



Improving Management Options for YAN in the Vineyard and Winery

Tim Martinson, Senior Extension Associate, Cornell University - NYSAES
Anna Katharine Mansfield, Assistant Professor, Cornell University – NYSAES
Lailaing Cheng, Associate Professor, Dept. of Horticulture, Cornell University
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You may have noticed the additional YAN numbers we are providing as part of *Veraison to Harvest*. This additional information is available thanks to a three-year grant from Cornell's internal Integrated Research and Extension Projects grant program, funded through USDA 'Federal Formula Funds' allocated to Cornell. Our overall goal is to better understand how YAN in fruit changes between veraison and harvest, why it varies so much from vineyard to vineyard, and how to better manage it in the vineyard and winery. Our project has three specific goals.

Short-term YAN prediction. Winemakers need to know how much YAN is present in fruit in order to plan additions of yeast nutrients (DAP and complex yeast nutrients such as 'Fermaid'). But harvest logistics make this difficult. Most wineries can't measure YAN in-house, so they have to send samples to contract labs. To state the obvious, this is challenging in the middle of crush. If preharvest samples could reliably predict YAN at harvest, winemakers could sample several weeks ahead of harvest and plan their nutrient additions accordingly.

Early prediction and vineyard intervention. It may be possible to predict YAN even earlier – before or at veraison – leaving time for vineyard managers to schedule foliar Nitrogen sprays (eg. Urea) to increase YAN before harvest. Presumably, it would be better to start off with sufficient YAN in the fruit at crush, rather than adding it afterward. We've shown that foliar urea applied around veraison can substantially increase YAN – particularly in dry years.

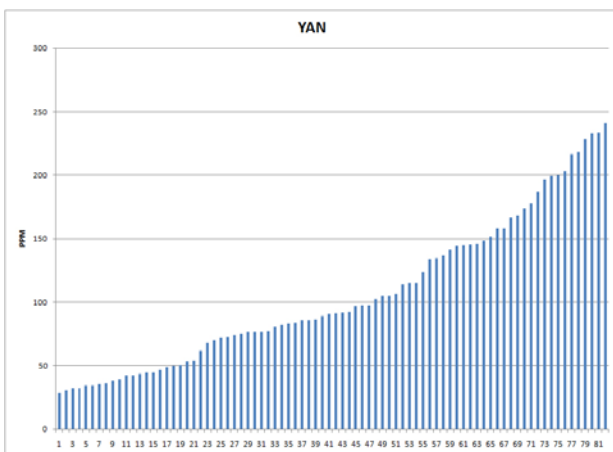


Figure 1. Yeast Assimilable Nitrogen (YAN) levels ranged from 28 to 240 ppm in fruit from 82 Riesling blocks sampled on September 15 and 16.

What causes it to vary so much? This year, we've seen Riesling numbers ranging from 28 ppm to 240 ppm (The minimum needed to complete fermentation is pegged at about 140 ppm, but 200-250 is considered preferable). There is no obvious relation between YAN and how good (or bad) the fruit looks, or what the brix, pH and TA are. So our third goal is to look at what causes YAN to vary – whether its soils, vigor, cropping level, vine age, or fertilization practices.

This year, we've been able to measure YAN weekly in the 60 blocks featured in *Veraison to Harvest* – results of which you see every week in the fruit maturity table.

We also are completing a large survey of 60 Riesling vineyards in the Finger Lakes, and measured YAN at three

times: 1) Veraison (L. Cheng laboratory also measured individual amino acid composition at this time), 2) approximately two weeks before harvest (9/15 for Riesling) and 3) right before harvest (this week). Preliminary results (See figure below) already show a wide range of YAN in 82 samples – which vary by a factor of 10. We're also collecting soil and tissue samples, and yield information (cluster no. and weight) from these blocks. Note that we chose Riesling because there are a lot of blocks to choose from within a convenient distance of our laboratory at Geneva – results should be applicable across other varieties as well.

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