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The Harvest Juice Panel
Interpreting and Applying the Data

Southern Oregon Wine Institute Harvest Seminar Series
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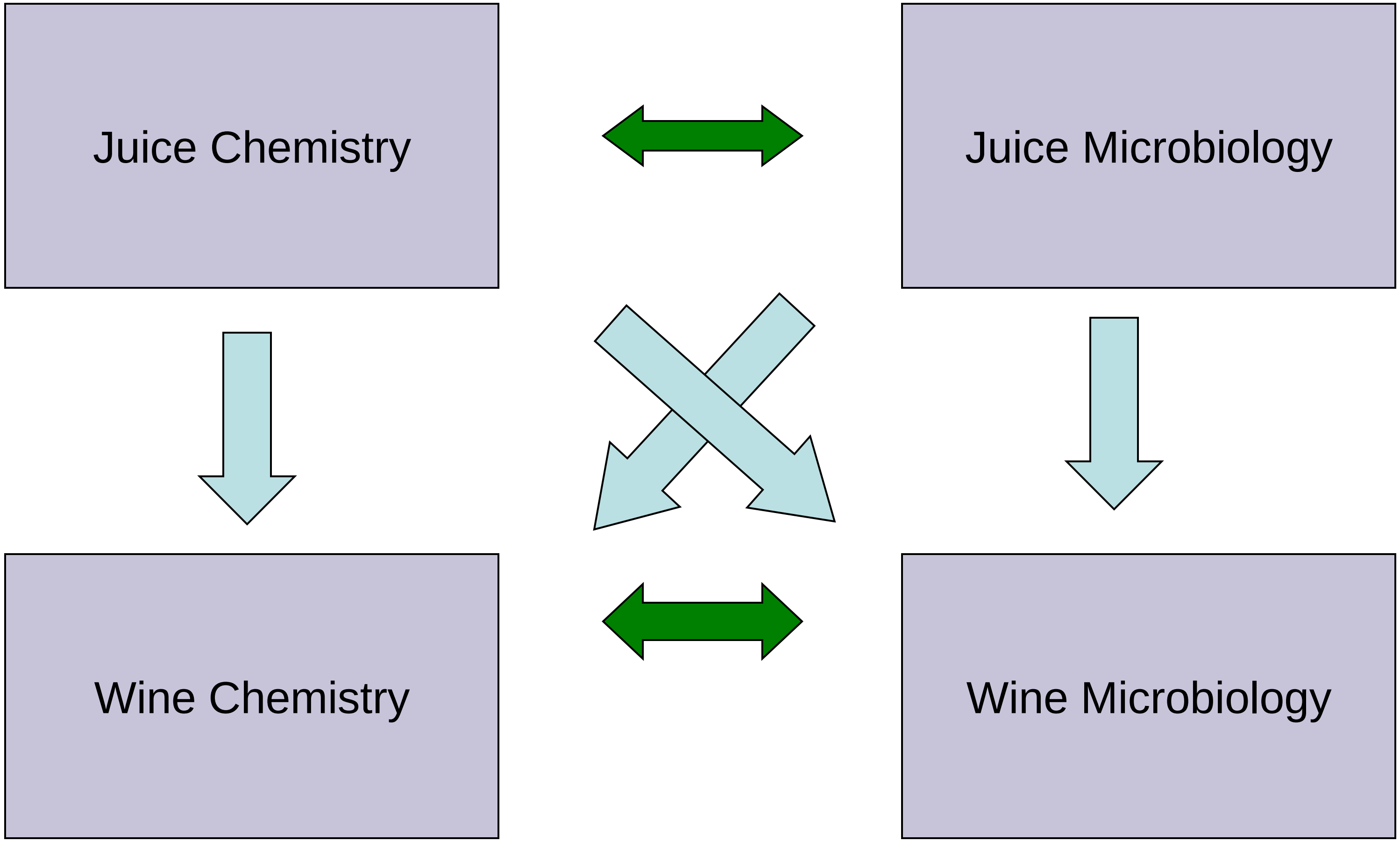
What Happens in the Juice Does Not Stay in the Juice



pH

- pH is a measure of free hydrogen ions in solution (the chemical definition of acidity)

- A gauge of wine or juice “acidity”

- Relationship to microbial stability, phenolic compounds, color expression/stability, potassium bitartrate and calcium stability.

