

ENARTIS NEWS

HOW TO SAVE WATER AND ENERGY DURING VINIFICATION

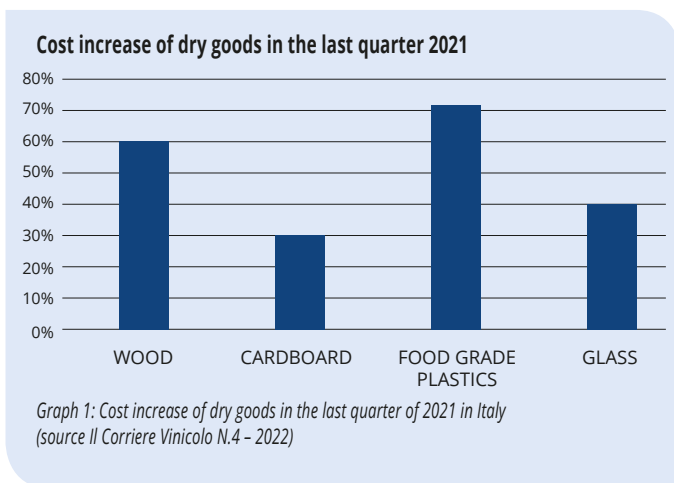
INTRODUCTION

In recent years, the cost of producing wine has been suffering critical issues related to the scarcity of some raw materials and the increased cost of essential resources such as electricity and water.

Refrigeration is one of the main sources of energy consumption for wineries. In the wake of a spontaneous and global movement in the wine industry to make wine production a process that respects and protects the planet, general attention has been focused on environmental sustainability.

In fact, the wine industry is not very energy intensive and energy consumption costs are offset by the generation of significant revenue. Compared to the cost of a bottle of wine, the economic savings from reducing energy consumption have thus far been negligible.

Recent increases in energy costs, which in some countries have doubled or tripled the cost of a kilowatt/hour in just two years, come in addition to increases of “dry goods,” raw materials used for bottling and packaging, (*Graph 1*) and up to 1000% rise in container and ocean freight rates seen in the last quarter of 2021.



ENARTIS SOLUTIONS

How to minimize electricity consumption during the winemaking process

Over the years, Enartis has become the spokesperson for enological practices aimed at saving water and, above all, limiting refrigeration. Some studies have shown that the greatest use of energy in winemaking occurs during the fermentation process to keep must at low temperatures.

It is therefore of particular importance during the winemaking process to limit energy expenditure at low temperatures, guaranteeing a quality product meeting the demands of the final consumer.

Examples of similar enological practices of high and low energy consumption:

HIGH ENERGY PRACTICES	LOW ENERGY PRACTICES
Stabulation or cryomacerations	Extraction with enzymes
Static clarification	Flotation
Fermentations at low temperatures	Fermentation at higher temperatures, Easytech range
Racking and pump-overs	Micro- and Macro-oxygenation
Cold stabilization	Stabilization with colloids

Following these considerations, Enartis promotes strategies to enhance enological processes that have the lowest possible impact on energy and water consumption and improves environmental sustainability.

- **Maceration or extraction with enzymes:**

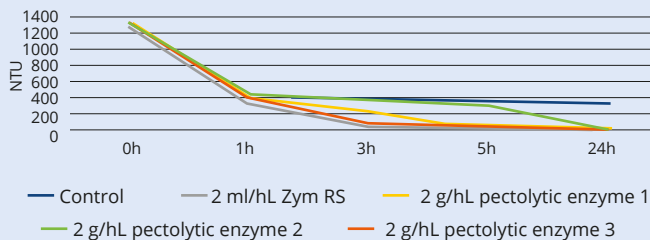
The use of enzymes such as **EnartisZym Arom MP** accelerates the extraction process, ensuring a reduction of the expensive cost of cold extractions (stabulation, cryomacerations). The presence of numerous and essential secondary activities makes **EnartisZym Arom MP** ideal for increasing the extraction of aromatic and polysaccharide substances, yielding 1.5% more free-run must.

- **White and rosé juice clarification:**

Flotation is generally recommended over static clarification because it is faster and, consequently, does not require keeping the tank at low temperatures for a long period of time. This advantage allows for a considerable saving in refrigeration.

