

STIMULA  
SAUVIGNON BLANC™

STIMULA  
CHARDONNAY™

STIMULA  
CHENIN BLANC™

STIMULA  
SYRAH™

STIMULA  
CABERNET™

STIMULA  
PINOT NOIR™

Stimula™

Discover the sensory  
benefits of using  
well-balanced specific  
organic nutrients

LALLEMAND

LALLEMAND OENOLOGY

Original by culture

# Lallemand Oenology

## *a long story of nutrition expertise*

Alongside our expertise in wine yeast production, we have built know-how in the production and characterisation of inactivated yeast derivative fractions. **Over the years, we have developed yeast nutrients that are increasingly specific**, in line with changes in must composition, more respectful of yeast sensory metabolism, wine quality and the aromatic expression of certain grape varieties.

While in the 80's the sole objective was to develop nutrients that ensured complete alcoholic fermentation, our range of complex nutrients has evolved towards 100% organic nutrients, including the STIMULA™ range presented here for its originality.

**70'** **First wine active dry yeast**  
produced by Lallemand, in Montreal plant, for United States market.

**80'** **First complex nutrient** launched in United States market produced at our own site. An innovative blend of inactivated yeast (organic nitrogen), ammonium salt (inorganic nitrogen) and specific vitamins.

**2007** **First organic nutrient launched in the wine industry:** 100% yeast autolysate produced in our Lallemand plant rich in aminoacids and peptides.

**2017** **Launch of STIMULA™ range:** organic nutrient with different yeast autolysates bringing a balanced and specific content of vitamins or minerals to optimise aromatic yeast metabolism and reinforcing grape variety expression.

**2017** **STIMULA SAUVIGNON BLANC™ & STIMULA CHARDONNAY™**

**2020** **STIMULA CABERNET™ & STIMULA SYRAH™**

**2022** **STIMULA PINOT NOIR™**

**2023** **STIMULA CHENIN BLANC™**



# The importance of well-balanced organic nutrition on *wine aromatic expression*

In a context of climate change, it has been shown that grape musts show chemical changes and imbalances with micronutrient depletion. Yeast nutrition management is key to face these new challenges.

Yeast Assimilable Nitrogen (YAN) is a vital factor that has a significant impact on wine fermentation. It is essential and influences both fermentation kinetics and wine quality.

YAN coming from yeast autolysate is rich in amino acids and some small peptides which are assimilated gradually by the yeast during alcoholic fermentation and also contribute to an increase in aromatic ester formation.

However, nitrogen is not the only key component for well-balanced nutrition.

**Micronutrients, such as vitamins and minerals, are essential** to limit the risks of loss of wine yeast viability as well as vitality, and off-flavour production, **allowing full aroma compounds revelation and expression.**

Stimula<sup>TM</sup>

With our scientific and production expertise, we have developed **STIMULA<sup>TM</sup>**, a range of 100% yeast autolysates formulated to supply the optimal levels of amino acids, vitamins and minerals, to reinforce specific sensory wine profiles.

Each product has a balance and unique composition to target objectives of aromatic expression according to the grape variety. Combined to an optimal moment of addition, **STIMULA<sup>TM</sup>** range **stimulates and maximises the aromatic metabolism of the yeast to enhance organoleptic profiles in a particular wine variety.**

Scientific studies have explained the key role of some vitamins and minerals on wine yeast metabolism and wine quality.

Vitamins allow an optimum growth of the yeast cells and a better capacity to survive under stressful conditions. For instance, pantothenate (vitamin B5) helps to avoid the production of H<sub>2</sub>S. A deficiency can lead to cell death, even in presence of high assimilable nitrogen.

**They positively contribute to the assimilation and bioconversion of aromatic compounds such as volatile thiols. Biotin (vitamin B8) also positively impacts the synthesis of fatty acids esters.**

Minerals, such as magnesium and zinc, are also absolutely essential for the yeast growth and metabolism. For example, magnesium plays a central role in yeast cell ethanol tolerance.

A well-balanced nutrition is crucial for a good alcoholic fermentation management. In addition, specific nutrients with optimal levels of amino acids, vitamins and minerals are key to target specific organoleptic profile.





# Stimula Sauvignon Blanc™

STIMULA SAUVIGNON BLANC™ is particularly rich in panthotenate, thiamin, folic acid, zinc and manganese in order to optimise the uptake of 4MMP and 3MH precursors and their bioconversion to volatile thiols.

