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PRODUCTION STRATEGIES FOR ROSÉ WINE STYLES

INTRODUCTION TO ROSÉ WINES

Rosé wine production ranges from being quite simplistic to very technical. It's important for the winemaker to remember that several production alterations can change the color, flavor, aroma, and taste of a rosé wine. This includes processes like: the use of ripe or immature fruit to create the rosé, skin contact time to extract color and flavor, potential use of stabulation and the degree to which it is used, and the use of various packaging materials.

There are generally three different ways to create a pink wine:

- **Saignée Rosé**: Saignée is the process of bleeding off red juice from the must of crushed red grapes in order to concentrate the remainder of the must left behind. The bleed is then fermented separately into a rosé wine. Saignée rosés are produced from ripe red fruit, which has an impact on phenolic character, color, flavor, and pH of the finished wine.
- **Early Pressed Red Rosé**: Here, red fruit is picked at a slightly immature ripening stage. Flavors lack any green characters, but ideally the pH is low and the titratable acidity (TA) is similar to a white wine (6.0 – 7.5 g/L tartaric acid). The fruit receives some extent of skin contact prior to getting pressed in order to extract color and flavor.
- **Blend of Finished Red and White Wines**: This creates a **blush** wine. Due to the fact that the pink color is determined by blending two different wines together, this style of pink wine is not discussed in today's lesson.

Each of these three different styles require different processing order and varied decisions that the winemaker will have to make. In terms of quality, any one of these three styles can be created with quality as a priority. The type of pink wine produced at a winery should be determined by production limitations and how to best create the style they desire.

The process flow diagram to the left outlines the starting production stages associated with rosé wine production. The two processes that differentiate saignée and early pressed red rosés are the "Crush/Destem" and "Press" stages.

Saignée rosés are produced by bleeding off free run juice from newly crushed/and destemmed ripe, red fruit. In contrast, early pressed rosés are produced by being fully pressed off of their skins. Early pressed red rosé wines are produced similarly to most white still wines. After the juice is separated from the skins in either technique, the juice will go through a juice settling or clarification step.

As a reminder, the saignée process of bleeding off free run juice from ripe red fruit is a concentration tool. It is used to increase the skin-to-juice ratio for the red wine that gets produced, which increases the extraction of phenolics and flavor compounds. The juice that is bled off can be used to create a rosé wine. There are several key advantages and disadvantages to using the saignée bleed to produce a rosé wine.

Advantages and Disadvantages of Saignée Rosé Wine Production

Advantages	Disadvantages
One red wine harvest in which the juice is coming from fully ripe red grapes.	Saignée rosés tend to have minimal tannin structure due to less extraction time.
A good process for those that ferment their red wines in tanks as the saignée is bled off from a tank valve.	Saignée rosés tend to produce lighter bodied or juicy rosé wines due to the lack of tannin.
Can manipulate the color of the rosé by altering when the free run juice is bled off of the must (usually within 24 hours).	They may produce odd flavors (*e.g.*, savory characters) in the rosé due to the use of fully ripe red fruit.
Can change the flavor of the rosé by changing the variety used.	The shelf life of saignée rosés is usually shorter than rosés produced using an early pressed red technique.
Can also create a house blended rosé by blending multiple saignée bleeds together.	The pH can be high and the TA can be low due to the use of fully ripe red grapes. This may require acid additions.
	It's possible the color will need manipulated prior to bottling.

In contrast to saignée rosés, early pressed red rosés are grown for the purpose of producing a rosé wine. This means that red grape varieties may not get picked and harvested as late as other red grapes grown for red wine production. This also implies that there will be chemistry and flavor differences in fruit grown for rosé production, as opposed to if it was grown for red wine production.

