AEB®

IMPROVEMENT THROUGH BIOTECHNOLOGY

-SINCE 1963-

Yeast for Winemaking

Yeast

Fermol, the right yeast to create quality wine

The yeast collection from AEB labs is the result of rigorous selections made in collaboration with prestigious research institutes like University of Modena and Reggio Emilia, the University of Firenze and the Université de Montpellier.

The extensive range available is characterized by:

• Its ability to generate aromatic precursors, to produce fermentation esters and acetates in variable quantities and proportions.
• To synthesize glycerin, acids and mannoproteins.
• Extremely limited production of compounds which could negatively interfere with-wine's quality.

Type	Commercial name	Species	characteristics	Suggested utilization	Average YAN consumption	Ethanol Tolerance
Big Reds	Fermol Premier Cru	cervisiae	Ferments elegant big reds keeping intact the main characteristics of the varietal fermented	Cabernet Sauvignon, Cabernet Franc, Petit Verdot, Sangiovese, Nebbiolo, Norton	270 ppm	16%
	Fermol Mediterranée	cervisiae	Ferments rich reds adding a fruity and jammy layer	Merlot, Pinot Noir, Rhône varieties, Shiraz, Malbec, Tempranillo, Baco Noir	200 ppm	16%
	Fermol Super 16	cervisiae	Ferments high alcohol reds and enhances extraction	Cabernet Sauvignon, Zinfandel, Primitivo, Passito style reds and whites. Ice wine	265 ppm	17%
fruity Reds	Fermol Red Fruit	cervisiae	Ferments fresh and fruity reds with low YAN needs	Fruity red varieties like Gamay, Grenache, Cinsault, Zweigelt, Lagrein, Marechal Foch, Frontenac	220 ppm	15%
	Fermol Rouge	cervisiae	Workhorse for reds	California Central Valley Reds, Sangiovese, Montepulciano	250 ppm	16%

Type	Commercial name	Species	characteristics	Suggested utilization	Average YAN consumption	Ethanol Tolerance
Flowery whites	Fermol Floral	cervisiae	Works on cysteine to build flowery bouquets	Pinot Grigio, Sauvignon Blanc, Grüner Veltliner, Trebbiano/Ugni Blanc, Prosecco primary	280 ppm	15%
	Fermol Lime	cervisiae	enhances general citrus aromas	Pinot Grigio, Kerner, Prosecco primary, Pinot Gris, Muller Thurgau	280 ppm	15%
	Fermol Arome Plus	cervisiae	short lag phase for clean and aromatic whites	Pinot Grigio, Moscato, Ribolla Gialla, Riesling, Gewürtz	340 ppm	14%
	Fermol Sauvignon	cervisiae	Enhances 4MMP in Sauv Blanc	Sauvignon Blanc, Verdicchio, Tocai	250 ppm	15%
	Fermol Elegance	cervisiae X bayanus	Producer of phenilethyl alcohol (flowers) and incapable of assimilating sulphur (minimal H_2S)	Pinot Grigio, Albariño, Chenin	200 ppm	15%
	Glutaferm One	cervisiae	Enhances the typical notes of the variety fermented. It produces high amounts of the antioxidant glutathione	Sauvignon Blanc, Chenin, Gruner Veltliner	260 ppm	15%
Tropical Fruity whites	Fermol Tropical	cervisiae	Targets certain amino acids for the production of tropical esters	Chardonnay, Viogner, Vignoles, Vidal, Seyval Blanc	280 ppm	15%
	Fermol Chardonnay	cervisiae	Quick autolysis of the cell for optimized sur lie and viscosity	Chardonnay, Viogner, Ribolla gialla	245 ppm	15%

