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Bordeaux Researchers Open Lab to Help Wine Adapt to a Warmer Climate

Oenoledge will study yeasts and other microbes that can lower alcohol, restore acidity and preserve wine style during fermentation.

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Researchers in Bordeaux have opened a new joint laboratory to help the wine industry adapt to a warmer climate, focusing on yeasts and other microorganisms that can change alcohol levels, acidity and aromas during fermentation.

The lab, called Oenoledge, was created on Sept. 3 at the Institute of Vine and Wine Sciences, or ISVV, in Villenave-d'Ornon, near Bordeaux. It brings together the University of Bordeaux, France's National Research Institute for Agriculture, Food and Environment, known as INRAE, Bordeaux Sciences Agro, Bordeaux INP and Biolaffort, the research and development arm of the Laffort group.

The work addresses a growing problem for vineyards in Bordeaux and other wine regions. Higher temperatures can lead grapes to accumulate more sugar as they ripen. That raises the wine's potential alcohol level. At the same time, musts can show higher pH and lower acidity, which can reduce the sense of freshness in the finished wine. Rather than relying only on changes in vineyard practices or grape varieties, researchers in Bordeaux are also trying to act at another stage of production: fermentation.

According to ISVV and INRAE, yeasts are one of the tools that can influence both alcohol content and acidity in wine. Oenoledge will study the selection of microorganisms for bioprotection and fermentation, the development of new products and winemaking processes, and the identification of new sensory markers in wines. Scientists involved in the project will examine the genetics of new yeast strains used in alcoholic fermentation and will also study other species that could improve the performance of commercial starter cultures.

The goal is to understand more precisely why one yeast strain produces a given result and another does not, so producers can choose the microorganisms best suited to a specific need. Researchers also plan to explore microbial biodiversity to identify organisms that may improve wine quality, preserve typicity or alter sensory traits in useful ways.

Some of that work has already produced commercial results. ISVV has been studying non-Saccharomyces yeasts, which occur naturally on grapes and in must, for their ability to affect aromatic complexity, acidity and alcohol levels. Several research teams have tested their use in mixed fermentations with Saccharomyces cerevisiae, the species most commonly used in winemaking. The targets include biological acidification, alcohol reduction and aroma modulation.

INRAE says one strain in particular, called Yonis, can reduce the alcohol level in wine by about one degree. The strain, a specific Saccharomyces cerevisiae, has been marketed since 2017 for that purpose. In practical terms, research of that kind could give winemakers a way to keep wines closer to existing style expectations in hotter vintages, with lower alcohol and more freshness than the fruit alone would naturally deliver. For the beverage sector, that matters because warmer growing conditions are changing the raw material going into fermentation, and producers are looking for tools that can adjust the final balance without stripping character from the product.

The Bordeaux teams have also spent decades studying how yeasts shape aroma. Laffort has marketed ZYMAFLORE VL3 since 1994, a yeast selected for white wines after research into the aromatic typicity of Sauvignon. That work helped clarify the molecules behind some of the grape’s signature aromas. Since 2020, another strain, sold under the name Sauvy, has been used to reveal compounds linked to blackcurrant and exotic fruit notes associated with Sauvignon.

The research behind those products is rooted in a long partnership between scientists and the wine trade in Bordeaux. According to the institutions involved, local research teams have been working with Laffort for nearly 40 years. Philippe Darriet, now director of ISVV, was the first doctoral student to emerge from that collaboration when he began his thesis in 1989. The partnership later expanded through Biolaffort and other projects that trained multiple generations of researchers working in the wine sector.

The new lab is also backed by field observation. ISVV maintains an observatory of biodiversity among wine-related microorganisms. It follows 27 vineyard plots equipped with temperature and humidity sensors. Each year, researchers collect about 100 grape samples to study the microorganisms naturally present in that environment. They then identify them through several analytical methods, including sequencing and molecular typing, to better understand how microbial populations are evolving as the climate changes and winegrowing practices shift.

Biolaffort now has a research team of more than 20 scientists, according to the institutions involved. Laffort says the broader research effort has led to 23 patent families. That reflects the commercial interest in fermentation tools that can respond to

a changing climate while preserving wine style and marketability.

The work at Oenoledge is not limited to lowering alcohol. Researchers are also studying microorganisms that may help with bioprotection, improve sensory complexity, and refine fermentation performance in ways that could give producers more options during difficult growing seasons. In a region where heat is increasingly shaping grape composition before harvest, that makes fermentation itself a more active area of adaptation, not just a final technical step after the fruit reaches the cellar.