Clean Winemaking Method

An Approach to Low-Risk Winemaking

Objectives

- What is clean winemaking?
- Stages of winemaking.
- Purpose in each stage.
- Demarcation Events.
- Questions and discussion.

Photo Courtesy of Blaine Hunt

What is Clean Winemaking ?

- Method developed by Brian Avila
- Clean winemaking is a theoretical, lowest risk style of winemaking which employs best practices for making wine. This approach will produce a wine of good quality .
- The resulting wines from this process are fruity, dry (no sugar) and without sediment, haze or bubbles
- Theoretical approach to make a good wine
- Is based in winemaking science
- Lowest common denominator based on accepted practices
- Minimizes risk for off flavors and oxidation
- Model for future learning
- Allows for development of stylistic expression
- Teaches quality management
- Not to be viewed the right way
- Provides framework for lifelong learning in the field

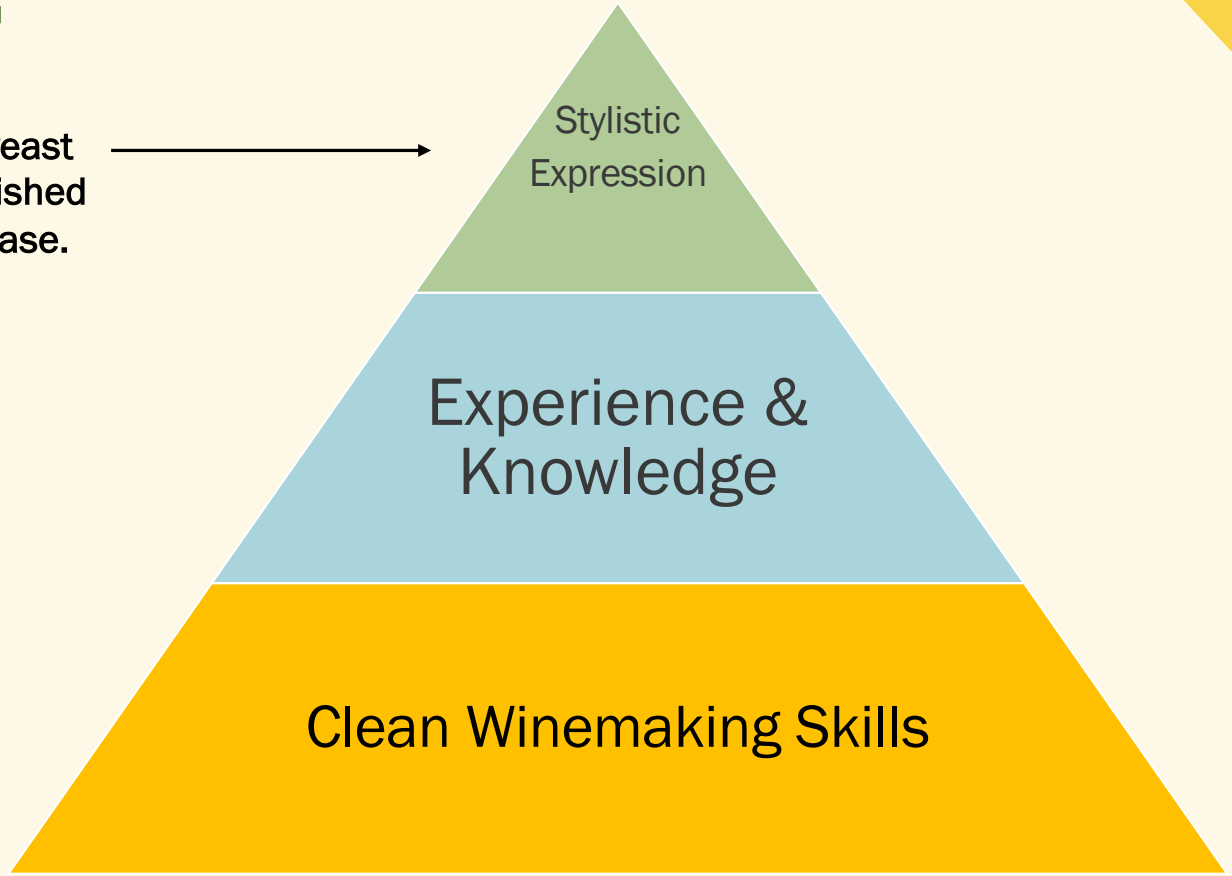
What is Clean Winemaking ?

