

Key points to avoid harsh sensations and herbaceousness with uneven ripe grapes. White wines

Dominique Delteil (freelance enological consultant working). Note written in exclusivity for Lallemand North America on August 17th, 2007).

Main problems associated with uneven ripe grapes

1. Low aroma ripening in many berries, including yellow-golden ones:
 - a. Low potential of fruity aromas and soft mouthfeel sensations.
 - b. High risk of herbaceous characters and bitterness.
 - c. High risk of negative synergy with sulfur off-aromas and sulfur-off taste from the fermentation.
 2. Low pulp and skin cell walls ripening:
 - a. Low participation to the colloidal matrix and its stability.
 - b. Limit the diffusion of the hydrosoluble pigments, polyphenols and aromas during maceration and pressing.
 - c. Risk of aggressive sensation due to tartaric acid in case of pH adjustment.
- On top of those problems, in warm areas, high Brix grapes give the following classical problems:
1. High osmotic stress on the yeast amplifying VA risk, that will amplify the harsh and dry sensations.
 2. Low organic assimilable nitrogen for the yeast. That will amplify the risk of sulfur off odors and tastes that will amplify the harsh and herbaceous problems.
 3. High alcohol concentration in the wine. That will amplify all aggressive perceptions (ethereal, herbaceous on the nose; burning, bitterness on the palate.)

Main winemaking axis to manage uneven ripe grapes

1. Avoid the extracting of harsh green characters from the grapes during maceration and pressings.
2. Avoid the production of negative microbial characters:
 - a. Sulfur off odors and acetic acid by the yeast during fermentation and aging.
 - b. Sulfur off odors and acetic acid by the lactic acid bacteria (LAB) during MLF (malolactic fermentation).
3. Build a concentrated and stable colloidal matrix during maceration and fermentations:
 - a. Early pH adjustment between 3.2 and 3.3 for Sauvignon for example; between 3.3 and 3.4 for other varieties.
 - b. Protect fruit positive characters from oxidation.
 - c. Balanced diffusion of hydrosoluble polysaccharides and fruity aromas from the grape.
 - d. Early building of a concentrated yeast polysaccharide matrix with ripe and stable aromatics from the yeast.
 - e. Early building of a concentrated LAB polysaccharide matrix with ripe and stable aromatics from the LAB.
 - f. Early building of an oak molecules matrix with sweet and ripe characters.
 - g. Early stabilization of the colloidal-aromatic matrix with the right dosage and frequency of oxygen macro-additions.
4. Stabilize the colloidal-aromatic matrix during the first steps of aging.
 - a. Protect positive fruit and fermentation characters from oxidation.
 - b. Active building of a concentrated yeast polysaccharide matrix with ripe and stable aromatics from the dead yeast.
 - c. Active building of a concentrated LAB polysaccharide matrix with ripe and stable aromatics from the dead LAB.
 - d. Active building of an oak molecules matrix with sweet and ripe characters.
 - e. Stabilization of the colloidal-phenolic matrix with the right pH level.

Key winemaking actions, in their chronological order

Between parentheses, the number and letter refer to the axis above.

1. At the reception, adjust pH (axis 3a), add 25-35 ppm SO₂ (axis 3b) and 40-50 ppm ascorbic acid (axis 3b). *Note: More SO₂ is useless but gives extra sulfur resources for the yeast.*

