



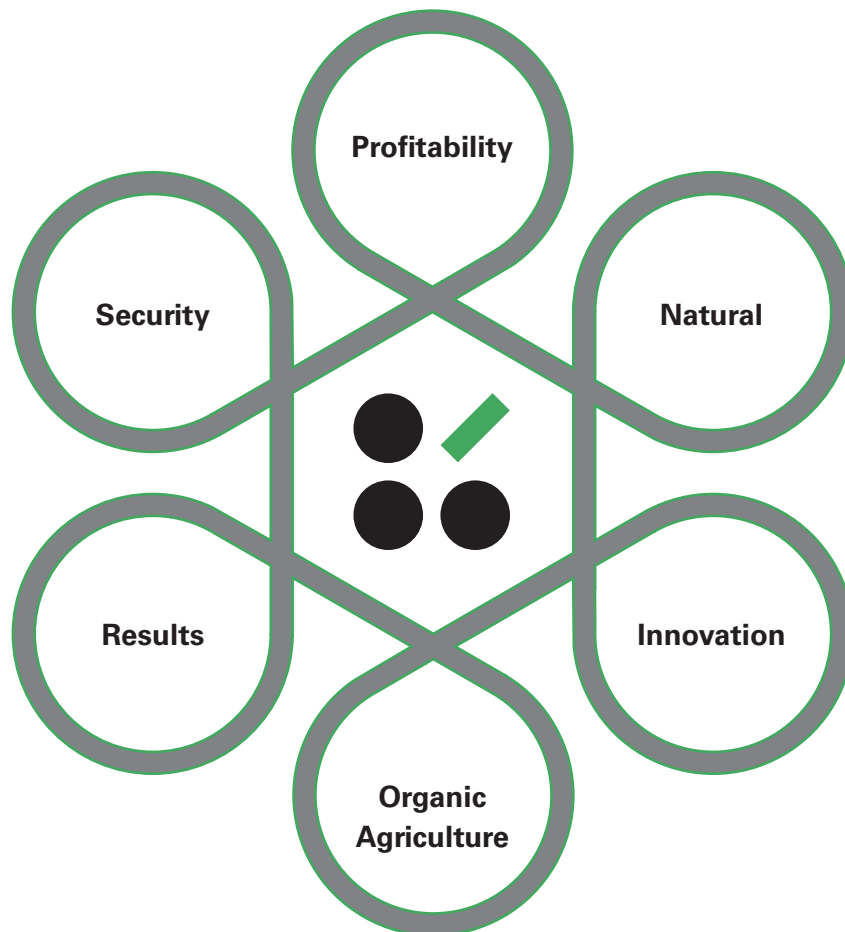
Improve ripening from veraison



©LalVigne



Improve ripening from veraison



For
vinegrowers
and
winemakers

Uniform
veraison

Homogeneous
maturation

Improve your
grapes

Reduce
risks

Improve your
wines

About us

Experience

Lallemand was founded at the end of the nineteenth century.

More than 100 years dedicated to provide natural solutions.

Research and development

In Lallemand we develop biotechnological tools for the viticulture and wine sector.

Our R&D department collaborates with Universities and international Research Institutes.

Quality

We offer traceability and quality assurance. We apply a strict quality policy. All products are subjected to at least 20 rigorous quality tests.



© La Vigne



Specialization in microbiology

Development of natural applications based on microorganisms for viticulture and enology.

Global knowledge

Our team is present in all grape and wine producing regions.