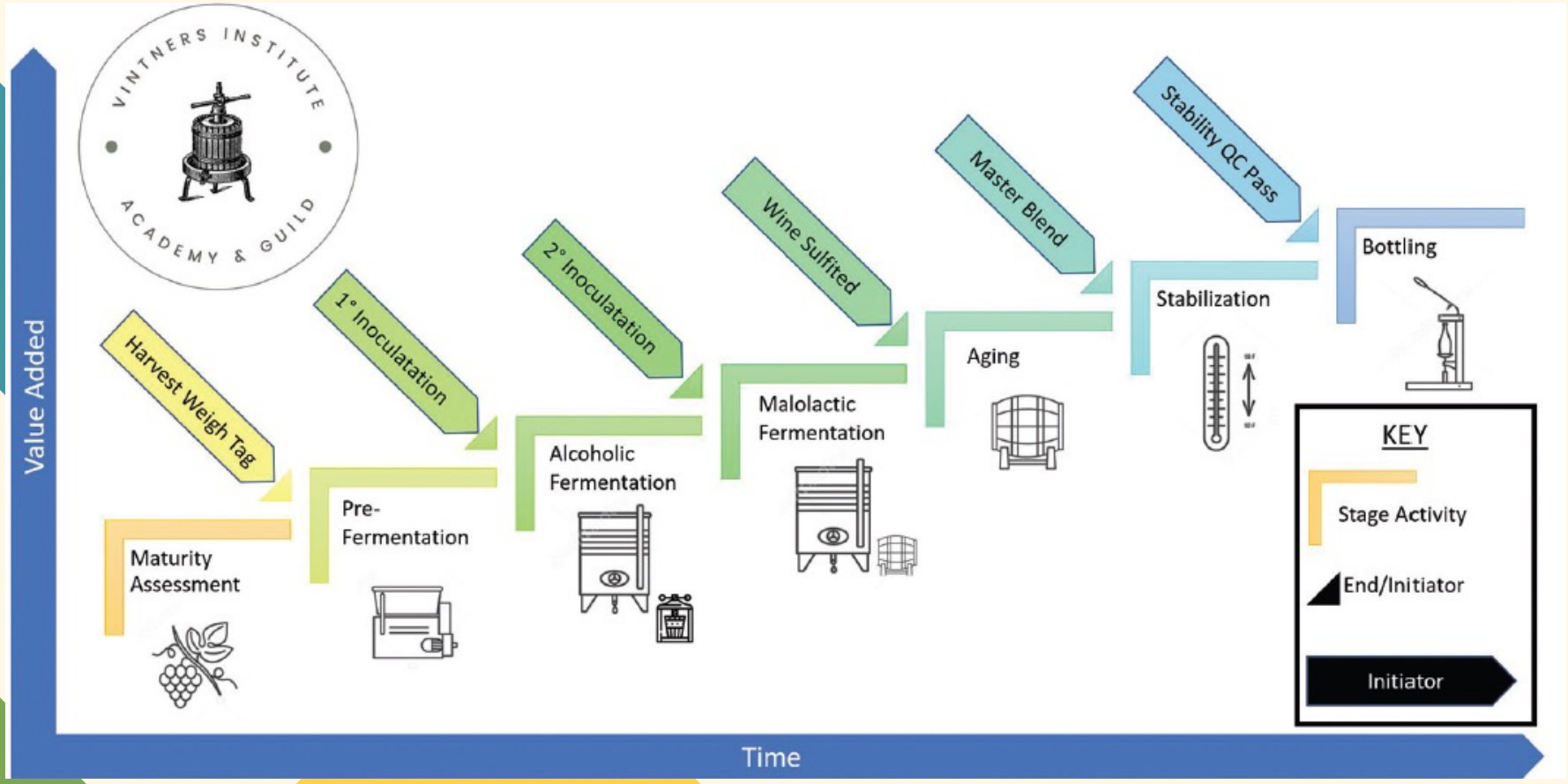
For example, performing native yeast fermentations can spoil a wine if done carelessly however, under the trained eye this process adds mouthfeel and complexity to a wine.

Therefore, not part of the clean winemaking method.

Clean Winemaking - The foundation

Ferment with native yeast once you have established a sound foundation base.




