Wine/Grape Brix/Acid/Ph/TA/SO^2

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Terms

- Brix (symbol °Bx) is the sugar content of an aqueous solution. One degree Brix is 1 gram of sucrose in 100 grams of solution and represents the strength of the solution as percentage by mass.
- pH is a quantitative measurement of acidity or basicity of a solution whereas acidity is a qualitative measurement of acidic properties of a solution. As one goes up the other goes down.
- Each point of the pH scale is a factor of 10. This means a wine with a pH of 3 is 10 times more acidic than a wine with a pH of 4.
- A low pH in wine will help to reduce contamination by unwanted microorganisms. A low pH wine will have a greater stability and color will be maintained better during aging. Red wines will stay clearer and white wines will not turn brown as quickly. Less SO^2 will be needed.
- High pH wine is harder to age and requires much more added SO^2.
- SO^2 prevents the wine from reacting with oxygen which can cause browning and off-odors (oxidation), and it inhibits the growth of bacteria in juice and wine, and inhibits undesirable wild yeasts in the grape juice.

Grape Measurements

- When are grapes ready
  - Depends on winemakers requirements, style & taste
  - Whites - usually 20-24 Brix, pH between 3 and 3.4 & TA of .065-.085
  - Reds – usually 22-26 Brix, pH between 3.3 and 3.6 & TA of .06-.08
- Can grapes be unripe?
  - Low Brix and high acid (out of balance)
  - Difficult to make good wine (may need sugar and acid mitigation)
  - As grapes ripen the sugar goes up and the acidity goes down
- Can Grapes be overripe?
  - High Brix and low acid (out of balance) (high alcohol & pH (over 3.7))
  - Difficult to make good wine (likely needs added acid and may need water or blending)
  - Let grapes ripen to a perfect balance of Brix, pH, and TA then harvest
- Measure Brix weekly after Veraison starts with Refractometer and when Brix approach your goal collect enough juice to also measure pH and tritrable acidity (TA) weekly/daily to know when to pick
- Adjust Brix, pH, and TA before fermination

Common Home Wine Measurements

- pH, tritrable acidity (TA), Sulfur Dioxide (SO^2), malolactic Acid
- Measure pH and TA after primary fermentation and record findings, and then again after malolactic fermentation and cold stabilization.
- Use these measurements to know if further acid adjustments are needed and to know how much SO^2 is needed
- Use tataric acid (also TA) if needed, but it takes a lot of TA to lower pH just a little
- After malolactic fermentation is complete SO^2 should be immediately added based on pH (see chart in your book). I would assume the starting SO^2 is nearly zero.
- Each time you rack and before you bottle measure your SO^2 and add needed SO^2 based on remaining SO^2 and the wines pH. SO^2 will reduce based on oxygen in your storage container (keep it toped off)
- If your wine have a with high pH check and adjust more often
- Measure malolactic to determine if secondary (malolactic) fermentation is complete (see NGGW resource page for info)

Testing (YouTube)

- Calibrate your pH meter per manufacture instructions

- https://www.youtube.com/watch?v=XOv1GF5_lJs calibrate Vinmetrica pH
- https://www.youtube.com/watch?v=2ba8XpglZFA PH test Vinmetrica
- https://www.youtube.com/watch?v=_ADVWBKDMAc TA measurement ph regular meter – 15ml
- https://www.youtube.com/watch?v=Im9U0-KaYaM TA Measurement using 5ml
  - Vinmertica sells 0.133n sodium hydroxide so 3.6 ml x 2 = 7.2 g/L TA ($44 for 17 oz)
  - Normal 0.1n sodium hydroxide 4.8 mL x 1.5 = 7.2 g/L TA ($16 for 16 oz)
- https://www.youtube.com/watch?v=DRus3v6Q67o So2 test Vinmetrica SC 100
- Vinmetrica SC 100 SO2 tester is $295 and Vinmetrica all in one SC 300 is $534
- Good standalone pH meters are $40 to $100

$$\frac{V \times N \times 75^*}{S}$$

$$\frac{9.5 \times .1 \times 75}{15} = 4.75$$

- MoreWine Testing Page NGGW Resource Page - https://nggw.org/resources/
- * v=volume of sodium hydroxide used, N=strength of sodium hydroxide (0.1 or 0.133), S=amount of wine