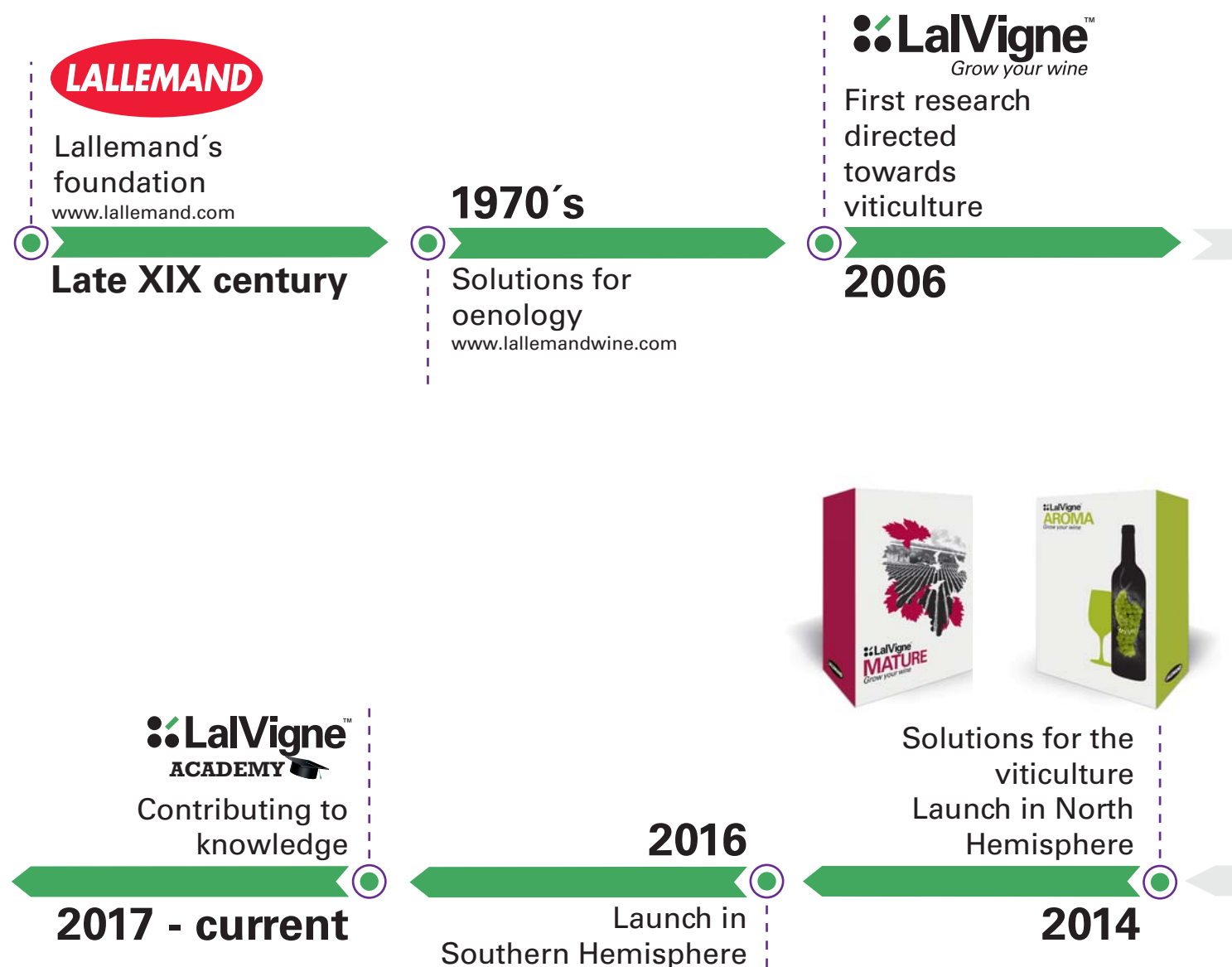
Production

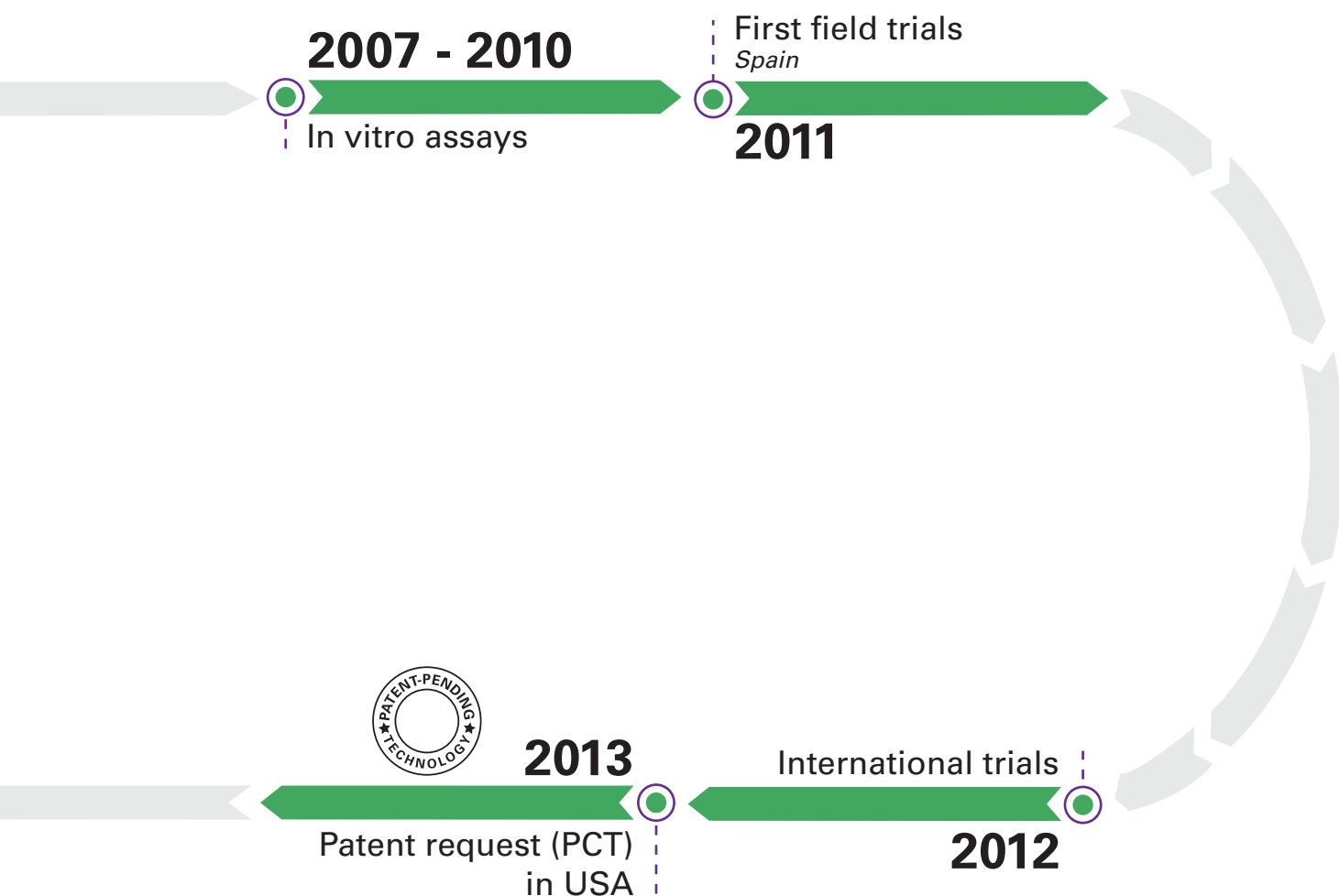
100% own production.

