

Nutrients & Protectors

under

investigation

Nº4

OPTIMIZED WINE YEAST NUTRITION WITH STIMULA CABERNET™

Winemakers face many challenges associated with climate changes. Better quality nutrients are required to overcome those issues. Higher sugars and pHs can lead to a higher level of contaminants, and specific nutrients can assist to manage the alcoholic fermentation (AF). Research has shown that a well-balanced organic nutrition can increase yeast viability and vitality, improves wine aromatic expression due to optimized assimilation. The timing of addition of key nutrients will optimize varietal aromatics expression. Stimula Cabernet™ has the best nutrient composition to maximize fermentative and varietal aromas and reduce herbaceous characters in Cabernet Sauvignon.

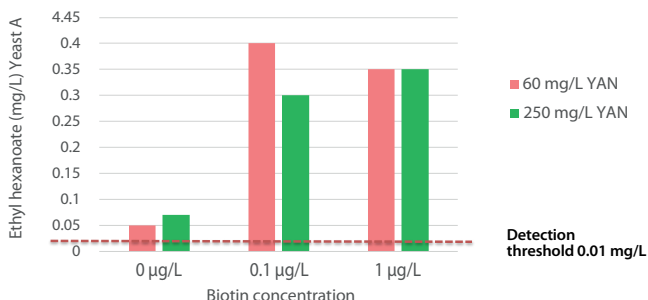
THE TYPE OF NUTRITION MATTERS

It is known that nitrogen is important but is not the sole element required during AF. Vitamins, minerals and sterols are key compounds to minimise the risk of nutritional imbalances responsible for loss of viability, activity & off-flavors. They are essential for the biosynthesis of higher alcohols and esters. Organic nitrogen sources as well as the key vitamins and minerals can make a difference in the aromatic potential of a wine.

A CASE FOR THE VITAMIN BIOTIN

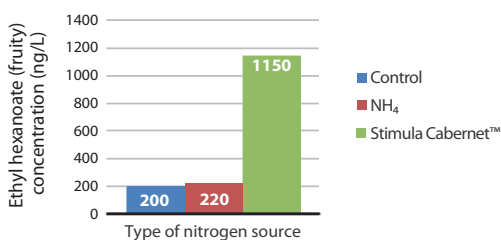
Research has shown (Morata 2019, Divol and Bauer, 2019) that vitamins affect the intracellular metabolism of yeast. Biotin plays a key role in fatty acid esters synthesis through the acetylCoA carboxylase activation.

Wang et al. (2007) have shown that biotin deficiency can result in a decrease production of ethyl esters, whether or not there was a YAN deficiency. Consequently, Stimula Cabernet™ was developed with optimal levels of biotin.



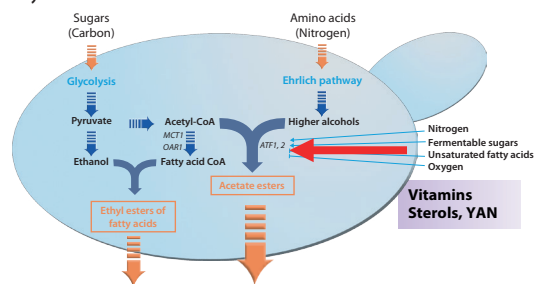
ORGANIC NITROGEN SOURCE : IMPORTANCE OF PEPTIDES

The type and size of peptides are important in aroma compounds formation. The uptake of smaller peptides affect the pathway of carbon and nitrogen metabolism where the availability of ketoacids, precursors of aroma compounds, is impacted and increases esters formation. The use of peptides as nitrogen sources increased the production of ethyl hexanoate (fruity) and other ethyl esters when compared to ammonia. Stimula Cabernet™ was developed based on a specific yeast autolysate with a higher peptide level to guarantee an efficient YAN level and stimulate aromas synthesis (figure below).



TIMING OF ADDITION: A KEY FACTOR

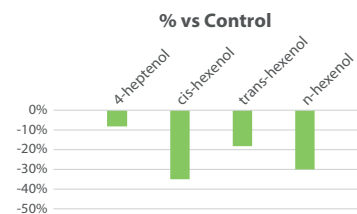
Rollero *et al* (2017) demonstrated that the timing of addition of specific nutrients was important to maximize aroma compounds synthesis. It was shown that organic nitrogen sources added at 1/3 through AF increased the conversion rate of higher alcohols into acetate esters via regulation of ATF1 & ATF2 enzymes.



CABERNET SAUVIGNON WINES WITH MORE RED FRUITS

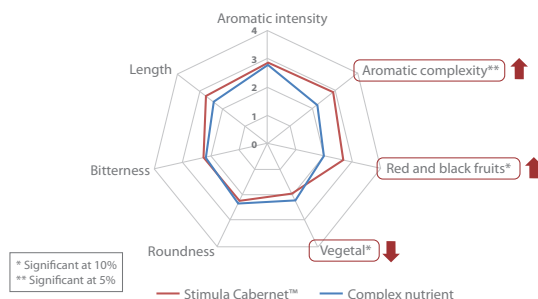
Cabernet Sauvignon (Bordeaux) trials have shown that the use of Stimula Cabernet™ resulted in wines with significantly more fruity esters, such as ethyl hexanoate, ethyl octanoate and ethyl butanoate (data not shown).

Not only does Stimula Cabernet™ promote the production of fruity esters, but it also reduces the production of some green herbaceous compounds correlating with a significant reduction of various volatiles associated with herbaceous notes.



Reduction in green herbaceous compounds in Cabernet Sauvignon (Spain) with Stimula Cabernet™

A panel tasting of South African Cabernet Sauvignon, demonstrated that there were significant differences in aromatic complexity, red and black fruits as well as a reduction in vegetal aromas.



Cabernet Sauvignon (South Africa 2019) with either complex nutrient or Stimula Cabernet™ at 40 g/hL at 1/3 through AF.

The peptides and biotin found in Stimula Cabernet™ are key elements for the varietal expression of Cabernet Sauvignon, Cabernet Franc et Merlot.