

FAQ'S YEASTS

Yeasts are at the heart of Lamothe-Abiet's oenological expertise. Our yeasts are very rigorously selected and developed at the Institute of Vine and Wine Sciences (ISVV) of Bordeaux by our R&D teams. All our EXCELLENCE® yeasts are selected via breeding technique, which allow us to ensure:

- High implantation
- Short lag phase
- Resistance to difficult conditions and stress (high alcohol, wide range of temperature, wide range of turbidity, ...).
- Low production of VA, H₂S
- POF (-) : no production of Phenolic Off-Flavors
- URE2 (-) : aromatic optimization, no catabolic repression

WHAT IS YEAST BREEDING?

Yeast breeding is a non-GMO technique of crossing yeast strains that have enological characteristics of interest. The resulting strain combines the performances of two or more different strains.

The choice of parental strains can be based on physiological criteria (fermentation performance, low VA and SO₂ production, release of aromas...). At genetic levels, we use Quantitative Trait Loci (QTL), which is a technique that localizes genes involved in complex yeast traits such as POF character, VA and SO₂ production,... Therefore, it is possible to search for yeast strains with specific genotypes of interest to use for breeding.

A BIT MORE ABOUT THE POF CHARACTER

Saccharomyces Cerevisiae strains can produce vinyl phenols from hydroxycinnamic acids which are naturally present in grapes. A strain can be characterised as POF+ (ability to produce vinyl phenols), or POF- (not able to produce vinyl phenols).

This is of concern as some yeasts such as *Brettanomyces bruxellensis* are able to convert vinyl phenols into ethyl-phenols which can be detrimental to wine quality.

CAN I FERMENT HIGH BRIX WITH LAMOHE-ABIET YEASTS?

All of our EXCELLENCE® yeasts have been selected to resist to high alcohol ~15.5% alc. for whites and ~16.5% alc. for reds. In high Brix conditions, it is very important to use a yeast protector such as OENOSTIM® to limit yeast stress and improve completion of fermentation.

WHAT IS A BAYANUS STRAIN?

Saccharomyces Bayanus is an old phenotypical characterization of wine yeast that was originally thought to be a distinct species, stronger than *Saccharomyces Cerevisiae* and more effective at completing fermentation. After genetic testing became widely available, classically labeled *S. Bayanus* strains turned out to be *S. Cerevisiae*, with one major difference being the activation of specific gene site that makes them more fructophilic.

WHICH YEAST SHOULD I USE TO RESTART A FERMENTATION WITH HIGH FRUCTOSE CONTENT?

L.A BAYANUS® is fructophilic and a vigorous fermenter, and will be perfectly adapted for a restart in high fructose conditions.

DID YOU KNOW?

Saccharomyces Cerevisiae is a domesticated species and is often found in human environments and is associated with numerous fermented beverages. Fermentation activities, probably due to this microorganism were even detected in neolithic poteries (6000-7000BC) in China. Nowadays *S. Cerevisiae* are found in cellars and on grape berries but they are thought to originally inhabit forests on tree bark transported by insects

to colonise highly fermentable ecosystems.

HOW DO I PREPARE YEAST FOR INOCULATION?

One of the best ways to ensure a complete fermentation, with a clean aroma and maximum flavor development, is to follow a precise yeast preparation protocol. OENOSTIM® is recommended to strengthen yeast cell walls and improve metabolism, thereby increasing resistance to alcohol, heat, and toxins while improving aromatics and flavors.

- Mix in OENOSTIM® rehydration nutrient at a rate equal to the inoculation dose of yeast in chlorine-free water at 40°C (104°F).
- Sprinkle yeast over the surface of the water, mix in gently.
- Let stand for 20 minutes.
- Add juice from tank or barrel to drop the temperature by 10°C/18°F. Mix gently and wait 20 minutes.
- Repeat the juice addition and 20 minutes wait until inoculum is within 10°C/18°F of the tank to be inoculated.
- Add to tank and homogenize with a pump-over.

QUICK TIPS FOR NO MORE RESTART

You can add L.A BAYANUS® down to 5°Brix to your fermenting wine to ensure fermentation completion and avoid a full restart protocol.

- Rehydrate 40g/hL of L.A BAYANUS® with 40 g/hL with OENOSTIM®
- Acclimate to wine temperature by adding same volume of wine and wait 30 min
- Repeat acclimation step 2 times.
- Add to fermenting tank and mix gently.

IMPORTANT PARAMETERS TO CHOOSE A YEAST

- Aromatic characteristics determined by enzymatic activities are important in the wine style; some yeasts are better at thiol production, ester production and/or terpene release.
- Choosing a POF(-) strain to minimising the amount of precursors available to *B. bruxellensis*
- Alcohol, pH and temperature tolerances should be taken into account.
- Starting SO₂ levels and yeast strain production of SO₂.
- Understanding YAN and correct supplementation to ensure support for biomass production based on starting YAN, potential alcohol and nitrogen requirements of the yeast strain.

HOW CAN I STORE YEAST?

Store in its original packaging hermetically sealed, in a cool, clean and dry place without odors. Use quickly after opening

WHICH YEAST TO PREVENT STUCK FERMENTATION WHEN LATE HARVEST?

Late harvested grapes often have high Brix, high fructose content and, lower YAN. So, the conditions of fermentation are pretty stressful for the yeast. We recommend:

OenoStim at 30 g/hL to rehydrate your yeast. OenoStim is a rehydration nutrient composed of sterols and unsaturated fatty acids, essential to yeast cell membrane

For reds, Excellence XR. For whites, choose Excellence TXL. Both yeasts have a high resistance to alcohol.