We produce **LalVigne™ MATURE** and **LalVigne™ AROMA** in our own production plants.

Production centers in *Grenaa (Denmark)*, *Montreal (Canada)*, *Vienna (Austria)*, *Salutaguse (Estonia)*, *Verona (Italy)*...

Key dates





Facts and figures

+ 25 countries

Different weather,
soils, varieties,
yield,...

Germany, Australia, Austria, Bulgaria, Canada, Chile, Croatia, Slovenia, Spain, France, Greece, Hungary, India, Israel, Italy, Japan, Macedonia, Mexico, New Zealand, Peru, Portugal, Czech Republic, Romania, Russia, Serbia, South Africa, Switzerland, Turkey, Ukraine, United States, Uruguay

+ 70 varieties

Albariño, Sauvignon Blanc, Chardonnay, Riesling, Airen, Verdejo, Godello, Treixadura, Glera, Macabeo, Grüner Veltliner, Viognier, Pinot Gris, Sylvaner, Tempranillo, Cabernet Sauvignon, Merlot, Syrah, Pinot Noir, Cabernet Franc, Carmenere, Petit Verdot, Grenache, Bobal, Monastrell, Pinotage...



No residual limits. No safety time limit



+ 25
scientific
papers

LalVigne™
Grow your wine

Improve ripening from veraison Foliar application

100% specific fractions of selected inactivated yeast
Saccharomyces cerevisiae, non GMO.

LalVigne™
AROMA
Grow your wine

American Society of Enology and Viticulture
(ASEV, USA), International Organization of Vine
and Wine (OIV), Macrowine...

