



Viticulture, enology and marketing for cold-hardy grapes



Using Malic Acid-Reducing Yeasts for Cold Climate Wine Grapes

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Background and Rationale: Some cold climate grape varieties have high total acidity content at harvest and are especially high in malic acid. Malic acid is often reduced in cold climate red wines using bacterial malolactic “fermentation” but this is not usually a desirable practice in white and rosé wine production. Recently several yeast strains have become available that purportedly metabolize malic acid and thus reduce total acidity. We tested three of these strains along with a standard strain.

Treatments: Yeast strains included the standard yeast Lalvin DV10 (Lallemand Inc.) and three purported being “Malate-reducing/converting” strains Lalvin C (Lallemand Inc.), Lalvin 71B (Lallemand Inc.), and Uvaferm SVG (Scott Laboratories). Grape cultivars included La Crescent and Frontenac which was processed as a rosé wine.

Methods: La Crescent and Frontenac grapes were harvested at the University of Minnesota Horticultural Research Center in 2014. Frontenac grapes were processed as a rosé. Other than yeast strain the wines were processed in the same standard protocol. Grapes were destemmed and pressed and juice was divided into 1 gallon lots with 2 replications for each yeast strain for each grape cultivar. Total acidity and pH were measured at harvest in late September 2014 and after fermentation in Jan 2014.

Results:

Treatment	pH	Total Acidity (g/L tartaric acid equiv)
La Crescent		
Initial Juice Chemistry	3.03	15.4
Lalvin DV10 (standard)	3.17	13.3a
Lalvin C	3.15	11.7c
Lalvin 71B	3.22	11.6c
Uvaferm SVG	3.19	12.4b
Frontenac (as rosé)		
Initial Juice Chemistry	3.10	16.2
Lalvin DV10 (standard)	3.13	13.3a
Lalvin C	3.20	12.4c
Lalvin 71B	3.18	12.1c
Uvaferm SVG	3.20	12.9b
Means followed by different letters are significantly different by LSD ($p < 0.05$).		

What the results mean:

- All yeast strains, including the Lalvin DV10 control reduced total acidity during fermentation.
- The three malic acid converting yeast strains appear promising to reduce total acidity in a white or rose wine.
- This trial represents only a single vintage and thus should be viewed as preliminary.