The Art & Science of Rose Winemaking

Christophe Rossi
&
Jillian Johnson
Outline

- History & Statistics
- Provence - Fruit & Juice Processing
- California – Fruit & Juice Processing
- General Rosé Winemaking
History

- Mesopotamia
  - 3000 B.C.

- Grapes were crushed without vatting

- Rosé was the first wine ever made!
ÉVOLUTION DE LA PROPORTION DE VINS ROUGES ET ROSÉS ÉLABORÉS

Av. JC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Vins clairs  Clarets  Clairets  Rosés  New french clarets

Vin plaisir, « peu nourrissant »

Antiquité

Rome

Vin jeune

Mahomet

Ordres monastiques

Bouteille

Phylloxera

Vin nourriture

Connaissance

Plaisir

Conservation / vieillissement

1895
120 ANS
2015
l’œnologie par nature

LAFORT
ROSE
History

• At the 17th century, workers ask for more « nourishing » wines.

• Emergence of « vins noirs » (Black wines) in Bourgogne, Gaillac, Cahors, Béarn and Spain.

• Increased time on skins
  – New French Claret
History & Statistics

- 17th Century –
  Wine inventory in Paris shows that cellars are composed of 80% Rose.

- 20th Century –
  Market switches - Rosé represents only 10% of the total wine consumed in France.
World Rosé Production

24,2 millions of hl in 2014

- France: 7,6 Mhl (31%)
- Spain: 5,5 Mhl (23%)
- USA: 3,5 Mhl (14%)
- Italy: 2,5 Mhl (10%)
Production History in 4 Countries

Evolution de la production de vins rosés pour les quatre plus gros producteurs

France

Espagne

États-Unis

Italie

Source: sources diverses, élaboration OIV-CIVP, 2015
History & Statistics

Development of World Consumption

Source: Sources diverses, élaboration OIV-CIVP, 2015
• France: 1st consumer country with 37% in 2014

• France is a net importer of rosé wine
Provence Statistics

- AOP Côtes de Provence
  - 64,200 acres
  - 600 producers and 60 wine traders

- 2014 production: 1,329,000 hectolitres
- 14.7 million cases

- 8% Red, 4% White and 88% Rosé.
- The world’s major rosé AOP wine producer.
Provence Statistics

FRENCH AOP ROSÉ PRODUCTION

- Provence: 40%
- Loire: 18%
- Rhône: 14%
- Languedoc: 5%
- Roussillon: 4%
- Bordeaux: 12%
- Other AOP: 7%

CIVP 2012, total 2.7 M hl
Provence Statistics

- USA is #1 for Provence Rose Export
Hisotry & Statistics

Rosé Consumption by Age

% de vin rosé consommé déclarés par les consommateurs de vins tranquilles

Source : Sources diverses, élaboration OIV-CIVP, 2015
Wine Intelligence, Enquête CIVP, Vinitrac® 2014, n>700 conso. de vin tranquille sur tous les marchés
* : pour la population enquêtée. Base=Tous conso. de vin
Future Statistics

• Worldwide production grew 8% in last 10 years
  – With a regular annual consumption growth of 1%, we will need 2 or 3 Millions hl of rosé wines more each year

• Rosé wine production is close to 10% of the total worldwide wine production.
We need to make more Rose Wines!
Provence Style

• Very pale pink
• High thiol aromatics (almost Sauvignon Bl.)
• Low phenolic profile
• Full-bodied, but little RS if any
• **G. Masson’s definition** *(director of the research and experimentation center of rosé wine)*:

"A wine which is produced through the fermentation of a must, obtained after the well managed prefermentative pellicular maceration of red grapes."

• Varieties:
  - Cinsault, Grenache, Tibouren, Mourvèdre, Carignan, Syrah...
  - Cabernet franc, Merlot, Zinfandel...
• Harvest time: grape maturity for Rosé

• Alcohol: 20-21 °Brix  TA > 6g/L in tartaric acid
Provence Vinification

• Harvest: machine or hand picked?
  