LalVigne™
MATURE
Grow your wine

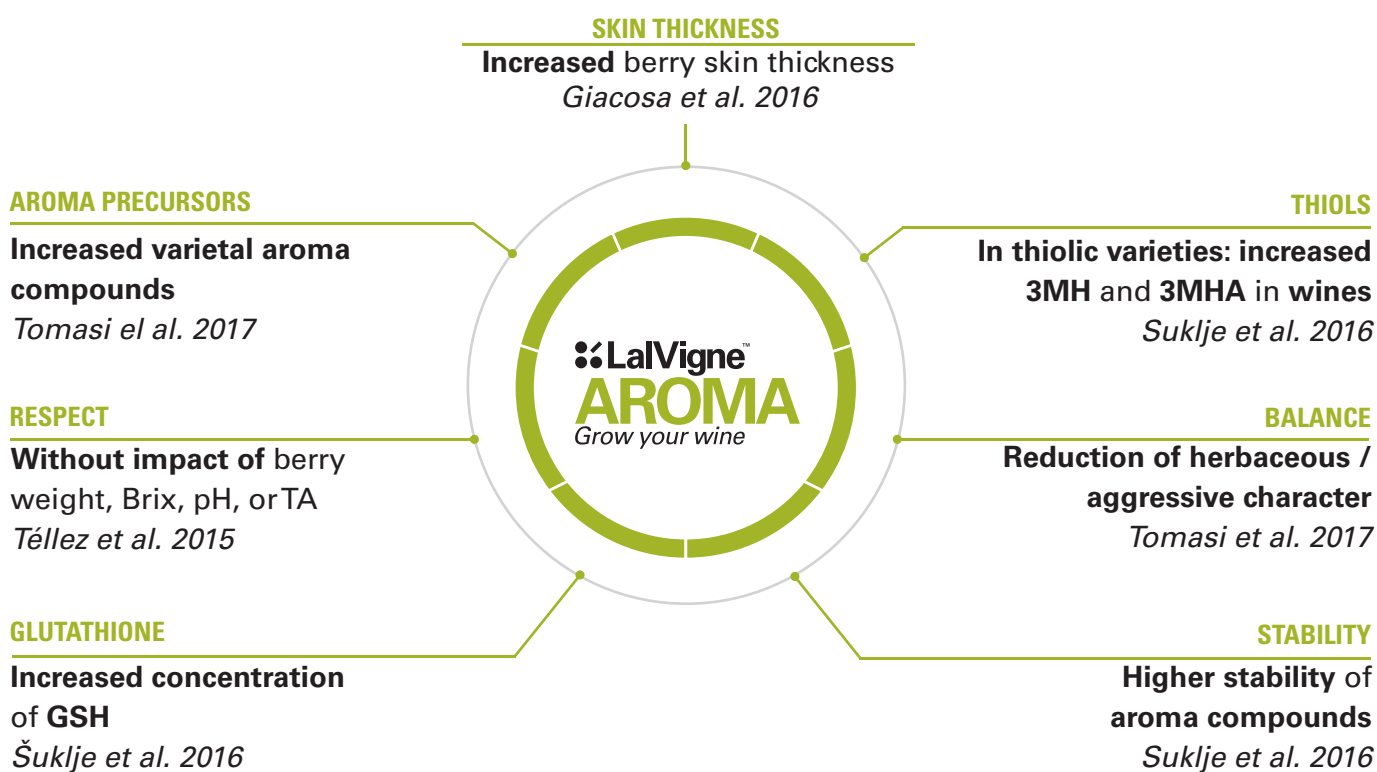
South African Journal of Enology and Viticulture
(SAJEV, South Africa), Food & Chemistry,
International Organization of Vine and Wine
(OIV)...



LalVigne™ AROMA



Increased and advanced accumulation of aroma precursors





©LalVigne

Characteristics

Composition

100% specific fractions of selected inactivated yeast.

Saccharomyces cerevisiae.

Non GMO.

Packaging

1 hectare (2.5 acres) carton

Each box contains 2x3 kg bags for two applications.

Total weight: 6 kg.

Storage

Non-flammable product.

Store in sealed original packaging.

Avoid extreme storage conditions.

Organic Agriculture

Product suitable in organic farming according to CE n°834/2007 and 889/2008 regulation.

Product compliant under NOP

Controlled by ECOCERT SA F – 32600



Dose

1 treatment = 2 applications

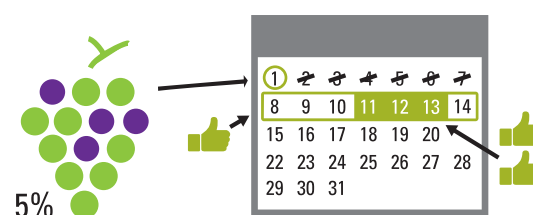
Recommended dose by application on vines

3 kg / ha (6.6 lb / 2.5 acre)

Foliar application

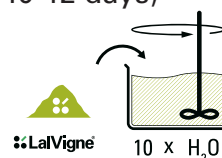
1^a 3 kg / ha
(6.6 lb / 2.5 acre)

2^a 3 kg / ha
(6.6 lb / 2.5 acre)

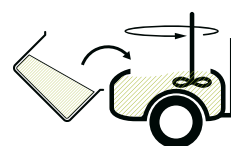


1st Application = beginning of veraison

2nd Application = 7 - 14 days after 1st application (best 10-12 days)



Suspend **LalVigne™ AROMA** in approximately 10 times its weight in water in order to get a perfect dissolution.