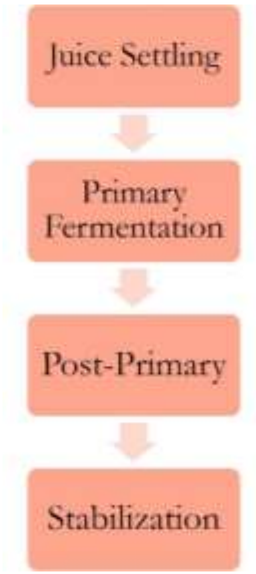
One key decision the winemaker will have to make with early pressed red rosés is when and how to press the grapes off of the rosé juice. Which methodology the winemaker chooses will influence color, phenolic, and flavor extraction. A winemaker's decision should reflect both **the desired style of rosé** and **the quality of the grapes**. Three methodologies surrounding pressing decisions are:

1. **Crush/Destem with Immediate Pressing**: This is usually a good option for hybrid red wine grapes that are rich in red color as a juice (*refer to the image in the lesson*) when the winemaker does not desire a dark or high color intensity rosé wine. The limited extraction time ultimately reduces color, phenolic, and flavor extraction.
2. **Crush/Destem with Lengthened Skin Contact**: The extraction time here can vary from 4 – 48 hours, depending on the winemaking operation and its capabilities (*i.e.*, rapidly chilling the fruit and maintaining cold temperatures). Increased extraction time ultimately increases color, phenolic, and flavor extraction. However, the longer the skin contact time, the greater the risk for spoilage to occur, especially without proper storage temperatures.
3. **Whole Cluster Pressing**: This is often recommended for high phenolic grape varieties, incidences when there is a lot of disease on the fruit (to minimize extraction and retention of the rot in the juice), or when the red fruit is overripe to minimize extraction and retention of potassium. Excess potassium can buffer and raise wine pH, which is a challenging chemistry to manage during rosé wine production.

Like saignée rosés, early press red rosés offer both production advantages and disadvantages.

Advantages and Disadvantages of an Early Pressed Red Rosé Wine Production

Advantages	Disadvantages
The fruit is allocated, produced, and harvested for rosé production.	The variation in fruit chemistry (Brix, pH, TA, and phenolics) may require extra thought by the winemaker in terms of deciding on pressing methodology.
Color can be manipulated by changing the skin contact time prior to pressing.	More tannin may lead to more astringent or bitter rosé wines.
There is usually a greater tannic influence in early pressed red rosés due to the use of immature fruit and greater extraction time.	Green aromas and flavors are very common in early pressed red rosé wines.
This is the process that generally creates a more neutral flavored rosé wine.	It's possible the color will need manipulated prior to bottling.
Can alter the flavor profile simply by changing the grape variety destined for rosé production. Can also blend multiple rosés together to create a house rosé.	
The pH is usually lower for this style of rosé, which is optimal for stability.	



Pre-Fermentation Rosé Processing Decisions

After the juice is separated from the grape skins, additional pre-fermentation decisions also have an influence on rosé wine quality.

Juice Clarification/Settling

Like white juice, rosé juice should get clarified prior to fermentation. Most wineries opt to clarify the juice through enzymatic settling or flotation, though centrifugation is an option for larger operations.

With **enzymatic settling**, a **pectinase** enzyme is added to the fruit or juice (depending on instructions from the enzyme supplier) and gravity pulls down heavy solids from within the juice. These solids form a sediment at the bottom of the tank. Juice settling is encouraged at cold temperatures (40 - 45°F) and is usually complete within 24 hours. Tank temperatures should remain cold through this process to minimize oxidation, minimize spoilage microorganism growth, and prevent premature native fermentation. The decision to add sulfur dioxide at this stage is stylistic, and is more thoroughly reviewed in the **"Sulfur Dioxide Strategies in Juice and Wine"** lesson and notes.

Flotation also includes the use of a pectinase enzyme, but the type of enzyme may be specifically recommended for the flotation process. The flotation process is a juice clarification step in which inert gas is puffed into the bottom of a tank to disperse sediment from the liquid juice. The primary advantages of flotation are time and energy savings; the process can be completed within 6 hours after a pectinase addition and the juice does not need to remain chilled through that time period. While nitrogen gas is recommended for flotation, the use of air (which contains oxygen) will act as a hyperoxidation step on the juice. The stylistic decision associated with juice hyperoxidation is reviewed in the **"Sulfur Dioxide Strategies in Juice and Wine"** lesson and notes.