Type	Commercial name	Species	characteristics	Suggested utilization	Average YAN consumption	Ethanol Tolerance
STONE-FRUIT FRUITY WINES	Fermol Blanc	bayanus	Fruit wine and fruity white wines in general .	Prosecco base and secondary fermentation	250 PPM	16%
	Fermol 2	bayanus	White wines workhorse. Works in most conditions of stress.	Generic fruity withes, fruit-based wines, meads, cider	250 PPM	16%
ROSÉ	Fermol PB 2033	cervisiae	Selected in the Côtes de Provence for Provence style rosé wines production.	Floral and fruity at the same time. Ferments in a broad range of temperatures giving good results also in short fermentations	200 PPM	15%
SPARKLING	Levulia Cristal	bayanus	Killer positive yeast, certified for Champagne production in France. Utilized for the première fermentation and la prise de mousse	Recommended for method champenoise primary and secondary fermentation	250 PPM	16%
	Fermol Charmat	bayanus	ow nutrition requirement and highly cryophillic. Ideal for prise de mousse (secondary fermentation)	LProsecco base and secondary fermentation. Fruit-based wines, meads, cider	220 PPM	15%
SACCHAROMYCES UVARUM FOR EXTREMELY LOW-TEMP FERMENTATION	NEW! Fermol Cryofruit	Saccharomyces Uvarum	"Bottom fermenting" yeast (does not form foam), high glycerin producer, resistant to extremely low temperatures	It has been successful for structured whites, rosé and fruity red wines.	Medium	15%
NON-SACCH FOR LACTIC ACID BOOST AND LOW ALCOHOL CONVERSION	Levulia Alcomeno	Lachancea thermotolerans (Ex-Kluyveromyces thermotolerans)	Carries out the lactic fermentation from sugars and allows bringing wine freshness and balance to the mouth.	For wines in need of more equilibrium between acidity and alcohol.	Average	7%

Type	Commercial name	Species	characteristics	Suggested utilization	Average YAN consumption	Ethanol Tolerance
NON-SACCH FOR ENHANCED MOUTHFEEL AND AROMA	NEW! Levulia Torula	Brings non-saccharomyces thiols, Torulaspora delbrueckii keeps VA down. Big release of polysaccharides from the lees.	To increase complexity in aromatic varieties.	For wines in need of more equilibrium between acidity and alcohol.	Average	9.5%
NON-SACCH FOR BIODYNAMIC PROTECTION	Primaflora VR	Metschnikowia pulcherrima	Strong anti-Brettanomyces activity. Also, a strong enzymatic activity contributes to the release of aromas and Nitrogen enrichment of the must	For red grapes to replace SO_2 Apply in the vineyard, or at the earliest moment that is convenient in between picking the grapes and crushing them.	N/A	3%
NON-SACCH FOR BIODYNAMIC PROTECTION	Primaflora VB	Torulospora delbrueckii	Diminishes volatile acidity. Is active against Brettanomyces, B. bruxellensis; P. guilliermondii; P. manshurica; P. membranifaciens. Its enzymatic activity also contributes to the release of aromas and simple sugars release.	For white grapes to replace SO_2. Apply in the vineyard, or at the earliest moment that is convenient in between picking the grapes and crushing them.	N/A	3%

Yeast for white wines

Fermol Arome Plus: Fermol Arôme Plus produces wines with very intense aromas in which the varietal notes of the fruit, blend harmoniously with the fermentative aromas produced by the yeast. Fermol Arôme Plus accentuates floral notes and creates wines with an elegant taste supported by a good acidity.

It has a negative POF character, therefore it does not produce volatile phenols which can give to wine unpleasant olfactory notes, reminiscent of varnish. This strain is also characterized by an excellent resistance to alcohol content and sulfur dioxide and is able to start fermentation at very low temperatures (12 C).

Highlights:

- Recommended in co-fermentation with Fermol Chardonnay for modern round and aromatic whites.
- When using this strain, be aware of the high YAN demand.
- Killer factor neutral.

Available in 10 kg bags and 500 grams packs

KOSHER CERTIFICATE

1K Kosher
Rabbi Abraham Hadad - Kashrut Administrator
- A project of the Gueoula Fondation -

KC# 111709 -1
11 Sheva, 5780
February 6, 2020

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ITALY

The following products manufactured by AEB SPA are certified Kosher with the listed restrictions.

Name	K-ID	Status	Restriction	Size
Linea Fermol	WFM-ZCVW	Pareve	1K Symbol	

This certificate is VALID UNTIL December 31, 2020

Verify authenticity by entering K-ID at
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Rabbi Menahem Hadad, Kashrus Administrator

Clos des Mousserons 10, 1050 Bruxelles, Belgium – Tel: +32 475 28 59 67 - Fax: +32 2 307 8485 - Email: rabbi@1kosher.org - www.1kosher.org

All yeast from the Fermol line are Certified Kosher

Fermol Elegance: It is a strain obtained from natural hybridization, which is distinguished by its excellent fermentation kinetics and the wide aromatic range that is able to enhance. It has a beneficial effect on the release of terpenes glycosides and accentuates the synthesis of ß-phenylethyl acetate.