Dilute in water for its application

Keep the agitator running during the application



Avoid leakage losses



 **LalVigne™** Preparation & Application

LalVigne™ MATURE



Increased and advanced phenolic maturity

SKIN THICKNESS

Increased berry skin thickness with higher extractability of anthocyanins
Río Segade et al. 2016

ANTHOCYANINS

Increases concentration of extractable anthocyanins
Villangó et al. 2015

RESPECT

Without impact on berry weight, Brix, pH, TA
González et al. 2016

TANNIN

Increases skin tannins
Lissarrague et al. 2014

BALANCE

Reduction of herbaceous / aggressive character
Tomasi et al. 2017

QUALITY

Increased degree of polymerization
Villangó et al. 2015





Characteristics

Composition

100% specific fractions of selected inactivated yeast.

Saccharomyces cerevisiae.

Non GMO.

Packaging

3 hectares (7.5 acres) carton: contains 3 separate boxes.

Each box contains 2x1 kg bags for 1 ha (2.5 acres) Total weight: 6 kg.

1 hectare (2.5 acres) carton: contains 2x1 kg (2.2lb) bags for two applications.

Total weight: 2 kg.

Storage

Non-flammable product.

Store in sealed original packaging.

Avoid extreme storage conditions.

Organic Agriculture

Product suitable in organic farming according to CE n°834/2007 and 889/2008 regulation.

Product compliant under NOP

Controlled by ECOCERT SA F – 32600



Dose

1 treatment = 2 applications

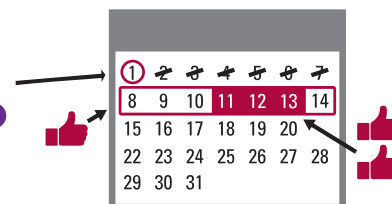
Recommended dose by application on vines

1 kg / ha (2.2 lb / 2.5 acre).

Foliar application

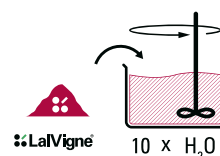
1^a 1 kg / ha
(2.2 lb / 2.5 acre)

2^a 1 kg / ha
(2.2 lb / 2.5 acre)

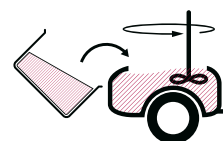


1st Application = beginning of veraison

2nd Application = 7 - 14 days after 1st application (best 10-12 days).

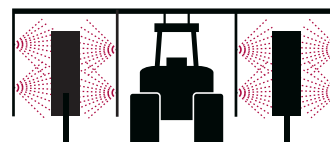


Suspend **LaVigne™ MATURE** en in approximately 10 times its weight in water and stir/agitate to mix.

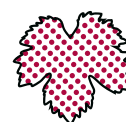



Dilute in water for its application

Keep the agitator running during the application.



Avoid leakage losses.



 **LaVigne™** Preparation & Application

Uniform veraison

 **LalVigne™ MATURE Time Lapse (English).**

Visit the explanatory Time Lapse video of the veraison
on the Lallemend Oenology Channel on YouTube



«*Improve ripening from veraison.*
Uniform veraison. Homogeneous maturation»

LaVigne™
MATURE
Grow your wine

CONTROL



Cabernet Sauvignon, Ribera del Duero, Spain. 2016

Vines treated with **LaVigne™ MATURE**
reached 100% veraison 7 days before the control vines.