Dominique Delteil Consultant

2. Add maceration enzymes Lallzyme Cuvée Blanc at 30-40 ppm (axis 1 & 3c). *Note: selected maceration enzymes do not amplify the extraction of harsh character. They are useful for axis 1 & 3c, as one can press at lower pressure and get enough juice.*
3. Crush (axis 1, 3b & 3c) and destem (axis 1). *Note: as far as SO₂ and ascorbic had been added to the grapes before, crushing helps in the protection as it will release more juice that will carry the anti-oxidants to the heart of the grape mass.*
4. Adjust temperature to 10°C and macerate at least 2 hours before pressing (axis 1 & 3b). *Note: some well managed maceration is recommended with uneven ripe grapes to get some polysaccharides from the pulp to compensate for the low cell walls ripening. With such temperature, protection against oxidation and maceration duration, there are no risks of over extraction.*
5. Drain free run juice and start pressing. Add 20 ppm SO₂ and 20 ppm ascorbic to the juice right after the press (axis 3b). Separate juice at 0.3-0.4 bar (axis 1). Send juice to clarification without any other additive. *Note: low pressure is the main key factor to avoid harsh and green character extraction.*
6. Open the press. Add 10 ppm SO₂ on the remaining pomace (axis 3b). Press again until 0.8 bar. Add 30 ppm SO₂ to the juice right after the press (axis 3b). Add 10-20 ppm PVPP if the juice presents some harsh mouthfeel characters. Send the juice extracted from 0.4 bar to 0.8 bar to clarification.
7. Keep juice temperature at 8-10°C. Let it settle until NTU is below 150 (axis 1 & 2a).
8. Rack the clear juice.
9. Add specific inactivated yeast (OptiWhite at 300 ppm) (axis 2a, 3b & 3d).
10. Inoculate with yeast strain Enoferm ICV-D47 (axis 2a & 3d) or Cross Evolution at the right dosage (300 to 400 ppm, according to the Brix). Protect the yeast during rehydration with Enoferm Protect (axis 2a & 3d) at the right dosage (300 to 400 ppm according to the yeast dosage). Adapt the yeast temperature to the juice temperature (axis 2a). Add a complex nutrient for the yeast growth (Fermaid K at 125 ppm) (axis 2a & 3c).
11. Keep temperature between 18°C and 16°C all through fermentation (axis 2a).
12. One day after yeast inoculation, inoculate with LAB Enoferm Beta for a co-inoculated malolactic (axis 2a & 3e). *Note: co-inoculation is a powerful tool to prevent atypical aging. Such grapes give wines more sensitive to this atypical aging problem.*
13. Add oak chips in bags: French oak, toasted (axis 2a & 3f). *Note 1: around 1 g/L to balance the uneven ripening, around -5 g/L to build the wine body and give obvious oak character. Note 2: non-toasted oak amplifies the green risks and do not limit sulfur off odors risk. Note 3: American oak amplifies the harsh risk with such grapes.*
14. If equipped with agitator, agitate the juice twice a day all through fermentation (axis 2a & 3d). *Note: Agitation during fermentation requires certain know-how to avoid excess foaming.*
15. If Brix is higher than 23, at one fifth of sugar depletion, add 4-5 mg/L oxygen during a macro-oxygenation (axis 2a). If not equipped, make an aerated pumping over of 150% of the juice volume.
16. At one third of sugar depletion add a complex nutrient for the yeast (Fermaid K at 125 ppm) (axis 2a & 3d).
17. At one third of sugar depletion, add 4-5 mg/L oxygen during a macro-oxygenation (axis 2a). If not equipped, make an aerated pumping over of 150% of the juice volume. Next day do that again.
18. During the last third of fermentation, if the juice lacks mid palate volume or if some green character are still present, add BoosterBlanc (200 ppm) (axis 3d).
19. Check malic acid level frequently.
20. The very day sugar are finished:
 - a. Rack (axis 2a & 2b) under CO₂ protection.
 - b. Transfer the oak chips to the racked wine (3f & 4d)
21. Until malic is consumed, stir once a day (axis 2a, 2b & 4b) and check malic acid level frequently.
22. The very day of malic acid complete depletion:
 - a. Adjust pH to the market goal (axis 4e)
 - b. Add 50 ppm SO₂ and 50 ppm ascorbic acid (axis 4a).
23. Next day, rack under CO₂ cover (axis 4a). Oak chips follow the racked wine. Chips contact should not exceed one month (axis 4d).
24. Stir regularly (3-4 times a week) for at least one month. Check the level of living spoilage germs. Keep molecular SO₂ at 1 ppm. Check if another BoosterBlanc addition (200 ppm) is necessary to build the wine mid palate and cover the green harsh characters. Another racking is necessary 7 to 20 days after the previous one.