TA

- Titratable acidity (TA) is a measure of all available hydrogen ions (neutralized by sodium hydroxide)
- A simple test for “acidity”
- No direct relation with pH
- TA does not mean “Total Acids”! (lower than the sum of organic acids)

Tartaric acid

- Accumulates in grape tissue during development, declines during ripening due to berry growth and dilution.
- Tartaric acid-salts precipitate as potassium bitartrate and calcium tartrate.

Malic acid

- Malolactic fermentation in wines containing low levels of malic acid and high buffer capacity will have little impact on wine pH.

- Malolactic conversion in wines with high malic acid and low buffer capacity can result in a substantial pH increase.

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Potassium

- Potassium moves into cells at maturation.
- Potassium concentration is highest near the grape skin. Crushing, skin contact, and pressing all influence potassium levels.
- Potassium is a critical factor in acid salt formation, tartrate precipitation, and buffer capacity.

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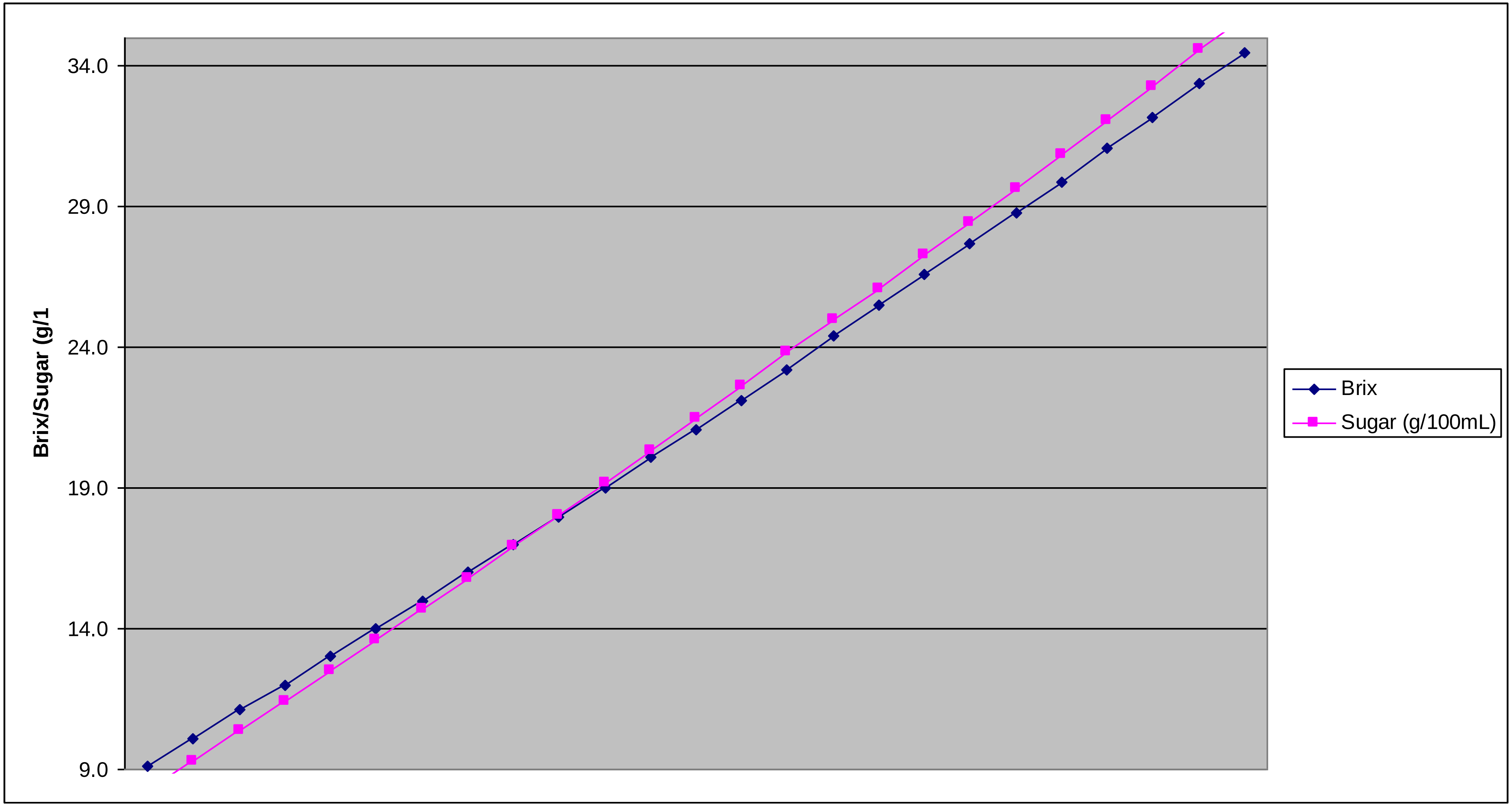
pH and TA Shift Due to KHT Precipitation and MLF