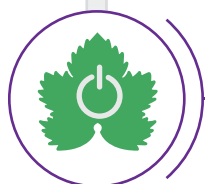


Mode of action



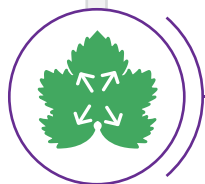
RECOGNITION

Recognition by plant receptors



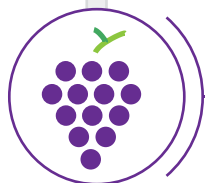
ACTIVATION

Plant respond activation



SECONDARY METABOLISM

Stimulation of genes involved in the synthesis of secondary metabolites



GRAPE IMPROVEMENT

Increased berry skin thickness
Positive compounds extractability

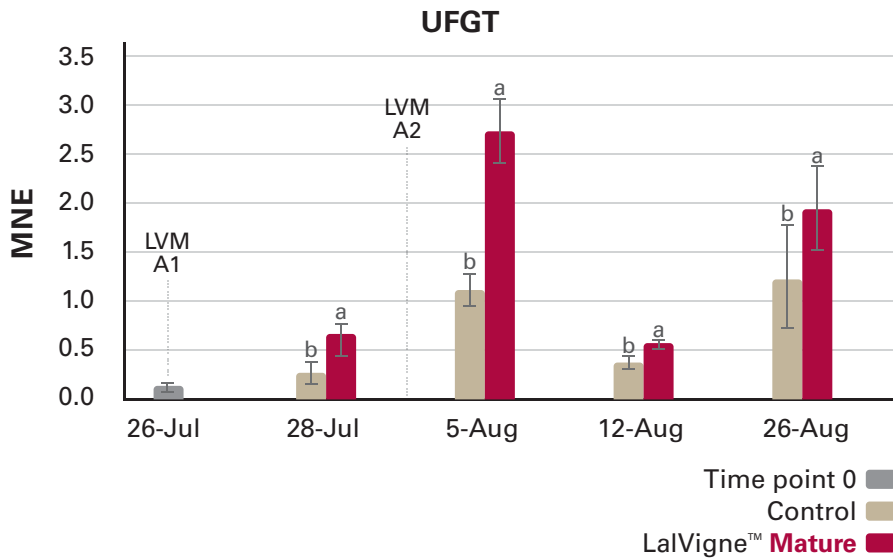


WINE IMPROVEMENT

More balanced wines



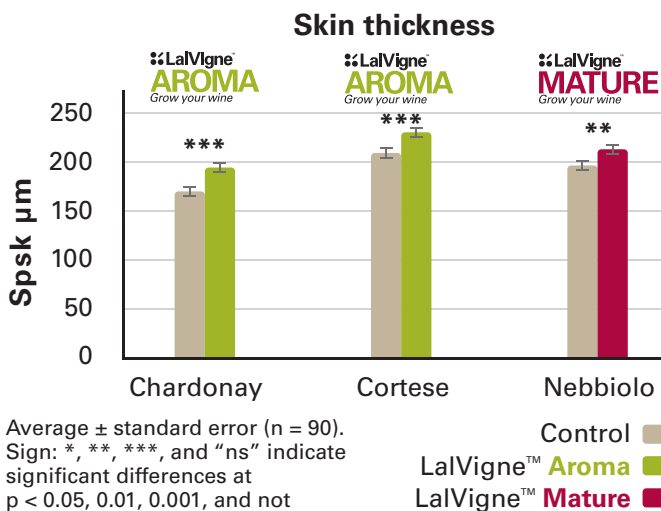
Impact of LalVigne™ MATURE on the expression of genes directly involved with the synthesis of anthocyanins



Impact of a specific yeast derived foliar spray on gene expression and accumulation of anthocyanin in Sangiovese. Filipetti et al. 2017.

This graph shows the expression of the UFGT gene (flavonoid 3 O-glucosyltransferase) during the grape's maturation phase, comparing an untreated control versus the treatment with LalVigne MATURE in two moments of application (LVM A1 and LVM A2). This gene is directly related to the synthesis of phenolic compounds such as anthocyanins

Increased skin thickness



It can be observed in the graph the significant increase achieved with the application of LalVigne™ AROMA and LalVigne™ MATURE on the berry skin thickness.

In this study carried out at the University of Turin, the improvement obtained in different varieties with the different treatments is shown.

Foliar spray application of specific inactive dry yeast at veraison: effect on berry skin thickness, aroma and phenolic quality. Giacosa et al. 2016

Advantages for the viticulture

PROTECTION

Increase berry skin thickness
Lower berry break in the case of mechanical harvesting

SAFETY

Advanced phenolic maturity and aroma precursors
Possibility of advancing harvest
Reduce risks associated with late harvests (rainfall, frost)

HOMOGENEITY

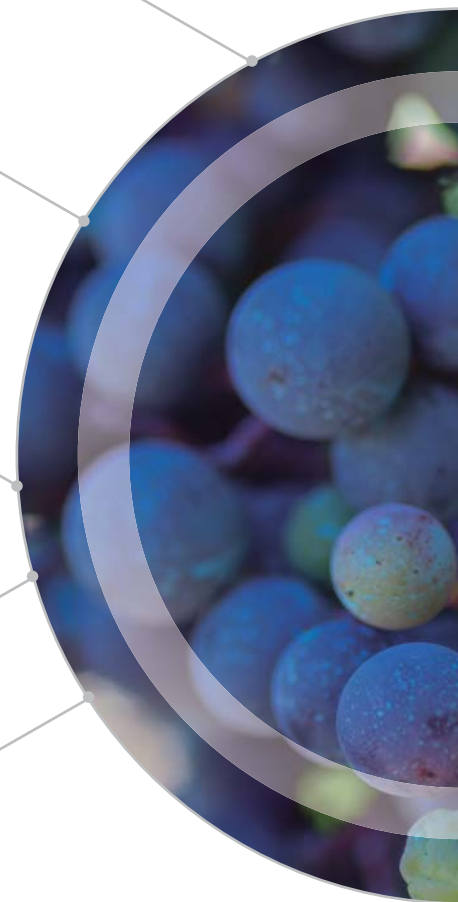
Facilitates the decision of the optimal moment of harvest
Reduces heterogeneity after weather incidents (frost, hail...)

