

Draught and heat wave

Advices for red winemaking

Draught and heat wave have important consequences in red grapes maturity process.

- **Concentration of the berries content and thicker skins resulting in high potential alcohol and difficulties in polyphenol extraction.**
- **Blocage in grape maturity causing low yeast available nitrogen and oligo elements contents in must; as well low or unbalanced phenolic content and low total and malic acidities.**

These parameters can cause more or less severe problems in red winemaking:

- *Difficult polyphenol extraction monitoring,*
- *unstable color and oxidation,*
- *Microbial spoilage (lactic bacteria spoilage, unwanted wild yeast development,*
- *Malolactic fermentation onset before pressing,*
- *Stuck alcoholic fermentations.*

To solve these problems, DSM food specialties beverage ingredients technical service enologists propose several solutions:

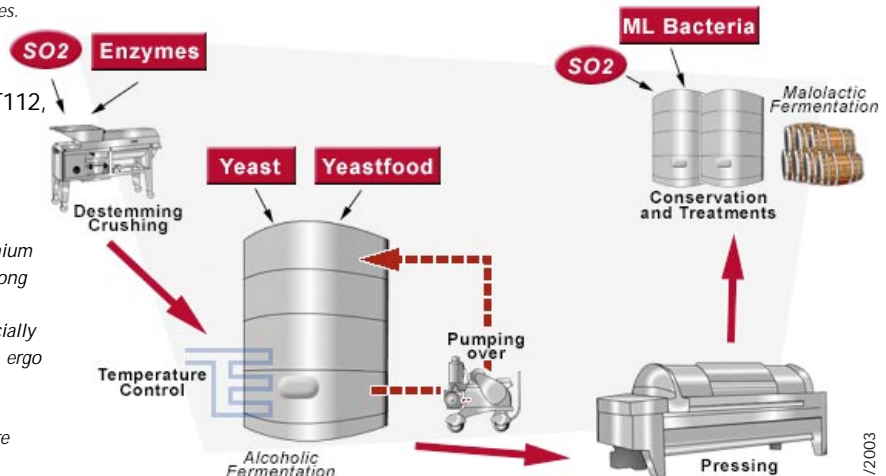
- **The addition of an adapted enzyme preparation and tannins will allow you to improve polyphenol extraction and color stability.**
- **An early yeasting with an alcohol tolerant yeast and a close monitoring of bacteria population will avoid microbial spoilage.**
- **Strengthening the yeast at mid fermentation with a fermentation bio-regulator will prevent from stuck fermentations.**

Press more profit from every grape with:

■ **Our enzyme:**
Rapidase® Ex Color
a highly concentrated enzymatic preparation with specific pectinase and hemicellulase activities. Rapidase® Ex Color naturally contains negligible levels of unwanted side activities such as cinnamyl-esterase and anthocyanase, these levels are lower than those of so called purified enzymes.

■ **Our yeast :**
Fermicru® LS2, Fermicru® VR5, Anchor® NT45, Anchor® NT50, Anchor® NT112, Collection cépage® Merlot
Alcohol tolerant yeast.

■ **Our fermentation aids**
Maxaferm®
a fermentation activator based on thiamin and ammonium salts that will support yeast growth and allow for a strong and healthy population.
The yeast strain used in its formulation has been especially selected for its high content in survival factors such as ergo and zymo sterols.
Delvozyme®
lysozyme will kill lactic bacteria therefore and therefore avoid spoilage.



▶ Improving polyphenol extraction and color stability

Thick berry skins are a barrier to anthocyanins and polyphenol diffusion in the must.

Heterogeneous maturities in a single vineyard or even inside each bunch forces the winemaker to plan the extraction techniques such as “delestage” and extended macerations for each tank in particular.

A close observation of skins and seeds combined with daily tasting are of capital importance in the planning process.

In order to favor the extraction of polyphenols and anthocyanins from the skin and pulp and limit the release of bitter and dry seeds tannins the winemaker ought to select gentle maceration techniques.

Using an enzymatic preparation with an adapted activity profile allows to gently extract skin polyphenols as well as improve color stability and increase juice yields.

A lack of water in the vineyard distresses polyphenol synthesis, low total polyphenol content or an unbalanced tannin/anthocyanin ratio causing color to be instable and easily oxidable.

The use of an adapted preparation of tannins will help prevent oxidation. Proanthocyanidic tannins improve color stability through combination.

■ **What to do :**

■ *At tank filling, add 4 to 6 gram per hectoliter of SO₂*

■ *At tank filling, add 3 to 4 gram per hectoliter of Rapidase® Ex Color*

■ *2 days after fermentation onset, add a preparation of proanthocyanidic tanins*

▶ Avoid microbial spoilage

High pH and temperatures favor wild yeast (*Kloeckera*, *Pichia*) as well as lactic bacteria development. These micro-organism not only cause wine spoilage but also deplete the must from nitrogen, vitamins and minerals increasing the risk of stuck fermentations.

High pH and low malic acid concentrations are factors that ease malolactic fermentation on set. In some part of the world monitoring MLF at the same time than alcoholic fermentation is quite a common use but this year it is better to avoid it from happening.

High sugar contents, low available nitrogen, cool night temperatures are all factors that can cause stuck alcoholic or malolactic fermentations.

In the first case scenario, a decrease in yeast activity favors a change in lactic bacteria metabolism towards sugar consumption and wine spoilage.

In the second case, a stuck malolactic fermentation will be difficult to restart even after pressing.

■ **What to do:**

■ *Early easting at a high dosage (20g/hl - 2lbs/1000G) with an alcohol tolerant strain: Fermicru® LS2, Fermicru® VR5, Anchor® NT 45, Anchor® NT 50, Anchor® NT 112, Collection cépage® Merlot. It is important to carefully follow our rehydration protocol.*

■ *Add at tank filling 20g/hl of Maxaferm*

■ *Add at tank filling 10 to 20 g/hl of Delvozyme® This treatment will not stop MLF from happening after alcoholic fermentation.*

■ *Short maceration, (do not exceed 5 days after alcoholic fermentation.)*

▶ Prevent stuck fermentations

The high alcohol and low nutriment concentration at the end of fermentation make it difficult for yeast to survive.

An addition of a fermentation activator based on inactivated yeast and ammonium salts at mid-fermentation (specific gravity 1040) will increase yeast viability and help maintain an active population until complete sugar consumption.

■ **What to do:**

■ *Addition at mid-fermentation (d 1040) of 30 to 40 g/hl of Maxaferm® along with a pumping over with air.*