



UNEVEN RIPENESS

Some vintages are characterised by low yields along with grapes that are unevenly ripe. This practical booklet aims to outline the possibilities to best manage this situation at different key moments during the fermentations and maturation.



CHARACTERISATION OF GRAPES AND CONSEQUENCES



Consequences of a lack of maturity

- ◆ Low phenolic maturity
- ◆ Low extractability
- ◆ Green notes (IBMP : 3-isobutyl-2-methoxypyrazine)
- ◆ High acidity
- ◆ Presence of pectins: problems with clarification and filtration



Consequences of grey rot

- ◆ Oxidation of phenolic compounds by laccase
- ◆ Nitrogen deficiency: difficult fermentations
- ◆ Off odours and tastes: Geosmin, OTA
- ◆ Risk of *Brettanomyces* contamination
- ◆ Loss of aromas: glycosidases produced by *Botrytis* hydrolyse the terpene glycosides which are then oxidised by *Botrytis* into less aromatic compounds
- ◆ Presence of *Botrytis* glucans: problems with clarification and filtration



GENERAL PRINCIPLES FOR RED WINES

	PROBLEM	SOLUTION
Underripe grapes	Extraction of vegetal notes	Avoid excessive extraction
	Low yields after running off	Add enzymes
<i>Botrytis</i> contamination	Oxidation risk, loss of colour	Limit oxygen by all means Moderate extraction Low maceration time
	Risk of browning	Protect the wine from oxygen until laccase activity has completely disappeared
	Poor filterability and difficult clarification leading to microbiological risks	Add enzymes
	Risk of reduction - reductive tastes	Aerate only once laccase activity has disappeared (check with test)



1) MANAGING EXTRACTION

Process A : underripe grapes with traditional winemaking

OBJECTIFS Remove or decrease green notes (IBMP is a volatile molecule)
Extraction of phenolic compounds

.....LA SOLUTIONS.....

1. YEAST ADDITION

Excellence® FR, SP, XR, DS, or LAL13



- Add yeast when filling tank at 20 g/hL
- Correct potential assimilable nitrogen deficiencies.
- Add nitrogen in mineral or organic form depending on level of deficiency.
- See Lamothe-Abiet's **Nutrients** range. Short maceration without aeration, limiting pumping etc.

2. ENZYME ADDITION

Vinozym® Vintage FCE



- 2 à 3 g/100kg ou

Vinocrush® Classic

- 3 à 4 mL/100kg

- Optimise the extraction
- **Increase** the volumes of free run juice during pressing

Process B : botrytised harvest during traditional vinification

GOALS Act quickly
Inhibit laccase

.....LA SOLUTIONS.....

1. TANNIN ADDITION

Pro Tanin R®



- 20 to 80 g/hL (dose determined by Botrytest)
- Laccase inhibition
- Antioxydant role
- Action on proteins (precipitation to protect natural grape tannins)

2. YEAST ADDITION

Excellence® FR, SP, XR, DS, or LAL13



- Add yeast when filling tank at 20 g/hL
- Correct potential assimilable nitrogen deficiencies.
- Add nitrogen in mineral or organic form depending on level of deficiency.
- See Lamothe-Abiet's **Nutrients** range. Short maceration without aeration, limiting pumping etc.

Process C : botrytised and/or underripe harvest with thermovinification

OBJECTIFS Remove or decrease vegetal notes (IBMP is a volatile molecule)
Denature laccase

LA SOLUTIONS

1. ENZYME AVANT THERMOVINIFICATION

Vinozym® Vintage FCE

- 2 à 3 g/100kg ou

Vinocrush® Classic

- 2 to 4 mL/100kg

- Complete extraction
- Frees the polysaccharides which play a role in colour stabilisation



2. THERMOVINIFICATION

Quickly increase the temperature of the grapes to between 70 and 80°C in order to block laccase activity

3. TANNIN ADDITION

Pro Tanin R®

- 20 to 80 g/hL

- Antioxydant role
- Action on proteins (precipitation to protect natural grape tannins)



4. ENZYME ADDITION AFTER THERMOVINIFICATION

Vinoclear® Classic

- 1 à 3 mL/100kg

- Facilitate clarification
- Increase press yields



5. YEAST ADDITION

Excellence® FR, SP, XR, DS, or LAL13

- Add yeast when filling tank at 20 g/hL

- Correct potential assimilable nitrogen deficiencies.
- Add nitrogen in mineral or organic form depending on level of deficiency.
- See Lamothe-Abiet's **Nutrients** range. Short maceration without aeration, limiting pumping etc.



