

## Red Grape Fermentation\* (2010)

Syrah can be picked at peak ripeness which is often from 25° to 28° Brix when the berries begin to shrivel and look like footballs. Good fruity flavors should be of prime importance. The biggest challenge to growing Syrah is to reduce vigor with root stock/scion selection or a cover crop and should not be cropped over 5 tons/acre to obtain fruit quality and mouth structure. It is important not to allow sugar accumulation by dehydration without flavor development. However, if grapes are not ripe, a vegetative flavor can develop in the wine.

1. Pick between 25-28 Brix, TA between 5.5-6.5 g/l, pH between 3.4-3.6 and when the grape reaches optimum ripeness.
2. Crush into bins.
3. Add free  $SO_2$  depending on the pH to kill the wild yeast.
4. Add  $H_2O$  in order to bring down the brix to approximately 25-26° if required and tastes are still there. Too high brix, therefore high alcohol, decreases flavors
5. Carefully lower the pH in the bins, if 3.8 or above, by adding a little tartaric acid at a time (150g to each bin depending on the initial pH of the must). Mix well and let sit overnight before reading the pH again since it often takes time for the pH to change after the acid additions. Add more tartaric acid, if needed, the next day to reach the proper pH using the above procedure.
6. If must is too acidic, check procedure for acid reduction but conduct trials first. Be aware that in many Italian varietals, the acid may precipitate out during crush and fermentation. Thus, it may be a good idea to wait until after fermentation to conduct trials.
7. Check ammonium nitrogen (enzymatic procedure) and amino acid nitrogen to determine if there are enough nutrients (in the form of nitrogen) in the must to support a good fermentation. Less than 300 mg/l (for high brix must) total yeast assimilable nitrogen (amino acid and ammonia nitrogen) may require more nutrient additions than suggested below.
8. On the day after the crushing, warm distilled water to 110°F (43°C). Add 240 g/bin GoFerm to the rehydration water. Wait until the water decreases in temperature to 104°F (40°C). Add active 190g/bin of dry selected yeast to warmed water, stir to break up clumps, and let sit for 20-30 minutes. If the yeast sit more than 30 minutes, they need food so juice must be added or yeast will die
9. If must is cold, add must to the yeast suspension to cool down the yeast mixture and prevent cold shock.
10. Wait 20 minutes between each attempt to acclimate the yeast to cold temperatures. Add to each bin of must and mix well when the temperature differential is 10-15 degrees.
11. 4-6 hrs after adding yeast (after lag phase), add 136 g Fermaid K/bin and enough DAP/bin (202g/bin recommended) to bring the initial nitrogen level to 275 mg N/L and

mix. Keep in mind that DAP increases the number of yeast at the beginning of the fermentation and is therefore important in the initial explosion of yeast numbers but can also cause the increased utilization of nutrients due to increased yeast numbers and higher fermentation temperature.

12. Punch down 2-3X/day. More punch downs will yield more tannins from the skins
13. At 1/3 sugar depletion (12-15 brix), add another 136 g Fermaid K/bin. Check for any H<sub>2</sub>S odors. If present or low nitrogen, add more Fermaid K or DAP. Below 10 brix, the yeast cannot utilize the nitrogen due to high alcohol so the N additions will be ineffective.
14. Keep maximum fermentations temperatures 85°F or below.
15. At between 2-5° brix, add 114 g Opti-Malo Plus (2/3 cup) directly to wine and mix. Add 6.25g ML bacteria/bin (4 bins/25g packet ) to 125 ml clean water at 25°C (77°F).). Add the bacteria to each bin. By adding the ML at the finish of fermentation, there should not be as much competition with the yeast and the must should be warm enough for ML to complete secondary fermentation.
16. Ferment to dryness or until tannins and color are where you want them.
17. Press at about 0° to -1° Brix into stainless steel to settle for 3-7 days. Rack into another stainless steel tank to remove the dead yeast.
18. Test with ML chromatography to check for ML fermentation completion.
19. Add SO<sub>2</sub> based on the pH after the completion of ML fermentation.
20. Rack into barrels ASAP.

\* Dosages of added ingredients were based on the additions recommended by the Scott Lab Catalog 2010.