Around 8 to 5 Brix, we recommend to add L.A. Bayanus, at 40 g/hL, rehydrated with OenoStim at 40 g/hL, to ensure the end of fermentation, clean and complete.

Make sure you have a proper nutrition. We recommend to use 40 g/hL of Optiflore O at the beginning of fermentation, and if needed (depending YAN), Optiferm at 1/3.

FAQ'S ON EXCELLENCE B-NATURE

WHAT IS BIO-PROTECTION?

Bio-protection consists of using living organisms to colonize and occupy an ecological niche in order to limit the development of undesirable indigenous microorganisms. The concept is to manage the microbial population and always have positive or neutral microbes dominant, inhibiting the spoilage microbes ability to develop. In winemaking, we use non-*Saccharomyces* yeasts selected for their ability to colonize the musts without inhibiting the desired micro-organisms for fermentation. Bio-protection is often, but not only, used in the context of SO₂ reduction to ensure microbial control and prevention from contamination and spoilage.

WHY USING EXCELLENCE B-NATURE?

Excellence B-Nature can be used as alternative to SO₂ or as complement to SO₂. B-Nature helps controlling microbial development. It protects grapes from spoilage microbes and prevents VA, ethylacetate, volatile phenols production, prevents depletion of nutrients, thus improving *Saccharomyces* dominance, health and fermentation capacities.

WHEN USING BIO-PROTECTION?

Bio-protection is recommended in all cases: Grape transportation (more than 30min), Transportation of juice, Delay between picking the grapes and grape processing, Delay between and grape processing fermentation (cold soaking, maceration, stabulation, ...), Cold storage of grapes or juice, Native fermentation, High pH conditions, Reduction of SO₂.

HOW AND WHEN TO APPLY EXCELLENCE B-NATURE ?

Simply sprinkle it on the top of grapes or juice, at 30-50 g/ton.

- At picking when grapes harvested by machine to protect grapes

as soon as possible during transportation.

- During tank filling to protect grapes from microbial spoilage during cold soaking.
- During maceration for whites and rose, to protect and prevent uncontrolled start of fermentation.
- Before yeast inoculation in whites, roses and sparkling, when juice is getting warmer to prevent VA, ethylacetate production
- During juice lees maceration to prevent uncontrolled start of fermentation.
- In the press pan for sparkling wines, as alternative to SO₂ to control aromatic profile and limit spoilage.
- As alternative to SO₂ in high pH grapes.

CAN I USE EXCELLENCE B-NATURE WITH SO₂?

Yes, Excellence B-Nature can be used with SO₂, up to 60 ppm.

DOES EXCELLENCE B-NATURE HAVE AN IMPACT ON SACCHAROMYCES YEAST?

No. Excellence B-Nature doesn't inhibit or compete with *Saccharomyces*. It actually will help and promote its development by reducing competition.

IS EXCELLENCE B-NATURE FERMENTING?

Excellence B-Nature doesn't have fermentative capacities and is inhibited above 3% alcohol

DOES EXCELLENCE B-NATURE NEED ANY ADDITION OF NITROGEN?

No. As Excellence B-Nature doesn't ferment, there are no consumption of nitrogen or vitamins. No need to change the yeast nutrition.

FAQ'S ON EXCELLENCE X-FRESH

WHAT IS LACHANCEA THERMOTOLERANS?

Distributed widely in nature, including on grapes, *Lachancea Thermotolerans* (previously known as *Kluyveromyces thermotolerans*) is a great fit to address global warming challenges. *Lachancea Thermotolerans* exhibits strong genetic diversity and has the unusual attribute of metabolising sugars to produce lactic acid, resulting in naturally lower pH and a lower final alcohol content in wines.

Lachancea Thermotolerans is a moderate fermenter, but typically runs out of steam around 7-9 % alcohol, so it must always be coupled with a *Saccharomyces Cerevisiae* strain to ensure complete fermentation.

Whether a winemaker seeks to naturally reduce the must sugar content, or to increase the acid content and lower pH, all of these can be achieved by using *Lachancea Thermotolerans* strain EXCELLENCE® X-FRESH in combination with a *Saccharomyces Cerevisiae* strain. Co-fermentation offers a simpler procedure with lighter physiochemical impact, whilst sequential fermentation yields a stronger physiochemical impact but requires more cellar attention.

HOW TO USE EXCELLENCE® X-FRESH?

EXCELLENCE® X-FRESH must be rehydrated following the standard

rehydration steps with OENOSTIM®. EXCELLENCE® X-FRESH is used with *Saccharomyces Cerevisiae* to complete the alcoholic fermentation.

- Co-fermentation (simultaneous addition of the two yeasts in the must): we generally observe a production of 2 g/L of lactic acid and a reduction of alcohol content about 0.2% (vol).
- Sequential inoculation (EXCELLENCE® X-FRESH followed by *Saccharomyces Cerevisiae*, 48-72 hours after): the production of lactic acid will be higher, up to 3-4g/L with a reduction for alcohol content about 0.5%.

DO WE NEED TO ADD NUTRIENTS WHEN USING EXCELLENCE X-FRESH?

During the exponential phase, EXCELLENCE® X-FRESH consumes ammoniacal (mineral) nitrogen. Therefore, it is important to add ~ 20 g/hL of OPTIFERM®, a day following the inoculation to compensate the nutrient consumption of EXCELLENCE® X-FRESH and facilitate the fermentation by *S. Cerevisiae*.

IS EXCELLENCE X-FRESH IMPACTED BY TEMPERATURE?

Yes, any *Lachancea Thermotolerans* strain will be impacted by temperature. Its activity is higher at higher temperature, optimal at 75-80°F and inhibited below 55°F.