These compounds, also adding to the liberation of thiols, lead to accentuate citrus, floral and aromatic herb notes. The wines fermented with Fermol Elegance are distinguished by the uniqueness of the aromatic notes, intended to enhance the terroir expression of the vineyard.

Highlights:

• It is unable to process sulfur compounds coming from the vineyards or from excessive additions of potassium metabisulfite. This results in a bouquet that is elegant and clean from reductive odors.

Available only in 500 grams packs

Glutaferm One: It is ideal for exalting the varietal notes because it does not interfere with the aromatic profile of the grapes. Glutaferm One can be successfully used in the production of prestigious white wines, whose aromatic intensity needs to be protected during aging; thanks to the release of glutathione in the medium it is particularly interesting for wines obtained from hyper-reduction. The aromatic range obtained by fermenting must with Glutaferm One is complex and rich in floral and tropical fruit nuances, with evident hints of passion fruit and grapefruit. If the must is processed in hyper reduction, the most noticeable notes are sage and boxwood.

Highlights:
The quantity of glutathione present in the wine at the end of the fermentation often reaches values above 5 mg/L. GSH adds an antioxidant component, preserving the fresh aromas and the color of delicate wines.
Available in 500 grams packs

Fermol Blanc: A bayanus yeast with very low nitrogen requirement.
This strain develops very well, even at low temperatures. It does not produce H2S, except in case of extreme lack of nutrients; therefore, this strain is particularly recommended for maturation on the lees. The resulting wines are full bodied with very complex aromas which, depending on the cultivar, are reminiscent of flowers, citrus or white-pulped fruit.

Highlights:
• Its resistance to adverse conditions, like low nutrition, cold temperatures or high alcohol, makes this strain also ideal for Cider, fruit wines and mead.
• Killer factor neutral.
Available in 10 kg bags and 500 grams packs

Fermol Chardonnay: It highlights the nuances of ripe and exotic fruit and, thanks to its high production of mannoproteins, produces wines with a full and harmonious taste.
Being especially cryophilic, it is particularly suitable to produce prized white wines, whether obtained by cold macerated or refined in barriques. The aromatic intensity, already high during fermentation, increases substantially during the refining and maturation stage.

Highlights:

• Because of its nature, this strain originates very fine lees that immediately release polysaccharides into the media, giving a smooth and viscous mid-palate which is desired not only in Chardonnay but for all the wines matured sur-lie.

• Killer factor neutral.

Available in 10 kg bags and 500 grams packs

Fermol Sauvignon: It highlights the notes of aromatic sulfur compounds (thiols) enhancing box tree and passion fruit with scents reminiscent of aromatic herbs, white flowers and nettle. Indicated to use in Sauvignon, but also to enhance complexity in more neutral white grape varieties. It is cold resistant and can ferment well at 10°C–50°F.

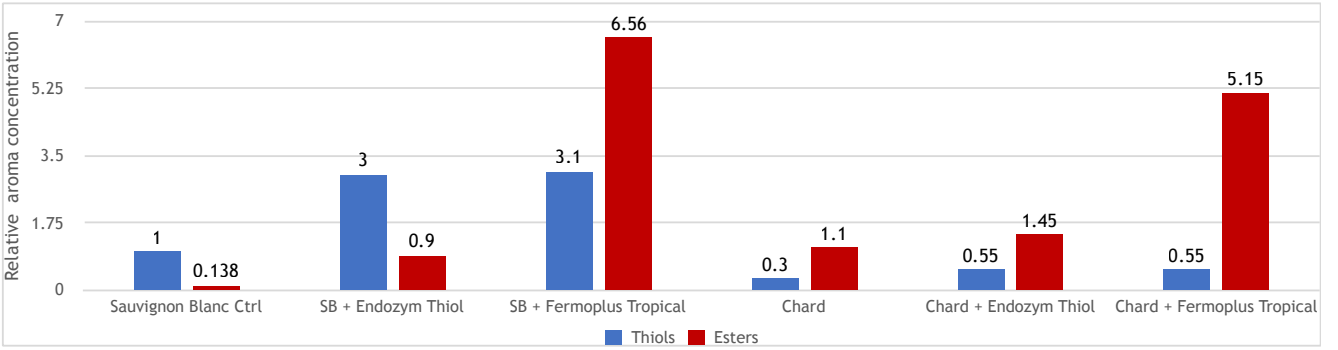
Highlights:

• When fermenting with Fermol Sauvignon, add Fermoplus Tropical (250 ppm or 3 lbs./1000 gal), to maximize tropical notes and complexity, or Endozym Thiol 5 ml/hL to increase varietal expression.