The AWRI Protocol associated with flotation is:

1. Grapes are crushed/destemmed and pressed. A pectic enzyme (or pectinase) is added at either this stage or when juice is pumped into a tank at Step #2.
2. Juice/must is pumped into a holding tank. The juice is left for 4 – 6 hours. Chilling is not required.
3. The juice/must is transferred to a flotation tank in which it is floated using air/nitrogen gas. Addition of clarification (or flocculation) aids may be encouraged at this step. Clarification aids often include bentonite, silica, gelatin, or a combination of these three fining agents. These clarification aids help aggregate the solids and make the racking process easier.
4. Once the juice has been floated, it is racked into a tank for fermentation.

It's important to note that the use of turbidity meter is strongly encouraged for floated juice. Juice should be under 100 NTUs (with some experts suggesting under 80 NTUs) for fermentation.

Stabulation

Stabulation is the process in which partially clarified juice is held at cold temperatures in additional contact with the juice sediment (or juice lees) prior to fermentation. This acts as an extraction step for additional flavor precursors that may be in the sediment, while reducing phenolic (or color) extraction from the grape skins. Note that this process occurs after a pectinase addition, but before the juice is racked or floated. There are several production necessities required in order for a winemaker to use the stabulation process on rosé juice.

- **Tank Temperature Control:** While the stabulation process can occur at temperatures up to 50 - 54°F (10 - 12°C), it most commonly progresses at much colder temperatures. The higher temperatures are considered risky, increasing the potential for juice oxidation, spoilage, post-fermentation reduced aromas, and premature fermentation from indigenous yeast. Therefore, the winemaker needs a way to control tank/juice temperature during this stage beyond environmental control.
- **Reduction of Oxygen + Mixing the Juice Daily:** Minimizing oxygen during stabulation is essential. Headspace is strongly discouraged. Traditionally, mixing is done through the addition of dry ice, which both chills the juice and drives out oxygen through the development of carbon dioxide bubbles. Another method to drive out oxygen is the use of a carbon dioxide sparge, which bubbles carbon dioxide through the juice from the bottom of the tank. The use of carbon dioxide also allows for the agitation or suspension of solids throughout the juice. Daily or twice-daily (every 12 hours) mixing is required to suspend the sediment throughout the juice for adequate extraction. If the use of dry ice or a sparge cannot be used, the use of a tank mixer may be an alternative. Pump-overs are not encouraged.
- **Measure Juice Clarity:** The regular suspension of juice solids into the clarified juice will naturally make the juice cloudier prior to fermentation. Here, a turbidity meter is required to ensure the juice is under 150 NTUs prior to fermentation. If turbidity is higher, consider using an alternative yeast strain that can manage under high turbidity situations.
- **Fermentation Nutrition:** As the primary purpose of stabulation is to extract necessary aromatic precursors, then yeast nutritional health needs tailored to ensure proper conversion and retention of those aromatics. Yeast assimilable nitrogen (YAN) should be measured and fermentations should be treated according to the yeast needs and juice chemistry. There is a lot of information on the website about YAN, including the Article, **“Fermentation Nutrition: What to Know and Why to Know It”** that provides a brief overview on fermentation nutrition. More detailed information about yeast nutrition can be found in the webinars and printable notes for **“YAN: Part 1,”** **“YAN: Part 2,”** and **“YAN: Part 3.”** Each webinar focuses on a different aspect of yeast nutrition including how to measure YAN and how to adjust YAN during fermentation. Note that without taking YAN into account, the winemaker is leaving the development of hydrogen sulfide up to chance, eliminating the point of stabulation.

A brief outline of the stabulation process can be found below, using the recommendations outlined by Laffort. Temperature and time requirements are also provided by recommendations from Laffort.

