

2004 Botrytis attack.

2004 vintage offers ideal conditions for *Botrytis cinerea* (humidity, high crop density, important vegetation development with the following consequences:

- **Poor juice yields.**
- **Low must nitrogen and vitamins content, due to the consumption by *Botrytis cinerea* for its own growth.**
Vigorous yeast and nitrogen addition are necessary.
- **Unwanted microorganism development due to grape berry cell walls degradation.**
SO₂ addition must be sufficient and fractioned in order to compensate its combination.
Lysozyme addition offer an additional security.
- **Must browning and oxidation by botrytis polyphenol oxydase: laccase.**
Bentonite fining to remove the laccase, PVPP to remove polyphenols.
Thermo-treatment.
Tanins addition allow to minimize oxidation.
- **Filter clogging by *Botrytis glucans*.**
Beta-glucanases ease filtration and increase filter cycles.

How to react in the cellar.

Making red wines

Reduce harvest manipulations to the minimum in order to slow down the damages caused by the laccase.

Ban delestages, avoid puch downs, prefer pumping overs.

The use of enzymes promotes polyphenol extraction with less physical manipulations.

Making white wines

In order to reduce the off flavors and eliminate the polyphenol oxydases, clarify severely and rack the wines as soon as possible.

Used after pressing, pectinases break down long pectin chains and allow for faster clarification and compact lees settling.



Treating *Botrytis cinerea* infected red grapes

Objectives

■ Limit/stop quality degradation.

■ Color extraction and stabilization.
 ■ Inhibit polyphenol oxydases.

■ Limit volatile acidity production:
 - Lactic bacteria control

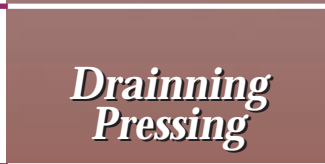
■ Clean and fast fermentation
 - Vigorous yeast strain

■ Supplement the must in lacking vitamins and nutrients: Nitrogen, vitamins (thiamin).
 ■ Avoid off flavors, enhance yeast viability.
 ■ Activate alcoholic fermentation.
 ■ Stabilize the color.

■ Avoid rough manipulations of the pomace.

■ Assure a fast MLF on set.

■ Pectic polysaccharides degradation (pectins et glucans) responsables for filter clogging.



DSM answer

- Ideal : hand picking and sorting
 - SO₂ 6 to 8 g/hl.
 Machine harvest (draining bottom).
 - SO₂ 8 to 10 g/hl.

- RAPIDASE® EX COLOR
 3 g/hl, if % rot <25-30%.
 no enzyme if % rot >30%.
 - Tanin (proanthocyanidic + ellagic)
 20 to 30 g/hl.

- Delvozyme®: 200 mg/l.
 - Fermivin®, Collection cépage® Merlot,
 Fermicru® VR5, Anchor® NT50
 20 to 25 g/hl.
 - Optimum rehydration conditions
 (cf product sheet).
 Maxaferm® at tank filling: 20 g/hl

- Maxaferm® at mid-fermentation
 20gr/hl, (1040).
 - Tanin 20 à 30 g/hl.
 - Short maceration 4-6 days.
 - Pump overs limited to every 2 days.

- Light pressing.
 - Avoid homogenization of the mash
 by press movements.

- Selected lactic Bactéria.

- RAPIDASE® FILTRATION:
 3 g/hl on drain wines.
 5 g/hl on press wines
 - 3 weeks at T >18°C.

Treating *Botrytis cinerea* infected white grapes

Objectives

- **Limit/stop quality degradation:**
- Move the harvest gently

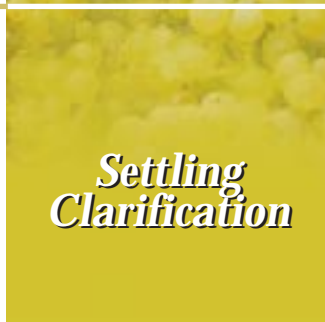
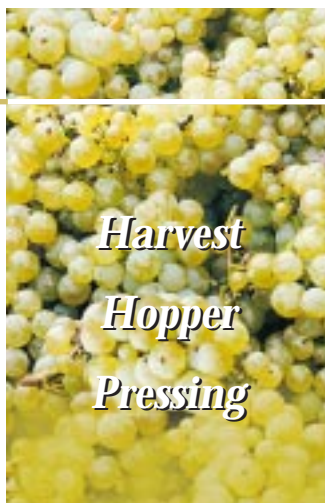
- **Avoid off flavors:**
- Fast and severe clarification (<50 NTU).
- **Avoid browning:**
- Remove oxidable phenolic compounds.

- **Limit volatile acidity production:**
- Control lactic bacteria.
- **Complete fermentation**
- Vigorous yeast strain
- **Raise turbidity Remove inhibitors.**

- **Complete fermentation:**
- Supplement the must in lacking vitamins and nutrients: Nitrogen, vitamins (thiamin).
- Enhance yeast viability

- **Fast MLF onset.**

- **Filtration:**
- Pectic polysaccharides degradation (pectins and glucans) responsables for filter clogging.



DSM answer

- Ideal: hand harvesting and sorting.
- SO₂ 5 to 7 g/hl.
- Machine harvest (draining bottom).
- SO₂ 6 to 8 g/hl. Light pressing, sans rebêches
- Avoid skin contact.
- Limit juice yields, keep P3, P4 and P5 separate.

- RAPIDASE® CB, 3 g/hl, if % rot < 20%
- RAPIDASE® FILTRATION, 4 g/hl if % rot > 20%.
- Bentonite, 40 g/hl (6 hours after enzyme addition).
- PVPP, 40 g/hl.
- Tanin, 10 to 20 g/hl.

- Delvozyme®, 100 mg/l.
- Fermicru® AR2, Fermicru® LVCB, Fermicru® 4F9, Anchor® VIN13, Anchor® NT116, 20 à 25 g/hl.
- Maxaferm®. 20 to 25 g/hl.

- Maxaferm®, 20 g/hl at mi-fermentation (densité = 1040).

- Selected lactic bacteria.
- Activator MLF 20 g/hl

- RAPIDASE® FILTRATION :
- 4 g/hl, 3 weeks at T > 18°C.