• Killer factor positive.

Available in 10 kg bags and 500 grams packs

	Chard + Fermoplus Tropical	Sauvignon Blanc Ctrl	SB + Endozym Thiol	SB + Fermoplus Tropical	Chard	Chard + Endozym Thiol
Thiols	1	3	3.1	0.3	0.55	0.55
Esters	0.138	0.9	6.56	1.1	1.45	5.15



Aroma enhancement of Fermol Sauvignon in Sauvignon Blanc and Chardonnay grapes. Histogram compares primary aromas (thiols) and secondary aromas (esters) after the addition at the beginning of fermentation of 300 ppm of Fermoplus Tropical or 5 ml/hL of Endozym Thiol. The use of Endozym thiols results in an expression of the varietal compounds, while the Fermoplus Tropical results in an increased complexity, with primary and secondary aroma enhanced. Tondini et al. (2019). The Effects of Pre-fermentative Additions on Yeast Volatile Aromas and Thiols in Sauvignon Blanc and Chardonnay. Poster presentation ASEV/AWITC 2019.

The “thiols producers” yeast collection:

Scan the QR code for more info

Fermol Fleur: it enhances floral ester production. Suggested for all types of winemaking for which we wish floral aromatic notes well marked both in the nose and mouth, and well-defined bouquets.

Widely used in whites but also for the development of modern rosé wines, where winemakers look for a very pronounced and intense bouquet. Because of its low consumption of malic acid, it’s also Indicated for fermentations of musts from hot regions, to maintain freshness. The bouquet that develops with Fermol Fleur is reminiscent of white flowers, with balsamic and menthol notes that are very noticeable also in the aftertaste.

Available in 500 grams packs

Fermol Lime: it naturally enhances the citrusy profile of varieties that are known for their bouquet rich in lime, lemon and grapefruit notes. When fed with the most modern, amino acids based, yeast nutrients like Fermoplus Floral, the characteristics of citrus and herbal aromas are boosted.

Because of its low consumption of malic acid, it’s also indicated for fermentations of musts from hot regions, to maintain freshness. It is highly recommended for co-fermentation with Fermol Fleur to produce modern and fragrant Pinot Grigio, Sauvignon Blanc, Grüner Veltliner and other cold-climate varieties.

Available in 500 grams packs

Fermol Tropical: Yeast for varietal and aromatic white wines (Viognier, Fiona, Vermentino, Sauvignon, Chardonnay). It can also be used to produce modern rosé wines, with a very intense aroma. The bouquet developing from the fermentation is reminiscent of summer and tropical fruit with hints of sage. The utilization of this strain is ideal to increase the aromatic notes of wines.

The ideal fermentation temperature in order to fully express its characteristics is between 55 and 60°F; the production of esters and acetates increases with a proper amino acid (organic) nutrition.

Available in 500 grams packs

Highlights:

• This collection of yeast is the result of research conducted by AEB in collaboration with the IFV (Institut Français de la Vigne et du Vin), a product for the most modern wines, that are required to always show the fragrance typical of the variety. We used a breeding-based genetic improvement strategy, to obtain yeast strains characterized by an improved thiol release.

Thiols are a class of organosulfur compounds much appreciated by the consumers: 4MMP (“boxwood” and “blackcurrant”), 3MH (“passion fruit”, “grapefruit” and “citrus”) and 3MHA (“tropical”, “passion fruit” and “rose”). The strategy was used to insert the specific traits of interest, (increased production of volatile thiols) between the Fermol Chardonnay, producer of a complex aromatic imprint, and the PB2033, strain with strong fermentative performance. The crossover procedures created many hybrid strains. Initially, the best 28 were tested for the main oenological parameters like alcohol, volatile acidity, hydrogen sulfide, residual sugars, fermentation kinetics. Then further assessed for performance in conditions of nutritional deficiency and aroma compounds production (acetate-esters, ethyl esters, terpenes, alcohols and acid alcohols). Fermol Floral, Fermol Lime and Fermol Tropical were chosen for their enhanced oenological features to boost varietal thiols aroma, but also to increase the sensory perception of more neutral varieties.