ECOLOGIC

Authorized in organic viticulture

PROFITABILITY

Complementary or alternative to cluster thinning and other canopy management practices
More balance grapes
It allows to advance harvest and also reducing the loss of yield due to dehydration



Advantages for the oenology

INCREASE

Grapes balance
Skin compounds (anthocyanins, skin tannins...)
Aroma precursors
Glutathione (GSH)

REDUCE

Less herbaceous / vegetable character of the grapes and wine
Reduces wine aggressiveness in mouthfeel

SAVING

Less need for oenological inputs (example, addition of skin tannin)

EASINESS

Optimize maceration
Fast release of compounds
Reduces fermentation risks associated with excessively mature grapes

WINE IMPROVEMENT

More balanced wine, concentrated and complex
Allows the production of lower alcohol wines

RESPECT

Wines that convey the differentiation provided for each plot, for each origin

LONGEVITY

Higher wine aromas stability



LalVigne™ experiences

Christian Roguenant.
Enólogo. Baileyana Winery,
Paso Robles, California, USA:

*"After hearing about LalVigne in 2014, we decided (with the cooperation of Scott Williams of Pacific Vineyard Co.) to test the products in two blocks. We use **LalVigne™ AROMA** on White Grenache and **LalVigne™ MATURE** on Syrah.*

We observed an earlier maturity in the treated area compared to the control and a higher level of polyphenols in the finished wines.

*The chemical analysis was very similar, however, **the wines showed great differences in the sensory analysis.***

*Both on White Grenache and on Syrah, **we preferred treated wines that presented more concentration and better maturity. Improved fruity taste and mouthfeel.** In the treated Syrah block we noticed a greater complexity and a better balance acidity / tannin. In the 2015 vintage we saw similar results in other treated blocks and **we decided to extend the treatments to other varieties**".*

Jordan Harris.
Tarara Vineyards, Leesbur
Virginia, USA:

*"In our experience, **we have repeatedly seen a great increase in quality through sensory analysis with LalVigne™**"*

Joe Wright.
Winemaker. Left Coast Cellars,
Oregon, USA:

*"We observed the effectiveness of **LalVigne™ MATURE** in our experimental plot from the week after the first application.*

*At harvest the lignification of the bunch stem increased, advanced the maturity of the seed, the grape had more color and **was more ripen.** I preferred the treated blocks over the controls in cold years as well as in warmer years"*



Todd Webster.
Brennan Vineyards,
Comanche. Texas, USA:

"keeping the natural acidity in the vineyard can be a challenge In Texas and other hot climate winemaking regions around the US Our most challenging grape to ripen is Mourvedre. It is a late bud breaking grape which is great to avoid the spring freezes that hit Texas regularly.

The downside with Mourvedre is our hot climate during the growing season. We tend to have high pH wines with low Brix grapes at harvest.

Our vineyard site is not conducive to making a red wine from our Mourvedre grapes. Years ago, I decided to make dry rosé from this block. We were still getting high pH and low Brix fruit.

*In 2016, I sprayed with **LalVigne™ MATURE.***

The results were amazing. We harvested the treated block 20 days earlier than the control block.

They both had the same Brix when each block was harvested, but the pH was so much lower from the grapes treated with LalVigne™ MATURE. We will spray both blocks of Mourvedre this year (2017) with LalVigne™ MATURE and in the future."



Norrel Robertson
Master of Wine



*"During the very dry and early harvest of 2016 it became evident that many of the more aromatic cultivars such as Sauvignon Blanc would struggle to produce wines with true varietal character in South Africa In the Daschbosch cellar of Uniwines in the Breedekloof Valley we decided to apply **LalVigne™ AROMA** at veraison on a large block with a control to attempt to achieve Sauvignon Blanc with more aromatic intensity in these hard conditions*

In the blending sessions that followed the treated wine stood out with more aromatic intensity and varietal character in a tasting session of over 30 Sauvignon Blancs"



Frequently asked questions (I)

⚡ What differentiates LalVigne™ **MATURE** from LalVigne™ **AROMA**?

	 LalVigne™ AROMA Grow your wine	 LalVigne™ MATURE Grow your wine
Increased and advanced accumulation of aroma precursors	+++++	++
Increased and advanced of phenolic maturity	++	+++++
Vine recognition	LalVigne™ AROMA	LalVigne™ MATURE
Skin thickness	Increases	Increases
Specific inactivated yeast	100%	100%
Natural	100%	100%
Non GMO	NO GMO	NO GMO
Composition	A	B
Dose	2 x 3 Kg/ha	2 x 1 Kg/ha
Timing of application	Start veraison and 7-14 days later	Start veraison and 7-14 days later

⚡ Could you make a double dose application instead of two with the recommended dose?