VINTNERS INSTITUTE
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Value Added
Time
Harvest Weigh Tag
Maturity Assessment
1° Inoculatation
Pre-Fermentation
2° Inoculatation
Alcoholic Fermentation
Wine Sulfited
Malolactic Fermentation
Master Blend
Aging
Stability QC Pass
Stabilization
Bottling
KEY
Stage Activity
End/Initiator
Initiator

Maturity Assessment – Stage 1

Primary Purpose: To monitor grape ripening in the vineyard for optimal flavor and chemistry.

Begins: Veraison
End: Harvest

- Brix, pH and TA monitoring.
- Communication with grower.
- Estimating harvest date.

- Equipment check
- Organize crew and support.
- Order supplies.
- Clean equipment.

Pre-Fermentation- Stage 2

The primary purpose of the pre-fermentation is to get the grapes into the best chemical and physical state prior to fermentation.

Begins: Harvest

End: Inoculation with wine yeast.

Pre-Fermentation – What's Happening?

- Addition of a low dose of sulfites
- Test Brix, pH, TA, and YAN
- Corrections to must or juice
- Settling of pressed juice
- Cold soak
- Optional addition of tannins, enzymes, and polysaccharides

Alcoholic Fermentation (AF)– Stage 3

Primary Purpose: Ferment available sugars are into alcohol.

Begins:	Inoculation with wine yeast
End:	AF dry (less than 1 gram per liter of sugar)

- AF is the process where the alcohol tolerant yeasts (*Saccharomyces cerevisiae)* ferments glucose and fructose to produce ethanol, heat and carbon dioxide.
- The winemaker may manipulate many variables in this production process to stabilize color, influence aroma development, mouthfeel and flavor.

Alcoholic Fermentation Continued

- Daily tasting and monitoring provide feedback when to intervene.
- Cap Management and Punch Downs – Risk of spoilage
- Residual sugar creates additional risk of spoilage
- Ferment to Dryness -2° Brix
- Wine has residual sugar at 0° Brix
- Send to lab for testing to be 100% certain

Malolactic Fermentation – Stage 4

Primary Purpose:
Malolactic bacteria consumes malic acid to further stabilize the wine while adding complexity.

Begins: Inoculation with malolactic bacteria (MLB) once AF is dry

End: MLF dry. (means less than 0.3 grams of malic acid is left in the wine (<0.3g/L MA))

Important Note:
Malic acid is a metabolizable compound that may lead to haze formation and off aromas in the bottle if not tended to.

MLF - Continued

- MLF elevates pH, which creates an additional risk of spoilage.
- Following dryness of alcoholic fermentation, seize the residual heat of this fermentation by inoculating asap and monitoring this second ferment to dryness.
- Converting malic acid to lactic acid makes wine more stable.
- If not going through ML, need to manage to prevent MLF in bottle .

Aging – Stage 5

Primary Purpose:

Using time and non-metabolic chemical processes to further shape wine flavor.

Begins: Molecular Sulfite Addition added once all fermentations are dry.

End: Master blend is created.

Note: A Sulfite addition to achieve 0.5 - 0.8 molecular of free SO2 is added

Aging – Master Blend

- Decisions must be made regarding wine refinements on path toward the final blend, aka master blend.
- Master blend is created when no more adjustments to wine are needed.

Aging – What's Happening?

- Allows wine to mellows or smooths out
- All microbial processes stopped or have been halted.
- Allows soften tannins
- Settle out solids
- Introduce oak flavors using barrels, cube, chips or staves
- Allow breakdown of lees in the case of sur lie aging.
- Other treatment required to nudge the wine toward the Master Blend.
- Fining agents added and racking
- Coarse filtration during racking of wine
- Bench trials working toward master blend
- Blending other wines
- Monthly monitoring of free SO_2

Stabilization – Stage 6

Primary Purpose:
To ensure that wine will not develop unwanted haze, sediments, discoloration, off aromas or effervescence once in bottle.

Beginning: Master blend is created
End: Master blend is stable and passes QC

Involves testing master blend and making remedial actions to remove any potential instabilities are before bottling.

A minimum standard for the perception of a quality wine is one that does not show any unintended hazes, precipitates, fizziness, or off aromas.