2) REMOVE EARTHY-MOULDY OR GREEN NOTES

Process A : remove vegetal notes

Process B : remove earthy-mouldy notes

.LA SOLUTIONS.

Géospriv



- 20 to 40 g/hL

- Drain some of the must and treat it separately with Géospriv for 12 to 24 hours. This enological carbon is effective in removing tastes and odours due to Géosmine or pyrazines.
- After treatment, add the juice back over the cap.
- Product under regulation, please refer to current legislation.

3) FERMENTATION MANAGEMENT

It is important that the alcoholic and malolactic fermentations are as quick as possible.

Excellence[®] XR, DS, or LAL13 and Oeno[®] 1



- à 20 g/hL et 1g/hL

- Lamothe-Abiet has been working on this technique for over 15 years. Co-inoculation involves adding yeast then bacteria into the must, such that the alcoholic and malolactic fermentations occur simultaneously.

There are several advantages of this:

PARAMETERS	DIFFERENCES FROM NATURAL FML (analyses carried out during maturation)	ENOLOGICAL CONSEQUENCES
Volatil acidity	7 % reduction on average	Better aromatic quality
Vinyl phenols (Ethyl phénols precursors)	50 to 100 % reduction	Cleaner wines
<i>Brettanomyces</i> population	70 % reduction	Wines that are easier to stabilise
Population on indigenous malolactic bacteria	30 to 50 % reduction	
Combined SO ₂	30 to 50 % (20 % less ethanal)	

4) MANAGING ACIDITY

The deacidification/acidification practical booklet (available on our website) is a guide for managing acidity in harvests with uneven ripeness.

5) COLOUR STABILISATION

It is essential to stabilise the wine's colour quickly, as soon as the beginning of the fermentation, since the amount of extracted tannins will be too low to stabilise the extracted anthocyanins.

.....L.A SOLUTIONS.....

Softan® Vinification



- 20 to 30 g/hL from D+1

- Tannins linked to polysaccharides rich in catechin, with high capacity to stabilise colour.

Natur'Soft®



- 30 g/hL

- Preparation of autolysed yeasts for colour stabilisation and roundness on the palate.

6) IMPROVE CLARIFICATION AND FILTRABILITY

Process A : unripe harvest

*When underripe, wines have more pectins.
Add enzymes when running off.*

Process B : vendange brotycée

*On free run wines: Remove Botrytis glucanes after alcoholic fermentation.
On press wines: Be aware that these have more laccase and clogging colloids. - Add enzymes to the press wine.*

Novoclair® speed



- 1 to 3 g/hL or

Vinoclear® Classic

- 1 to 3 mL/hL

Vinotaste® Pro



- 10 g/ 100kg

7) DECREASE ORGANOLEPTIC FAULTS AND IMPROVE THE STRUCTURE ON THE PALATE

Process A et B :

In the case of unripe or botrytised grapes without thermovinification, green notes should be decreased using enological oak.

Process C :

*As well as using thermovinification and the use of enzymes for extraction, the wine needs softening.
It is highly recommended to act as early as possible, when running off or during MLF.*

.....L.A SOLUTIONS.....

œnoboïs Range



- Blend of fresh and toasted oak (Medium/Medium+ toasts) to remove green notes and add structure and roundness to the wine.

8) ADD STRUCTURE

| Some wines might lack tannic structure.

Vinitan Advance®

APPLICATION	BENEFITS
Lean, unstructured wines	Reinforces the structure, improves balance
Unripe grapes	Re-creates structure and roundness after gentle extraction



Tan & Sense® Volume

APPLICATION	BENEFITS
Lean, unstructured wine	Increases wines' volume
Lack of aromas, not clean	Improves the length of fruity aromas
Unripe grapes	Helps to add structure after a gentle extraction



Gamme Softan® : Plant extracted tannins bound to polysaccharides

APPLICATION	BENEFITS
Wines that lack mid-palate	Fills the mid-palate
Unbalanced wines	Adds structure, roundness and finesse
Good quality grapes but slightly unripe	Helps to re-create structure, roundness and finesse after a gentle extraction



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