Yeast for reds and rosé wines:

Fermol Mediterranée: It is a strain suitable to obtain warm and full-bodied red wines, well suited to aging, but already very pleasant at the end of fermentation. The peculiarities of Fermol Mediterranée are due to its ability to produce a high content of glycerol (6.5 g/L), polysaccharides and mannoproteins which, besides giving a greater harmony of taste, also allows a rapid stabilization of color and tannic structure.
From the aromatic point of view, it highlights the varietal complexity and amplifies the sweet notes, reminiscent of ripe fig jam and small red fruits, especially currants and cherries.

Highlights:

- Ideal for organic winemaking because of the low YAN requirements.
- It has extremely low nutrition needs and consequently low H2S production.
- It carries a killer phenotype that helps the strain to quickly dominate the fermentation minimizing VA.

Available in 10 kg bags and 500 grams packs

Fermol PB 2033: It is a strain selected in France in the Côtes de Provence area. It's particularly suitable to produce rosé and young wines and able to ferment in a wide temperature range (12-34°C) with a very fast start and regular kinetics that allows easy control of fermentation temperatures. The typical bouquet is reminiscent of red currant, sour black cherry, raspberry, strawberry and white flowers. A typical yeast for producing French style rosé.

Highlights:

• Thanks to the limited hydrophilic characteristics of the cellular wall, this strain limits adsorption and fixation of the anthocyanins, promoting an optimized rosé color.

• Killer factor neutral.

Available in 10 kg bags and 500 grams packs

Fermol Premier Cru: is a yeast selected to produce structured and complex wines, suitable for aging. It develops intense and clean aromatic notes, as it has an extremely limited production of H2S. It enhances the complexity and typicity of the grape varieties, harmoniously combining a wide range of aromatic nuances reminiscent of berries, spices, aromatic herbs and small red fruits. It expresses a good full-bodied taste due to its ability to produce significant amounts of glycerin and polysaccharides.

Highlights:

• It has minimal or none SO2 production, facilitating ML.

• Killer factor neutral.

Available in 10 kg bags and 500 grams packs

Fermol Rouge: Thanks to its vigor and resistance, it rapidly prevails over the indigenous flora, found in large quantities in red wine vinification. Fermol Rouge is particularly recommended to produce young wines and wines for medium-term aging, with intense red berries aromas and good structure. Furthermore, when compared to other selected yeasts, Fermol Rouge produces wines with more intense color, given its limited ability to fix the coloring substances extracted during maceration.

Highlights:
Short lag-phase, followed by a fast and regular fermentation curve, makes Fermol Rouge ideal for optimizing tanks turnover.
Available in 10 kg bags and 500 grams packs

Fermol Red Fruit: It is characterized by a high fermentative vigor that is maintained even in stressful conditions such as in musts with high sugar content. Fermol Red Fruit is particularly suitable for the fermentation of young and bright red wines, where it enhances the aromatic characteristics of the variety, emphasizing the formation of esters that give to the wine floral and fruity aromas such as blueberry, currant, raspberry. This yeast is also ideal for the vinification of structured red wines with a smooth and large mouthfeel.

Highlights:
- A correct nutrition is indispensable to maximize its aromatic characteristics.
- Killer factor neutral.

Available in 10 kg bags and 500 grams packs

Fermol Super 16: is a very versatile yeast, which in California has found its match with Zinfandel and high-end Cabernet Sauvignon. Fermol Super 16 has been isolated from extremely mature grapes for "passito" style. This strain is adapted to high sugar content and extreme osmotic conditions. It's ideal for batches made with high percentages of raisins and overripe grapes. Complements a clean fermentation with a bouquet of fresh and straight fruit. It yields wines with a crisp and clean edge that show a long and complex finish in the mouth. It can perform at very high temperatures and high alcohol. The cells flocculate very well, and the wine is easy to filter just a few days after the end of the fermentation.

Highlights:
- Side by side trials have showed how Fermol Super 16 has higher production of extractive enzymes promoting maceration.

Available in 10 kg bags and 500 grams packs

Yeast for sparkling wines

Levulia Probios: is a 100% organic yeast, derived from a selection conducted in Champagne. Its excellent fermentation capacity, even under difficult conditions of pH, temperature and alcohol, make it an essential yeast for base wines production and for the "prise de mousse" method. It allows secure fermentation, with total sugar consumption and a very low production of undesired by-products, such as volatile acidity, pyruvic acid and SO2. Levulia Probios is also suitable to produce still white wines. Its fermentative attitude guarantees the production of dry, aromatic wines, respecting the territory and the varietal typicity.