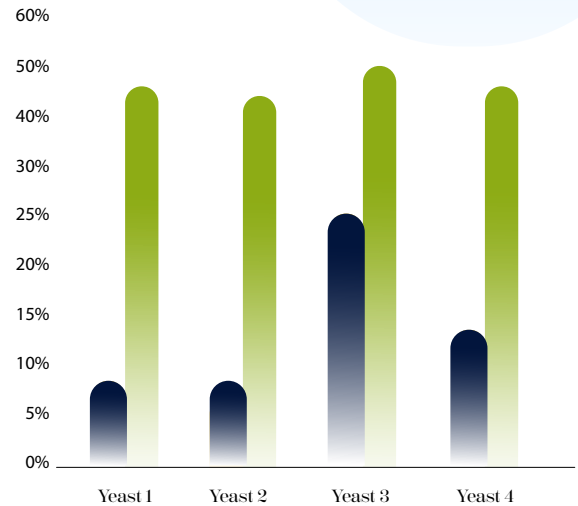
As the uptake of thiol precursors occurs very early, the addition of STIMULA SAUVIGNON BLANC™ is at the beginning of the fermentation to avoid any repression and also increase the transporter's efficiency.

Impact of STIMULA SAUVIGNON BLANC™ regarding the revelation of:

-  3MH (% of increase)
-  4MMP (% of increase)

## Sauvignon blanc, France

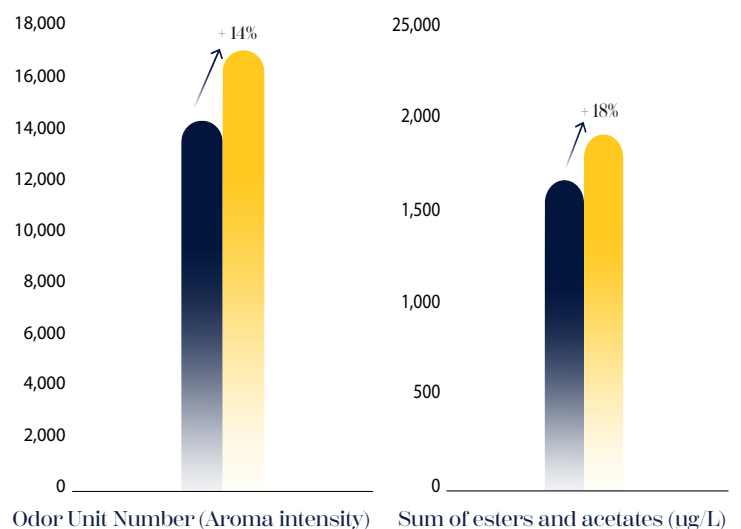
Increase of thiols revelation with STIMULA SAUVIGNON BLANC™ in synergy with different yeasts selected to reveal varietal thiols.



# Stimula Chardonnay™

STIMULA CHARDONNAY™ is specifically rich in biotin, B6 vitamins, magnesium and zinc which optimise the volatile ester biosynthesis by the yeast.

It was demonstrated that the yeast switch from a primary growth metabolism to a secondary aromatic metabolism of ester biosynthesis at the end of the growth phase. Thus, adding STIMULA CHARDONNAY™ at this moment (1/3<sup>rd</sup> of the alcoholic fermentation) will enhance this metabolism and optimise the production of volatile esters for the rest of the fermentation.



-  STIMULA CHARDONNAY™
-  FERMAID O™

## Chardonnay, United States

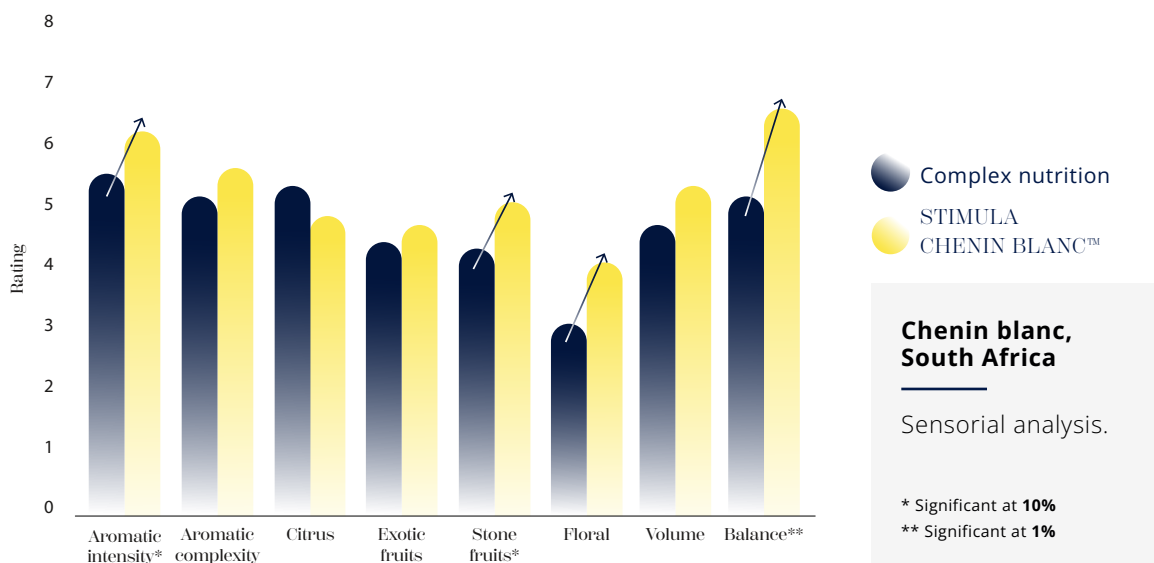
With STIMULA CHARDONNAY™: significant positive impact on esters biosynthesis, leading to an increase of global aromatic intensity.