  – Liquid phase + solid phase = Maceration
  – High temperature increase enzymatic reaction

• Protection during transportation: metabisulfite and draining skip/hopper

• SO2 can act as a solvent
Lafazym Press Enzyme

Free Run Juice Enhancement
Reduces Fruit Mashing

Pressing Optimization
Lowers Turbidity

Increase in Thiol Aromatics

SÉMILLON 2004-pH 3.4 - VIGNOBLES DUCOURT

<table>
<thead>
<tr>
<th>Control</th>
<th>LAFAZYM® PRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>65.80%</td>
<td>76.40%</td>
</tr>
<tr>
<td>14.80%</td>
<td>10.90%</td>
</tr>
</tbody>
</table>

+ 11% in free run juice

Indices aromatiques de moûts de Sauvignon Blanc

A3MH (Buis, fruit de la passion)

3MH (pamplemousse; fruit de la passion)

Indices aromatiques ([arômes]/seuil de perception en ng/L)

0 5 10 15 20 25 30 35

Enzyme X
Lafazym Press
Provence Vinification

Press Cycle

Champagne cycle
Successive pressure thresholds 3 to 4 « rebêches » maximum

Classic cycle
Provence Vinification

Sulfiting impact on thiols concentration

3 Mercapto-Hexanol

Source: CIVP 2012
Provence Vinification

- Settling lees **stabulation**:  
  - Tank inerting  
  - The time/temperature couple

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th>Stabulation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 – 12 °C (50°F)</td>
<td>24 h</td>
</tr>
<tr>
<td>8 °C (46°F)</td>
<td>48 h</td>
</tr>
<tr>
<td>0 – 2 °C (32°F)</td>
<td>4 days to 3 weeks</td>
</tr>
</tbody>
</table>

- Agitation: Dry ice, CO₂ sparge  
- Fining (optional: bentonite, PVPP, Vegecoll...)

[Image: Laffort Rosé logo]
Provence Vinification

Stabulation

Résultats des essais millésime 2014

<table>
<thead>
<tr>
<th>Analyse des vins</th>
<th>durée de stabulation (jours)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Alcool %</td>
<td>12,27</td>
</tr>
<tr>
<td>Sucres Rédacteurs g/L</td>
<td>5,1</td>
</tr>
<tr>
<td>AT g/L H2SO4</td>
<td>4,29</td>
</tr>
<tr>
<td>AV g/L H2SO4</td>
<td>0,14</td>
</tr>
<tr>
<td>pH</td>
<td>3,1</td>
</tr>
<tr>
<td>SO2L mg/L</td>
<td>38</td>
</tr>
<tr>
<td>SO2T mg/L</td>
<td>134</td>
</tr>
<tr>
<td>ICM</td>
<td>0,29</td>
</tr>
<tr>
<td>DO 420</td>
<td>0,16</td>
</tr>
<tr>
<td>DO 520</td>
<td>0,096</td>
</tr>
<tr>
<td>DO 620</td>
<td>0,036</td>
</tr>
<tr>
<td>IPT</td>
<td>7,64</td>
</tr>
</tbody>
</table>

Les esters

Les thiols

Researching new enzyme
Provence Vinification

- Racking at 100 - 200 NTU.

- Settling lees filtration then re-integration
  - Rotative vaccum filter (less qualitative)
  - Impermeable filter press
  - Tangential filter

- Inert Gas for tank and transfer lines
Provence Vinification

- Destemming and crushing
- Pressing enzyme
- Sulfiting
- Inert during filling of the press: Dry ice or $\text{CO}_2$
  - Rosé wine volume $\times 2 \times 0.06$ = dry ice (kg)
- Stabulation
- Juice fining
- Rack clean juice to tank
California Rose Style

- Any variety
- Saignee method is most popular
- Not afraid of phenolistics, can be balanced with RS
- Huge range of color
California Vinification

Methods for Growing Rose

Method #1 – Grow your crop for Rose

Method #2 – Grow your crop for red wine and bleed off juice for rose (Saignee)

Method #3 – Grow your crop for red wine and crop thin late. Process the thinned fruit for Rose instead of throwing it on the ground.

