Grand Valley 2014 grape variety trial

Horst Caspari
Grand Valley 2014 cold-hardy variety trial

• Near Clifton
• Planted in 2014
• High Cordon
• Sprinkler irrigated with grass/legume cover crop
• 11 varieties with 6 replications (RCBD)
• Only 5 replications with La Crescent
• 4 vines per replication
• Row x vine spacing is 9’x 5’
• First harvest in 2016
Grand Valley 2014 cold-hardy variety trial

12 Varieties

• Aromella
• Arandell
• Brianna
• Cayuga White
• Chambourcin
• Corot noir

• La Crescent
• Marquette
• Noiret
• St. Vincent
• Traminette
• Vignoles
2016 Harvest

Percent of vines with crop in third year

- Arandell
- Tramine
- Noirot
- Vignoles
- La Crescent
- Marquette
- Corto
- Brianna
- Chambourcin
- Cayuga White
- Aromella
- St Vincent
2016 Harvest

24 vines per variety

Total yield (lb)

Arandel, Traminette, Noiret, Vignoles, La Crescent, Marquette, Corot noir, Brianna, Chambourcin, Cayuga White, Aromella, St Vincent
2016 Harvest

Yield data based only on vines with crop
2016 Harvest

Yield (ton/acre)

- Arandell
- Aromella
- Brianna
- Cayuga White
- Chambourcin
- Corot noir
- La Crescent
- Marquette
- Noiret
- St Vincent
- Traminette
- Vignoles
Summary 3\textsuperscript{rd} year

The highest total yield:
- St. Vincent
- Aromella
- Cayuga White
- Chambourcin

Brianna had a high yield per vine, but few vines carrying a crop.
Compared to year 3, the yield per acre more than doubled for Noiret in year 4, but was down for Aromella, Chambourcin, Noiret, St Vincent, and Vignoles.

The low yield with Brianna was due to >90 % bird damage.

Yield of the other varieties was similar in years 3 and 4.
2017 Harvest

Yield (ton/acre)

Arandell
Aromella
Brianna
Cayuga White
Chambourcin
Corot noir
La Crescent
Marquette
Noiret
St Vincent
Traminette
Vignoles
In year 5, yields increased nearly 3-fold compared to year 4.

Vine mortality is a concern with St Vincent. After 5 years only 50 % of the vines are still alive.
2018 Harvest
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The highest cumulative yields after 3 harvests are with Aromella and Cayuga White (> 10 ton/acre) followed by Noiret (8.8 ton/acre).

The lowest cumulative yields after 3 harvests are with Vignoles, Brianna, Traminette, and Arandell (4.6 to 6.2 ton/acre).
Cumulative yield, 2016 - 2018

Cumulative yield, 2016-2018 (ton/acre)
Bud cold hardiness was evaluated five times during the 2018/19 dormant season.

Test dates were early November, early December, early January, mid February, and late March.
Based on the data from just one dormant season varieties can approximately be placed into three groups (from lowest to highest mid-winter hardiness:

**Cayuga White, Chambourcin, Traminette** (mid-winter LT$_{50}$ around -15 to -18 F)

**Arandell, Aromella, Noiret, St Vincent, Vignoles** (mid-winter LT$_{50}$ near -20 F)

**Brianna, Corot noir, La Crescent, Marquette** (mid-winter LT$_{50}$ below -20 F)
Bud cold hardiness

All varieties were found to be more cold hardy than Chardonnay for the majority of the dormant season.

Exceptions were Chambourcin, Noiret, and Traminette in early November, and Marquette in late March.
Long-term (1964-2018) average maximum, average minimum, and extreme minimum temperatures at the Orchard Mesa site as well as critical temperatures for a 50% primary bud kill for Arandell, Chambourcin, and Marquette compared to Chardonnay.
Bud cold hardiness

Long-term (1964-2018) average maximum, average minimum, and extreme minimum temperatures at the Orchard Mesa site as well as critical temperatures for a 50% primary bud kill for Aromella, Cayuga White, and La Crescent compared to Chardonnay.
Long-term (1964-2018) average maximum, average minimum, and extreme minimum temperatures at the Orchard Mesa site as well as critical temperatures for a 50% primary bud kill for Brianna, Noiret, and Traminette compared to Chardonnay.
Long-term (1964-2018) average maximum, average minimum, and extreme minimum temperatures at the Orchard Mesa site as well as critical temperatures for a 50% primary bud kill for Corot noir, St Vincent, and Vignoles compared to Chardonnay.
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For more detailed information on this and other research projects please review our Annual Research Reports available on our web page:
Questions?

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