	Moderate pH (3.52) High tartaric (5.81) Low malic (2.99)		Moderate pH (3.54) Low tartaric (2.21) High malic (6.20)		High pH (4.00) Moderate tartaric (3.24) Moderate malic (4.10)	
	pH	TA	pH	TA	pH	TA
Initial data	3.52	6.31	3.54	7.27	4.00	6.20
Post KHT Precipitation	3.07	3.78	3.48	6.52	4.26	5.40
Post Malolactic fermentation	3.27	2.03	4.10	3.11	4.42	2.76

brix

- ºBrix expressed as % by weight.
- Fermentable sugar expressed as % by volume. A must with 23.3 ºBrix will not have 23.3% by volume fermentable sugar.
- Juices with identical ºBrix may have very different final alcohol concentrations due to varying amounts of fermentable sugars.

Brix to Glucose/Fructose Relationship



Potential Ethanol

- "Official OIV" conversion factor from fermentable sugar = fermentable sugar (g/100 mL) divided by 1.683 (X 0.594)
- Yeast strains, fermentation temperature, fermenter geometry also affect final alcohol concentration

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Ammonia

- Yeasts preferred form of nitrogen.
- N deficient musts supplemented with diammonium phosphate to provide adequate nitrogen levels. Additional adjustments during fermentation beneficial in minimizing the risk of stuck fermentations and sulfide formation.
- Ammonia results expressed as mg NH_3 per liter. May be expressed as N equiv by multiplying NH_3 results by 0.82.

NOPA

- Alpha amino nitrogen, referred to as "Nitrogen by OPA", or NOPA, is determined using a method specific for alpha amino groups.
- Measurement of primary amino acids usable by yeast. NOPA does not include proline, which is not utilized by yeast, or ammonia. NOPA results are expressed as mg nitrogen per liter.

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Analyte	Result	Analysis Date
810030211		
Brix	24.1 g/100mL	10/3/08
alpha-amino compounds	105 mg/L	10/3/08
ammonia	65 mg/L	10/3/08
yeast assimilable nitrogen	159 mg/L (as N)	10/3/08
809290453		
Brix	23.4 g/100mL	9/29/08
alpha-amino compounds	140 mg/L	9/29/08
ammonia	210 mg/L	9/29/08
yeast assimilable nitrogen	309 mg/L (as N)	9/29/08
810270342		
brix	23.2 degrees	10/27/08
alpha-amino compounds	183 mg/L	10/27/08
ammonia	64 mg/L	10/27/08
yeast assimilable nitrogen	236 mg/L (as N)	10/27/08