Highlights:
• Certified Organic
Available in 500 grams packs

Fermol Charmat: has an exceptionally high fermentation rate and does not cover the varietal aroma. The low nutritional requirements, the high alcohol content and the strong cryophilic phenotype make Fermol Charmat particularly suitable for pressured tanks or champenoise method. Excellent results have also been obtained in the treatment of stuck fermentation. Fermol Charmat particularly accentuates the white fruits and citrus notes in white wines. Killer factor neutral.
Available in 500 grams packs

Non-conventional yeast

Fermol Complete Killer Fru: Selected for its fructophilic characteristics, it is utilized to restart stuck fermentations in red and white wines. In fact, Fermol Complete Killer Fru can metabolize the sugar fraction composed by fructose, when other strains often leave it behind. Thanks to its killer phenotype, it quickly gains dominance reducing the existing population of wild yeast, and because of its high alcohol tolerance, it can

be inoculated in partially fermented musts. It's highly cryophilic so is ok to use in wines that are not at ideal temperatures due to sluggish conditions.
Available in 10 kg bags and 500 grams packs

Highlights:
- Fructophilic
- Ideal for restarting stuck fermentations. See FAQ to learn how to use Fermol Complete Killer Fru to restart a stuck fermentation.
- Killer factor positive.

Cryophilic yeast (Uvarum)

NEW! **Fermol Cryofruit:** Selected and controlled by Proff. P. Giudici and A. Pulvirenti at the Microbiology department of Scienze Agrarie at the University of Modena & Reggio Emilia, Fermol Cryofruit is a yeast obtained by hybridization of Saccharomyces cerevisiae x Saccharomyces uvarum, that summarizes the specific characteristics of the two. It has been selected for its particular metabolism which shows great fermentation performance at low temperatures, alongside with high production of glycerin, which brings softness to the wine. This strain allows winemakers to get the best results when used at low temperatures, both at inoculation and fermentation.

Fermol Cryofruit in white wines, enhances the aromas of white fruit and floral, making it ideal for the vinification of all varieties. The red wines fermented with Fermol Cryofruit, have an aromatic enhancement of small red fruits, berries and violet notes. It is resistant to sulfur dioxide, has a short lag-phase and good alcoholic tolerance.

Highlights: The peculiarities of the uvarum physiological breed allow to obtain wines with a marked acid profile, balanced in the mouth by the high glycerin content.
Available in 500 grams packs

Non-Saccharomyces Yeasts

There is increasing awareness on the contribution of non-Saccharomyces yeast species to wine sensory features, either as wild microbiota, or as complementary starters in simultaneous or sequential inoculation. In most cases, both the metabolic pathways are leading to aroma-active compounds from these alternative yeast species. Previous studies have shown that fermenting juice with indigenous yeast can potentially increase the complexity of the wine due to the contribution of various yeast species. However, the lack of reproducibility and predictability of these types of ferments has led winemakers to opt for predictable commercial yeast preparations. The complexity provided by indigenous ferments can, however, be simulated to some extent by inoculating the must with "wild" yeast strains, thereby ensuring a large enough yeast population and desirable conditions. The co-inoculation of non-Saccharomyces yeasts and Saccharomyces cerevisiae in grape juice is becoming an increasingly popular practice to diversify wine styles and/or to obtain more complex wines with a peculiar microbial footprint.

However, not all the yeasts present on the grapes impart desired characteristics: some yeasts could be the origin during fermentation and/or aging of unwanted aromas. Then there is the need to study and select NS yeasts with only positive oenological characteristics. Over the last few years, AEB in collaboration with University of Dijon, isolated and genetically identified up to 1000 different yeast strains, belonging to 16 different genera. 100 ml and 20 L microvinification experiments were used to characterize the positive impact on the chemical and aroma composition of the wine. Among yeast species relevant metabolic features have been identified in Torulaspora delbrueckii (Levulia Torula), Lachancea thermotolerans (Levulia Alcomeno) and Metschnikowia pulcherrima (Primaflora).

Levulia Alcomeno (certified Organic): belongs to the species Lachancea thermotolerans, a yeast strain naturally present on the grape berry contributing, from the stage of alcoholic pre-fermentation, to the organoleptic complexity of wine.