1. Adding the pressing enzyme (pectinase) to the fruit/juice.
2. Without racking, chill the juice and maintain temperatures throughout the specified time duration for that juice temperature.
3. Mix the juice sediment into the juice through a dry ice addition or circulation of sediment every 12 – 24 hours.
4. At the conclusion of the stabulation process, turn off the cooling and allow the tank temperature to rise to 45 - 50°F (8 - 10°C) before racking.
5. Rack off sediment or float using inert gas. Rack when juice turbidity is 100 – 150 NTUs (or 200 – 250 NTUs for yeast strains that can manage a higher turbidity).
6. Inoculate for fermentation.

Temperature	Stabulation Time
0 – 2°C (32 – 35.6°F)	1 – 3 Weeks
6 – 8°C (42.8 – 46.4°F)	48 Hours* – 5 Days *Recommended if temperature is at 8°C
10 – 12°C (50 – 53.6°F)	24 Hours

Primary Fermentation

Yeast selection and the choice of making fermentation additions (*e.g.*, tannins, oak, etc.) are stylistic decisions for the winemaking to decide. In terms of yeast strains, any can be selected for a rosé, and either red or white yeast strains are appropriate.

Remember that yeast nutrition is important in order to avoid hydrogen sulfide development that will require the addition of copper sulfate later on in the winemaking process. The use of copper sulfate greatly mutes the wine aroma and flavor. If the winemaker opted to use the stabulation process, hydrogen sulfide development renders the process moot. There is a lot of information on the website about YAN, including the Article, **"Fermentation Nutrition: What to Know and Why to Know It"** that provides a brief overview on fermentation nutrition. More detailed information about yeast nutrition can be found in the webinars and printable notes for **"YAN: Part 1," "YAN: Part 2,"** and **"YAN: Part 3."** Each webinar focuses on a different aspect of yeast nutrition including how to measure YAN and how to adjust YAN during fermentation. Finally, winemakers that need additional guidance for creating a yeast nutritional strategy can reference the Production Guide, **Fermentation Nutrition Strategies** or contact info@dgwinemaking.com for further consultation.

Post-Fermentation Rosé Processing Decisions

Similar to white wines, rosé wines should usually get racked off of gross lees within 24 hours after fermentation is complete. During racking, a sulfur dioxide addition can get made if the wine is not going through malolactic fermentation (MLF). At this point, the wine should be chilled (50°F) and left in contact with the fine lees.

The use of oak and MLF are both stylistic choices for the winemaker. Should the winemaker opt to put the rosé wine through MLF, follow the MLF strain guidelines to determine the appropriate wine temperature. Do not make sulfur dioxide additions until MLF is complete (or partially complete, if desired). At the completion of MLF, the wine should also get chilled to 50°F for storage.

Rosé wines should be evaluated for protein stability and protein (heat) stabilized if necessary in order to keep the wine clear post-bottling. You can find a **protocol for testing protein stability here**, as well as a lesson called **"Successful Wine Protein Stabilization"**, which covers proper heat stabilization techniques for wines.

Furthermore, some form of cold stabilization should also follow protein stabilization. Proper techniques for cold stabilization can be found in the lesson **"Reviewing Cold Stability in Wine."** For those wineries that want to use a tartrate inhibitor to avoid traditional cold stabilization methods, you can review key details about tartrate inhibitor additions in the lesson, **"Tartrate Inhibition."** Remember to confirm protein stabilization with a tartrate inhibitor addition in a bench trial prior to completing any protein stability fining. If the tartrate inhibitor creates a protein instability, re-do a series of bench trials with higher bentonite additions.

Finally, when it comes to rosé wine color, there is a large spectrum of acceptability. Rosés can range from a very pale, almost yellow color to a bright pink color. Color can often be manipulated through blending or the use of the popular grape concentrates, MegaPurple and Purple 8000.

Production Strategies for Rosés: Action Steps

1. **Identify the style of rosé that can get produced at the winery.**
    a. What necessary production steps need to occur to maintain quality?
    b. Can you complete those steps within the current production space?

Need More Help?

If you find yourself needing further assistance or would like more access to the services that *DG Winemaking* provides, please contact Denise at info@dgwinemaking.com. See how other winemakers like you are benefiting from *DGWinemaking's* consulting services.