# Stimula

## Chenin Blanc™

The well-balanced nutrition brought by STIMULA CHENIN BLANC™ reduces yeast stress, ensures a steady and reliable alcoholic fermentation and secures good fruit expression.

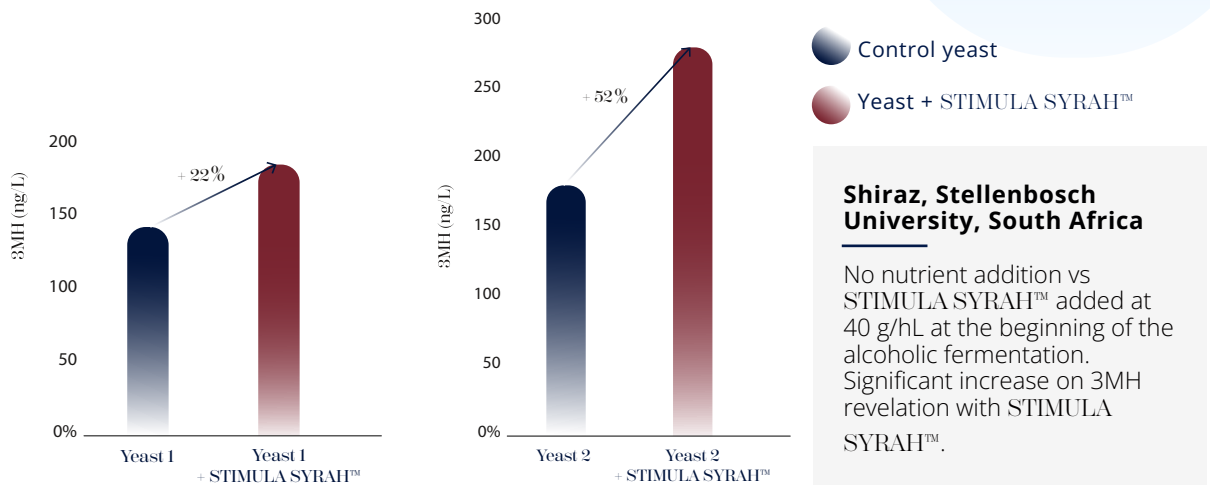
Added at 1/3<sup>rd</sup> of the alcoholic fermentation, STIMULA CHENIN BLANC™ will optimise yeast metabolism, increasing aroma biosynthesis and enhancing the typicity of the Chenin blanc grape variety.



# Stimula Syrah™

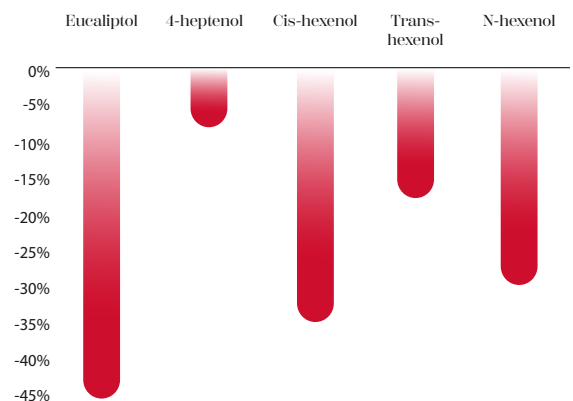
STIMULA SYRAH™ has a unique formulation with different nitrogen sources (peptides and free amino acids), specific vitamins (pantothenate, thiamine), and minerals to increase the release of varietal aromas (thiols, terpenes, and norisoprenoids) as well as avoiding sulfur off-flavours.

Added at the beginning of the alcoholic fermentation, STIMULA SYRAH™ increases the thiol precursors transporter's efficiency and avoids any catabolic repression.



# Stimula Cabernet™

Thanks to its composition in different nitrogen sources (especially small peptides), vitamins (biotin) and minerals (magnesium, zinc), STIMULA CABERNET™ allows the over-expression of the fruity aromatic potential. It also leads to a reduction in vegetal character added at 1/3<sup>rd</sup> of the alcoholic fermentation, STIMULA CABERNET™ enhances yeast metabolism for aroma biosynthesis.