Levulia Alcomeno carries out the lactic fermentation from sugars and allows bringing wine freshness and balance to the mouth. The result is a high increase of total acidity and a decrease of the alcohol content. At the analytical level, wines fermented with Levulia Alcomeno are differentiated by a decrease of the alcohol content and an increase of lactic acid. Such physical-chemical variations depend on the grape, the climatic conditions and the quality of the yeast settling in the must.
Levulia Alcomeno can ensure the alcoholic fermentation at least up to 7% of the volume. It is used in sequential inoculation, depending on the desired acidity.

Highlights:

- Certified Organic
- Must be inoculated at the beginning of fermentation instead of S. cerevisiae. After 3 days of active fermentation (5-7 °Brix drop) re-inoculate with the desired S. cerevisiae.
- Killer factor neutral.

Available in 500 grams packs

NEW! **Levulia Torula (Certified Organic):** is a yeast strain belonging to the species Torulaspora delbrueckii. It contributes positively to the organoleptic complexity of the wine while limiting the production of volatile acidity. It contributes to reduce the sensations of astringency in the mouth by the release of polysaccharides. Suitable for all types of grape varieties, rich in terpenes and / or thiols (Sauvignon Blanc, Chardonnay, Gewurztraminer, Colombard, Riesling, Muscat, Sémillon, etc.) because of its high enzymes production (glucosidase and sulfur-lyase). Levulia Torula can ensure the alcoholic fermentation at least up to 9% of the volume and can be used alone, in co-inoculation or sequential inoculation (24 to 48h) with the desired S. cerevisiae.

Highlights:

- Certified Organic
- Levulia Torula has very low acetic acid production in high sugar must, making it ideal for sweet/late harvest wines.
- Killer factor neutral.

Primaflora (Certified Organic): Primaflora is a Bio-protection (low SO2 winemaking) non-Saccharomyces yeast, belonging to Metschnikowia pulcherrima specie. Among the characteristics of this strain there are a strong anti-Brettanomyces and antibacterial activities, since it produces pulcherrimic acid which depletes the media from iron, creating unfavorable conditions for Brett (Oro et al., 2014). Through its enzymatic activity, Metschnikowia pulcherrima, also contributes up to a certain extent to the release of aromas and Nitrogen enrichment of the must.

Its main enzymatic activities are:

- Activity Cys-ß-Lyase: release of thiols (Zott, 2009)
- Activity ß-glucosidase: release of terpenes (Günata et al, 1990)
- Aspartate protease activity: release of peptides or amino acids (Theron et al., 2017).

Dosage: Primaflora VB: For white or rosé musts: from 30 to 50 ppm during or before pressing, or on grape harvesters. Primaflora VR: For red musts: 40 ppm on grape harvesters or during maceration and up to 80 ppm with grapes that are damaged or warm, or with a pH value of 4 or more.

Utilization: rehydrate 500 g of Primaflora in 10 liters of mineral or non-chlorinated water (4.2 lb. of Primaflora per gallon of water) at 25-30°C or 77-86°F, sugared with 50 g/L (5%) for 15 minutes.
Distribute onto the grapes or add to the must and homogenize. Do not store the Primaflora solution for more than 45 minutes or viability will decline.
Double the volume with grape must to prolong the life of the solution by 3 hours.
Increase five folds the volume with grape must to prolong the life of the solution by 12 hours. Do not use on sulfited must.

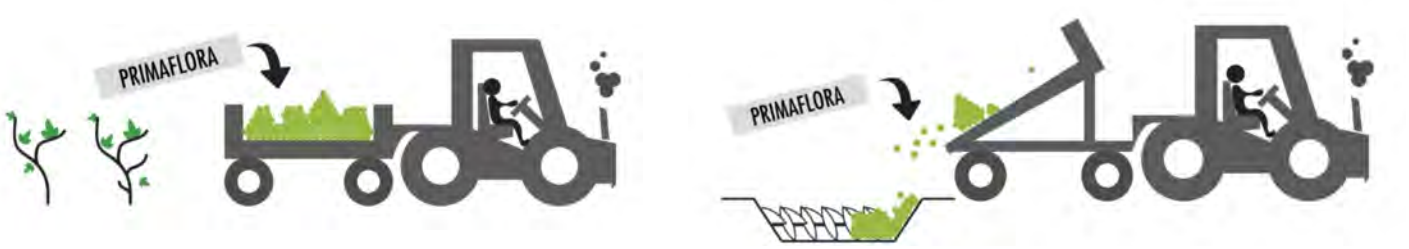
Shelf life and storage: store in the original sealed pack, in a dry, cool and odorless place. After opening the pack, use quickly. Store in the fridge and in the original sealed container. Mortality < 20% per year.

