Ohio Shortcourse
Geneva on the Lake
February 2005

Sigrid from Lallemand inc.
What winemakers want? SECURE FERMENTS

- regular fermentation = easy finish
- absence of metabolic off-flavors
- in some cases ... fast fermentation

Key parameter: slope at the end

Acceptable fermentation: slow but right to the end

Good fermentation: slow or fast, but good finish

Worst case: fast at the beginning and sluggish / stuck at the end
FACTORS INFLUENCING WINE STYLE

- Growing conditions
- Vineyard management
- Grape handling at harvest
- Juice or Must handling
- Fermentation management
- Post fermentation practices
- Aging
Factors affecting Fermentation Management - Key Interrelationships

JUICE or MUST

TEMPERATURE

CELL NUMBERS

MAXIMUM FERMENTATION MANAGEMENT

TOXIC FACTORS

COMPETITIVE FACTORS

YEAST STRAIN

NUTRITIONAL FACTORS
YEAST COMPONENTS*

Amino-acids and peptides:
- aromas precursors
- flavor enhancers
- bacteria nutrients
- anti oxidants

Nucleic acids
- organoleptic properties

Volatile aromatic compounds
- more than 80 molecules identified

Polysaccharides
- colloidal interactions
- mouthfeel improvement

*From Pr. Michel Feuillat, University of Burgundy
1. GENERAL INFORMATION

- Role of the yeast is not limited to Sugar => Alcohol conversion

- Flavour/Mouthfeel impact of yeasts: probably more linked to post-AF reactions than to fermentation itself

- Non fermentation use of yeasts is « nature » oriented

Many yeast products could be substitutes to more chemically oriented products

> carrier of bioavailable molecules
A ‘simplified’ cell membrane
Yeast polysaccharides releases

Specific Process

Action of endoglucanases from the vacuole (autolysis)
Specific Inactive Yeasts for Red Wines
What is it?

100 % natural yeast product:

- Specific oenology strain, rich in polysaccharides
- Inactivated by a specific LALLEMAND process
- Natural source of stabilizing colloids
How does it work?

- releases yeast polysaccharides able to react with pigments since the very beginning of maceration

![Diagram with time axis and events]

- OptiRED addition 30 g/hL
- End of alcoholic fermentation
- Color stabilisation and Tanins reaction with OptiRED

1. Mannoproteins From OptiRED
2. Mannoproteins From yeast autolysis
Round and Red!

- OptiRED is the natural solution for round and full bodied red wines.
- Works in synergy with enzymes.
- Great results with main red varieties (Cabernet Sauvignon, Merlot, Pinot Noir, Syrah...) worldwide.
Winemaking results

OptiRED increases polymerisation of polyphenols

Excellent synergy with extraction enzymes for reds

Pinot Noir, 2002
OptiRED @30g/hL, in maceration
Analysis 6 months after bottling
Booster Rouge

OptiRED concept from ICV

- Same process as OptiRED
- Made from a specific ICV yeast strain

For red wines:
- Increase mid-palate tannic intensity
- Great synergy with ICV yeast strains
- Will reinforce tannic structure
Booster Rouge from ICV

Made from a specific ICV yeast strain

For red wines:

- Intensity
- Structure
SYRAH RED WINE, MLF in american oak barrel.
ICV R&D department 2003

RESULTS KINDLY PROVIDED BY ICV
A natural product to enhance white wines quality

- Mouthfeel (more roundness)
- Aromas
- Color
- Synergy with other fermentation nutrients

AOJ&DG, 2004
WHY?

- Added to the juice, **enhances** aroma and color stability of white wines.
  (Natural carrier of polysaccharides and anti-oxidant peptides)

- For light and acidic white wines **increases** mouthfeel (lends more roundness) and contributes to reducing the perception of acidity.
1. FERMENTATION KINETICS

- Trials 2003
- Fermentation under controlled temperature
- Yeast addition @25 g/hL
- OPTI-WHITE @50 g/hL, to the juice

Does not replace a nutritional strategy!
Viura (Rioja, 2003) UNIVERSISAD DE LA RIOJA

Must parameters:
- Initial OD 420 nm: 0.40
- pH 3.24
- Sugars 195 g/L
- Total acidity: 4.18 (eq. g/L H2SO4)
- Opti-WHITE @ 30 g/HL

- Less evolution of the darker 'yellow' colour

- Contributes to limiting oxidation (primarily during ageing) due to the anti-oxidant power of Opti-White
3. Sensory effects

Winery C

- Global intensity
- Citrus fruits
- Exotic fruits
- Ripe fruits
- Floral
- Vegetal

Note / 5

Control
Opti-WHITE
Can you add these products AFTER the alcoholic fermentation is complete?
YES!

- Helps to integrate
  * high alcohol
  * a little bit too much oak
  * aromas

- Cells are already autolyzed, so solubilize quickly into the wine matrix
• If added before and after, use half the total dosage before and half after

• If only adding after, stick to lower end of recommended dosage 20 gr/hL for Opti-White and 20-30 gr/hL for Opti-Red (moderation for maximum benefits).
Practical questions (and answers)

• When to add?
  – Generally post-ML, within normal racking procedures

• Maximum time?
  – Clear effect can be noted 4-8 days after addition, trial can be done for 2-6 weeks, no negative effects recorded after 9 months

• Other?
  – Good idea to check for live Brettanomyces (not just 4-ethyl-phenol), Pediococcus and Lactobacillus because adding fresh yeast can serve as nutrients for spoilage organisms
Oh! And don’t forget ...

• Is a sulphite addition necessary?
  1) Adapt to pH
  2) Adjust to bacteria load in wine
    – When to sulphite is very important:
      • After racking off lees in reds
      • Within 24 hours in whites and rosé
      • Maintain sulphite levels during battonage

• Critical to avoid oxidation and maintain freshness of the wine—add smaller, incremental additions of sulphite
Thank you!
• Malo-Ethanol Fermentation

2.33g/l malic acid -> 0.1% ethanol
Advantages

- Management of deacidification (partial or total demalication)
- Improvement of sensory characteristics

Interests

- Great for high acid wines!
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<th>Treatment</th>
<th>Vinification</th>
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- Portugal -

- France -
Comparison of two organoleptic profiles for a white must treated with *Schizosaccharomyces pombe* (■—■) and a control (●---●).
Comparative Results for deacidified white wine versus control
APPLICATION
ProMalic®

Encapsulated Yeasts

Application before AF

Application after AF

Acide Malique (g/L)

Jours

0 1 2 3 4 5

1er cycle 2ème cycle

Ethanol

g/L

Jours

0 10 20 30

0 2 4 6 8 10