Method #4 – Blend red and white wine – NOT RECOMMENDED
• You will lose 30-40% of your color during fermentation
• More time on skins = more phenolics extracted
• Use a fining agent at juice settling to remove bitter phenolics
PHENOLIC MANAGEMENT - FINING

Early fining of Rosé juice will remove the phenolic compounds that trap aromas. Removing unstable phenolics will help to stabilize color and reduce risk of orange color development during aging.

Polyact®
PVPP & Casein -
Adsorbs the oxidized and oxidizable phenolic compounds while preserving organoleptic potential of the wine.

Gelarom®
Refines the phenolic structure promoting aroma expression, restores freshness, and removes bitterness. Improves wine clarity and filterability.

Vegecoll®
Potato Protein –
Stabilization of coloring matter and elimination of polyphenol oxidase enzymes. High clarification and sedimentation rate.
California Vinification

Fruit & Juice Processing

• Destem to Press, whole cluster press, saignee
• Lafazyme Press added to fruit for more gentle press cycle
• Add SO2 to juice
• Add Fining agent at juice settling: Polylact, Polymust, Vegecoll, Gelarom
• Rack clean juice to tank under inert gas (protect from oxygen)
General Rose Fermentation

– Acidification (according to legislation)
– Adjust Brix
– Yeast rehydration – Superstart Blanc
– Yeast Selection
– Yeast nutrition : Amino Acid, Mineral, O2
– Glutathion – aroma preservation
– AF temperature : 13° or 20°C (55°/68°F)
  • 55 – favors Esters
  • 68 – favors Thiols
– Fining (if not done at juice settling)
AROMA OPTIMISATION
With an optimal rehydration yeast
Laffort Rose Yeast

FERMENTATION YEASTS
The choice of yeast strain will help define the style of Rosé; fruit forward with bright acidity or more elegant profile with rich texture.

<table>
<thead>
<tr>
<th>Yeast</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zymaflore® DELTA</td>
<td>High expression of volatile thiols, particularly grapefruit (3H), increased midpalate volume.</td>
</tr>
<tr>
<td>Zymaflore® X16</td>
<td>Very high aromatic ester producer, low temperature fermentations.</td>
</tr>
<tr>
<td>Zymaflore® VL1</td>
<td>High beta glucosidase activity, favoring the release of floral terpenes, midpalate volume.</td>
</tr>
<tr>
<td>Actiflore® Rosé</td>
<td>High production of fermentation esters, bright acid profile, strong fermenter.</td>
</tr>
</tbody>
</table>
Yeast Aromatic Profile

Key:
- X16
- X5
- VL1

Fruits and Aromas:
- Orange
- Ananas
- Passion
- Buis
- Poire
- Banane
- Fraise
- Framboise
- Cerise
- Citron
- Pamplemousse
- Rose
FERMENTATION - NUTRIENTS
Rose has very delicate aromas and the right nutrition balance will keep fermentations clean and help develop more fermentation esters with stability in the finished wine.

Superstart Blanc®
Yeast Re-hydration – Improves aromatic production and improves yeast resistance to low temperatures. Prevents excessive VA production.

Nutristart Org®
Ferment Nutrient – Improves nutritional balance for yeast; nitrogen and pantothenic acid are essential to aroma metabolism and to prevent reduction problems.

Fresharom®
Glutathione – Protect the aromatic potential of the wine, delay the appearance of oxidized notes and inhibit mechanism of browning.
Aging & Stabilizing

- Prevent MLF and rack to eliminate gross lees and fining agents
- Blending: Color adjustment by adding press wines or more coloured wines
- Protein stabilisation
- Filtration
- Tartaric stabilisation
- Bottling
General Protocols for Every Rose Style:

- Keep fruit cool at harvest/processing
- Use enzyme for gentle pressing cycle
- Oxygen management/Carbonic protection
- Settling lees management
- Polyphenols removal - Fining
- Yeast choice to favor ester/thiol production
- Super Start Blanc at yeast re-hydration
Thank You

Jillian Johnson DeLeon