Our recommendation is based on the results of scientific and technical trials made. To get the best effectiveness, follow the recommendations.

⚡ How much water should I use to make the application of LalVigne™ products?

Dilute the product in about 10 times its weight in water to put in suspension.

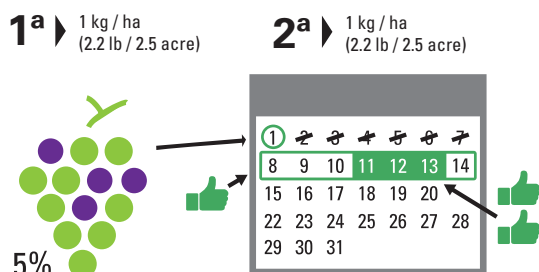
Add to the tank of the spray machine with the minimum amount of water that allows to perform a homogeneous spray, avoiding excess of water that can cause loss of product by dripping.

Water acts as the treatment vehicle, what is important is the dose of the product used.



⚡ At what point should I do the treatment?

And in my case...?



⚡ Can I mix LalVigne with other products?

You can mix **LalVigne™ AROMA** and **LalVigne™ MATURE**.

Avoid mixing when possible

Do not mix with oils, alkaline products and lime sulfur solutions.

No incompatibilities with other products were found. In case of mix, check the recommendations of the other product used and perform phytotoxicity test.

Real cases

% veraison	1 st application	2 nd application
< 5%	< 5%	+12/14 days after first application
5-30%	5-30%	Recommendation 7-14 days after the 1 st . Optimum 10-12 days
30-50%	30-50%	7 Days after the 1 st
50-70%	50-70%	7 days after the 1 st if 100% veraison is not reached
70%	Make only first application	Do not make 2 nd application

⚡ In case of not mixing, but the treatment with another product is going to be done right away, what recommendation should I follow?

Apply first **LalVigne™ AROMA** and/or **LalVigne™ MATURE**.

Wait 48 H.

Apply the other product.



Frequently asked questions (II)

⚡ Should I take into account possible rainfall before applying the LalVigne™ products?

Yes, the effectiveness of the product is higher if after each application there is at least a 48h free period of rain.

⚡ What if it rains before 48 hours have passed since the application?

SITUATION	ACTION
Rain before 48 hours after the 1 st application of LalVigne™	Rain before 48 hours after the 2 nd application of LalVigne™
Make the 2 nd application 7 days after the 1 st	Repeat the 2 nd application

⚡ Do the LalVigne™ products have Maximum Residual Limits? (MRL).

LalVigne™ products do not have MRL.

LalVigne™ products are food quality.

Although it is not usual, grapes could be harvested just after the application.

Attention: If it is mixed with another product, the MRL will be marked by this specific product.

⚡ How many days can I advance harvest if I apply LalVigne™ **MATURE** or LalVigne™ **AROMA**?

There is no exact value. Multiple factors should be taken into account: grape variety, temperature during ripening, etc.

To give some reference examples, we have clients who have advanced 5 days in warm regions and short cycle varieties and 14 days in cold regions and long cycle varieties. In some cases even more.

⚡ I make UREA foliar applications in some white varieties. Can I also use LalVigne™ **AROMA**?

Yes, LalVigne™ **AROMA** has a complementary effect. Increases skin thickness and compounds present in it. It will improve wine sensory characteristics and provide greater longevity and complexity. Both products can be mixed.

⚡ Can I apply LalVigne™ **AROMA** on red varieties and LalVigne™ **MATURE** on whites?

Yes, if you wish. In these cases it is a matter of wine style. We have clients doing it.

They use LalVigne™ **AROMA** in red varieties to increase the aroma. Some use LalVigne™ **MATURE** in white varieties seeking the improvement of mouthfeel.

What is usual is apply LalVigne™ **AROMA** on white varieties and LalVigne™ **MATURE** on red varieties.

⚡ What product do you recommend for grapes intended to make rosé wine?

In general, LalVigne™ **AROMA** if the vineyard management and wine objective is to make rosé.

If you make rosé to concentrate the red wines, LalVigne™ **MATURE** will give you better results.

In any case you will get good results.



Committed to wine from the vineyard

Wine is influenced by factors linked to viticulture, winemaking and consumer tastes. Wineries that are able to manage these factors achieve a competitive advantage in the market.

The **LalVigne™** project grows thanks to our collaboration with universities, institutes, wineries, grape growers and winemakers from different countries.



LalVigne™ MATURE and **LalVigne™ AROMA** have been tested through scientific, monitored and observational studies, which have shown the effect of their application in the vineyard, in the grape and in the wine

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