## Cabernet sauvignon, Chile

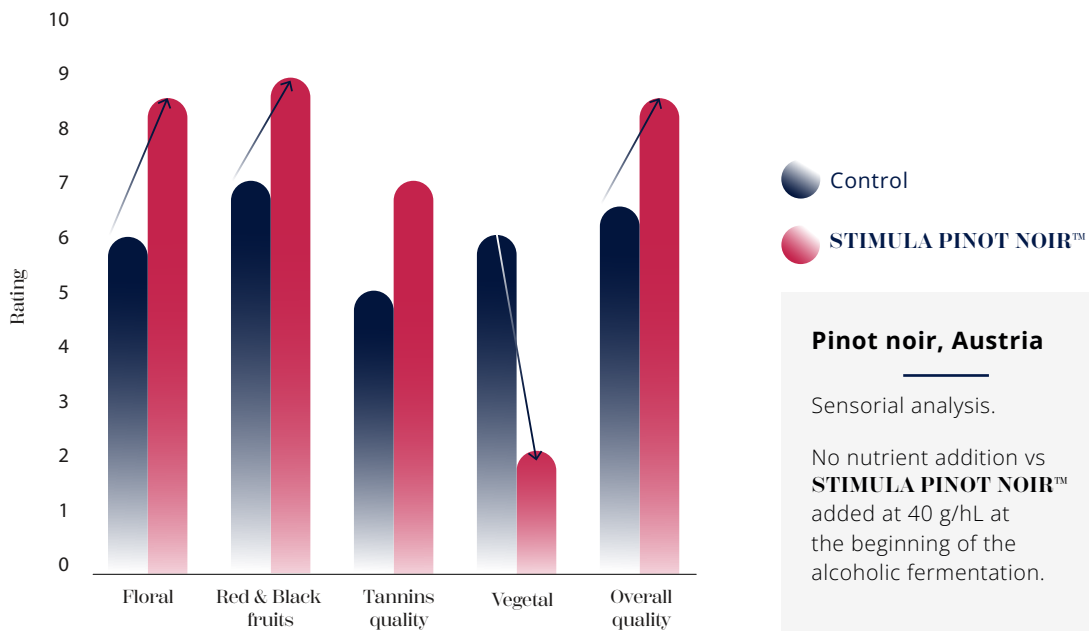
Organic nutrition from competition to reduce vegetal notes vs STIMULA CABERNET™, both added at 40 g/hL at 1/3<sup>rd</sup> of the alcoholic fermentation.

With STIMULA CABERNET™: reduction of different compounds responsible for vegetal notes (% vs control).

# Stimula

## Pinot Noir™

STIMULA PINOT NOIR™ has been specifically formulated to increase varietal precursors typical for the Pinot noir grape variety. Added at the beginning of the alcoholic fermentation, its well-balanced nutrition with specific vitamins and minerals, enhance yeast metabolism and aroma biosynthesis.



	Goal	Application
<b>STIMULA SAUVIGNON BLANC™</b>	Optimise thiols precursors uptake and their bioconversion to volatile thiols	40 g/hL at the beginning of the AF
<b>STIMULA CHARDONNAY™</b>	Enhance yeast ester synthesis	40 g/hL at 1/3 <sup>rd</sup> of the AF
<b>STIMULA CHENIN BLANC™</b>	Enhances stone fruits aromas and floral notes	40 g/hL at 1/3 <sup>rd</sup> of the AF
<b>STIMULA SYRAH™</b>	Increase the release of varietal aromas such as thiols and avoids sulfur off-flavours	40 g/hL at the beginning of the AF
<b>STIMULA CABERNET™</b>	Increase ester synthesis and reduce vegetal character	40 g/hL at 1/3 <sup>rd</sup> of the AF
<b>STIMULA PINOT NOIR™</b>	Enhance the expression of varietal aromas, reduce vegetal notes and reductive characters	40 g/hL at the beginning of the AF

AF = Alcoholic Fermentation

Lallemand Oenology is still working to enlarge the range for other varieties.

## Being original is key to your success.

At Lallemand Oenology, we apply our passion for innovation, maximise our skill in production and share our expertise, to select and develop natural microbiological solutions. Dedicated to the individuality of your wine, we support your originality, we cultivate our own.



WINE  
YEASTS



WINE  
BACTERIA



NUTRIENTS  
/PROTECTORS



SPECIFIC  
YEAST DERIVATIVES



ENZYMES



CHITOSAN



VINEYARD  
SOLUTIONS



**LALLEMAND OENOLOGY**  
Original by culture

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