | | 2.3 | .04 |

[z]Titratable acids reported in grams/liter.
[y]Planted in 2004.
[x]Planted in 2004 at the Horticulture Research Station and in 2006 at the other sites.
[w]Planted in 2005.

**Table 5. Fruit yield and harvest characteristics in 2010 for 35 cultivars in the ISU 2003 wine grape cultivar trial planted at the Southeast and Northeast Research Farms.**

| | Southeast Research Farm | | | | | | Northeast Research Farm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Treatment | Harvest date | % SS | pH | TA[z] | Yield /vine (lb) | Cluster wt (lb) | Harvest date | % SS | pH | TA[z] | Yield /vine (lb) | Cluster wt (lb) |
| Vanessa | 8/2 | 18.6 | 3.15 | 7.4 | 0.2 | .17 | 8/19 | . | . | . | 0.1 | .19 |
| Reliance | 8/2 | 20.3 | 3.14 | 7.1 | 9.3 | .40 | 8/19 | 20.8 | 3.35 | 6.4 | 7.8 | .55 |
| Jupiter | 8/5 | 17.6 | 3.50 | 5.0 | 9.9 | .28 | 8/19 | 18.0 | 3.75 | 4.8 | 0.8 | .28 |
| Prairie Star | 8/5 | 15.2 | 3.29 | 10.7 | 7.9 | .18 | 8/20 | 16.2 | 3.40 | 9.5 | 13.0 | .31 |
| Brianna[y] | 8/5 | 16.9 | 3.31 | 7.8 | 12.3 | .22 | 8/23 | 18.5 | 3.48 | 6.8 | 14.1 | .30 |
| Léon Millot | 8/5 | 18.2 | 3.42 | 7.9 | 13.3 | .18 | 8/24 | 20.3 | 3.72 | 6.2 | 8.4 | .19 |
| MN-1198[y] | 8/10 | 19.5 | 3.23 | 11.3 | 5.2 | .22 | 9/1 | 22.5 | 3.17 | 9.7 | 5.5 | .18 |
| Marquette[y] | 8/10 | 21.3 | 3.20 | 9.2 | 5.3 | .13 | 9/2 | 20.1 | 3.34 | 7.6 | 6.8 | .16 |
| Marquis | 8/10 | 15.2 | 3.48 | 4.7 | 5.0 | .39 | 9/10 | 18.7 | 3.51 | 3.5 | 1.2 | .48 |
| Mars | 8/10 | 14.9 | 3.14 | 7.7 | 3.0 | .30 | 9/17 | 18.2 | 3.58 | 5.3 | 9.1 | .29 |
| Maréchal Foch | 8/16 | 20.4 | 3.50 | 7.1 | 7.7 | .19 | 8/23 | 20.4 | 3.46 | 7.5 | 5.6 | .14 |
| Esprit | 8/16 | 15.3 | 3.30 | 9.6 | 16.8 | .53 | 8/23 | 17.1 | 3.15 | 11.1 | 10.1 | .47 |
| Edelweiss | 8/16 | 14.6 | 3.41 | 6.3 | 6.7 | .24 | 8/24 | 14.7 | 3.49 | 7.4 | 5.9 | .29 |
| NY84.0101.04 | 8/16 | 18.9 | 3.41 | 5.9 | 9.0 | .37 | 9/1 | 20.8 | 3.40 | 7.6 | 0.4 | .19 |
| Cayuga White | 8/16 | 18.5 | 3.14 | 6.3 | 4.7 | .44 | 9/2 | 16.0 | 2.98 | 15.2 | 1.0 | .20 |
| Landot 4511 | 8/16 | 18.6 | 3.23 | 5.1 | 4.0 | .17 | 9/2 | 20.1 | 3.57 | 5.6 | 0.4 | .12 |
| La Crescent | 8/16 | 20.6 | 3.34 | 10.3 | 5.3 | .27 | 9/3 | 22.0 | 3.48 | 9.8 | 9.6 | .27 |
| La Crosse | 8/16 | 16.1 | 3.18 | 8.4 | 15.2 | .29 | 9/3 | 19.0 | 3.34 | 8.1 | 17.5 | .26 |
| NY76.0844.24[y] | 8/16 | 15.5 | 3.12 | 9.3 | 4.3 | .18 | 9/8 | 20.1 | 3.34 | 7.6 | 3.5 | .18 |
| Seyval Blanc | 8/16 | 20.6 | 3.49 | 5.1 | 10.2 | .51 | 9/15 | 20.6 | 3.07 | 12.5 | 5.3 | .24 |
| St. Croix | 8/16 | 16.7 | 3.54 | 7.1 | 9.0 | .22 | 9/20 | 20.6 | 3.79 | 6.0 | 4.9 | .14 |
| Swenson White[x] | 8/17 | 17.1 | 3.39 | 5.0 | 9.4 | .39 | 8/20 | 15.0 | 3.06 | 9.5 | 11.2 | .38 |
| GR-7 | 8/17 | 17.6 | 3.44 | 8.5 | 7.6 | .18 | 8/27 | 18.4 | 3.50 | 9.6 | 9.9 | .28 |
| Corot noir | 8/17 | 15.7 | 3.41 | 6.2 | 8.9 | .37 | 9/9 | 18.4 | 3.43 | 5.9 | 7.4 | .42 |
| Frontenac Gris[w] | 8/17 | 21.2 | 3.12 | 10.2 | 4.0 | .20 | 9/9 | 24.3 | 3.30 | 9.2 | 4.8 | .20 |
| De Chaunac | 8/26 | 18.4 | 3.47 | 5.3 | 11.7 | .19 | 9/1 | 18.7 | 3.41 | 6.6 | 14.7 | .28 |
| Vignole | 8/26 | 22.1 | 3.24 | 8.9 | 6.5 | .20 | 9/10 | 25.0 | 3.29 | 10.3 | 3.6 | .23 |
| Vidal Blanc | 8/26 | 19.3 | 3.36 | 6.9 | 8.0 | .34 | . | . | . | . | 0.0 | . |
| Chancellor | 8/31 | 19.9 | 3.50 | 5.6 | 16.4 | .33 | 8/27 | 16.5 | 3.28 | 9.5 | 7.9 | .24 |
| Frontenac | 8/31 | 21.6 | 3.35 | 9.1 | 9.9 | .24 | 9/9 | 22.4 | 3.21 | 10.7 | 10.3 | .22 |
| Traminette | 9/2 | 22.3 | 3.33 | 5.3 | 3.2 | .18 | . | . | . | . | 0.0 | . |
| Noiret | 9/2 | 18.0 | 3.43 | 5.8 | 3.4 | .21 | 9/21 | 18.1 | 3.36 | 11.3 | 2.3 | .22 |
| St. Vincent | 9.21 | 19.6 | 3.42 | 5.6 | 16.3 | .55 | 9/22 | 18.6 | 3.10 | 9.2 | 10.2 | .55 |
| Chambourcin | 9/21 | 22.8 | 3.49 | 6.0 | 3.7 | .48 | . | . | . | . | 0.0 | . |
| Cynthiana | 10/12 | . | . | . | 4.5 | .12 | 9/22 | 21.1 | 3.03 | 18.6 | 1.1 | .12 |
| LSD, P < .05 | | | | | 3.2 | .07 | | | | | 2.8 | .06 |

[z]Titratable acids reported in grams/liter.
[y]Planted in 2004.
[x]Planted in 2005.
[w]Planted in 2006.