Stabilization – Big Three

- Monitor microbial risk level if considering bottling <u>unfiltered</u>.
- Heat stabilize for protein haze – bentonite
- Cold stabilize for tartrates – chill wine.
- Final adjustment for free SO_2
- Sterile filtering a few days before bottling.
- Stage completed at QC Pass

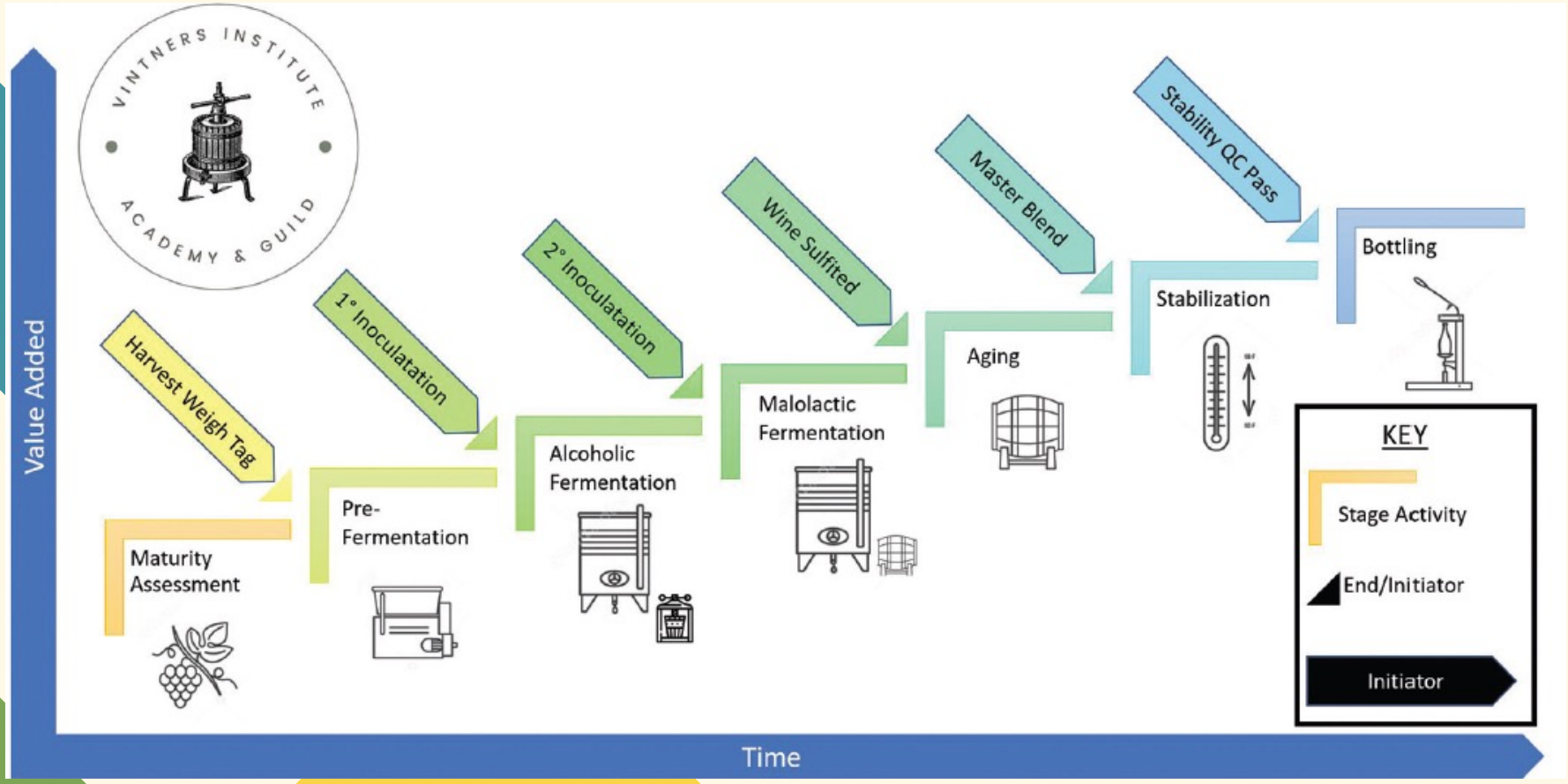
<u>The Big Three</u>

1. Microbial Stability
2. Heat Stability
3. Cold Stability

Bottling – Stage 7

Master Blend passes all QC steps begins stage

- **Winemakers must ensure that the bottle is filled and fit with a suitable cork or closure, making sure that the wine is not damaged in the process.**
- **Bottling symbolizes the end of the road for the vintage. It frees up barrels and tanks for the coming vintage.**
- **Sterile or polish filtering in some cases.**
- **Proper closure selection. How long will wine be in bottle?**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Questions and Discussion

Blaine Hunt in September 2012