Highlights:

- Certified Organic
- It increases the aroma bouquet complexity and the "terroir" expression of the wine, promoting only the growth of desired indigenous yeast present on the grapes.

Packaging: 1 kg packets.

Scan the code to learn more about "bio protection"



Yeast rehydration & acclimation

1. Using clean and sanitized equipment, prepare 10 liters of warm water per kilogram of yeast (1.2 gallons of water per pound). *Ideal temperatures are 38°C (100°F) for Saccharomyces cerevisiae and bayanus strains.*

2. While stirring, slowly add 250 grams of the rehydration nutrient Fermoplus Energy GLU per kilogram of yeast (1:4). *Be sure that all clumps are broken up and well-mixed.*

3. Slowly mix-in the yeast, again making sure to break up all clumps. Do not mix using a drill or any aggressive mixing technique that might cause shearing of the yeast cells. Make sure that the mixture gets plenty of oxygenation. This along with the nitrogen supplied by the Fermoplus Energy Glu, will build a bigger and stronger yeast biomass.

4. After 20 - 30 minutes the yeast is fully rehydrated and will now need a sugar source to stay viable.

5. Portions of must are gradually added to the yeast mixture in small increments while gently stirring. Normally an equal amount of must is slowly mixed into the yeast mixture over 5 minutes. While adding the must, monitor the temperature and make sure it does not drop more than 5°C at any time during this must addition.

6. After 15 minutes, slowly add an equal amount of must to the mixture, again making sure the temperature does not drop more than 5°C.

7. Repeat this step every 15 minutes until the yeast mixture is within 5°C of the tank temperature.

8. Add the inoculum to the must in the tank and ensure that the tank is properly vented to release pressure.

Highlights:
Inoculate desired yeast 10-20 times more than wild yeast. Usually 2 lbs./1000 gal inoculation rate is considered enough to ensure a safe and clean fermentation.
Clean juices can be inoculated with lower additions.

Yeasts from the Organic line can be inoculated without rehydration at 3 lbs/1,000 gallons

How to re-start a stuck or sluggish fermentation:

1. Rack the wine off the gross lees into a sanitized tank.

2. While racking, add 18 g/hL (1.5 lb. /1000 gal.) of Celloferm to the receiving tank. Celloferm will help to purify the compromised must from toxins and contaminants.

3. In a tub, bring 250 mL water for every hL of stuck wine to treat (2.5 gal water/1000 gallons wine) to 40°C (104°F).

4. Add 6 g/hL (½ lb./1000 gallons) of Fermoplus Energy Glu rehydration nutrient.

5. To this mixture add 25 g of Fermol Complete Killer Fru yeast for every hl of stuck must to be treated (2 lbs./1000 gallons).

6. Using a paddle, mix the yeast and nutrient thoroughly.

7. Allow the yeast to rehydrate for 20 minutes.

8. Note the temperature of the yeast mixture before going on to step 9.

9. Take out of the problematic tank 250 mL of stuck must per hL of its total volume (2.5 gallon/1000 gallons).

10. Add this to the yeast mixture, making sure that during the addition the temperature does not change more than 5°C.

11. Add 25 grams of light white grape concentrate (or similar) per hL (2 lbs./1,000 gallons) of total stuck wine to the yeast slurry.

12. Take a sample of this starter and measure the RS if possible.

13. Cover and hold for 12 hours in a warm part of the cellar. Around 21°C (70°F) is best.

14. Check the RS. Make sure that there are signs of active fermentation before moving to the next step (a RS drop will confirm yeast activity).

15. Transfer yesterday's start-up from the tub into the small wine tank.

16. Slowly add 750 mL of stuck wine per hL of total volume of stuck wine (7.5 gallons/1000 gallons) and 15 grams of light grape concentrate per hL total stuck wine to the small tank and stir well.

17. Record the RS and hold over night. Make sure the small wine tank is vented.

Again, confirm that the mixture is actively fermenting before moving on.

18. Add 10 more liters of stuck wine foe each hL of total wine to the small tank and mix well.

19. Hold for another night.

20. Transfer the small tank to the stuck wine tank and mix well. If possible, maintain the tank temperature between 21-24°C (70 - 76°F). Monitor RS regularly.