This reduction can be carried out through the use of specific pectolytic enzymes that accelerates the clarification process and results in clean juice and compacted lees, ready to be inoculated in a few hours. The use of enzymes such as **EnartisZym RS** combined with **Plantis®** fining agents allows for excellent technical results. **EnartisZym RS** is a pectolytic enzyme rich in secondary activities which guarantees efficacy and speed even in varieties which are notoriously difficult to manage.

Turbidity reduction over time



White juice with a high pectin concentration: 2 mL/hL EnartisZym RS obtains lower turbidity 3 hours after the enzyme addition.

- **Alcoholic fermentation:**

In fermentations with the aim of minimizing steps at low temperatures, choosing a yeast that can create a product with added sensory value and, at the same time, has an optimal fermentation at higher temperatures is essential. In fact, recent studies have shown that Δ Temperature of 4°C saves 72% of electricity for refrigeration systems.

- **EnartisFerm Q Tau FD** is a freeze-dried strain of *Torulaspora delbrueckii* selected by the Polytechnic University of Marche in Italy. Suitable for producing white and rosé wines with an alcohol potential up to 12.5% and a maximum fermentation temperature of 25°C. Its characteristics contribute to the production of esters by providing intense fruit notes and increase taste sensations of softness due to the production of polyols and mannoproteins.

- **EnartisFerm ES123** is a blend of two *Saccharomyces cerevisiae* strains, particularly suitable for the production of ready-to-drink white wines. Thanks to its moderate fermentation speed it can ferment at high temperatures (maximum 25°C) ensuring a regular fermentation. From the aromatic point of view it produces fresh aromas of green apple, pear, flowers and citrus fruits, increasing the olfactory complexity.

- **EnartisFerm D20** is a strain isolated from Cabernet Sauvignon grapes in one of the most prestigious wineries on California's Central Coast. It has the ability to ferment at high temperatures, up to 38°C, and withstand a high potential alcohol ($\leq 17\%$ v / v). Due to this characteristic, it is recommended in the vinification of red wine with great structure, intense color, great ageing potential and in fermentations with poor temperature control. At the aromatic level, it expresses the varietal character, enhances notes of black fruit, flowers and spices and minimizes green notes.

What can be done in the cellar to reduce water consumption?

Water is a precious commodity whose reserve is severely tested by climate change. During the winemaking process, it is estimated that for every liter of wine produced, 8-10 liters of water are consumed. This generates numerous strategies throughout the supply chain aimed at minimizing water consumption by reducing and simplifying production practices.

With this in mind, Enartis proposes the **Easytech®** strategy by developing yeasts and activators to simplify cellar operations, optimize resources and reduce costs.

Easytech® yeasts allow you to inoculate must without the need for prior rehydration and acclimatization of the yeast, and without prior dissolution in the case of nutrients. The simplification of fermentation reduces labor and minimizes interventions in the cellar, thus reducing the risk of making mistakes at inoculation.

Enartis offers two polyvalent yeasts that can be used in the production of white, rosé and red wines, a specific yeast for white wines and one for red wines:

- **EnartisFerm Q ET:** polyvalent yeast created specifically for its direct application to juice. It is a varietal yeast and good fermenter over a wide temperature range that is well suited for the fermentation of quality white, red and rosé wines.
- **EnartisFerm WS:** polyvalent yeast that can be used for both red and white wines. It enhances fruity and spicy notes while respecting varietal and terroir characters. Being a robust yeast, it can be used in difficult conditions and for restarting sluggish or stuck fermentations.

- **EnartisFerm Aroma White:** world-class yeast for white wines. It allows for obtaining complex, fruity, citrus, thiolic wines, according to the desired style.
- **EnartisFerm Vintage Red:** varietal yeast intended for great red wines for ageing. It produces a good amount of glycerol and mannoproteins, generating softness and fullness. It also improves color stabilization.

Reducing the duration and number of operations in the cellar leads to concrete savings in energy and drinking water. The direct result is the significant decrease in environmental impacts caused by CO₂ emissions which, as we know, contribute to climate change.

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