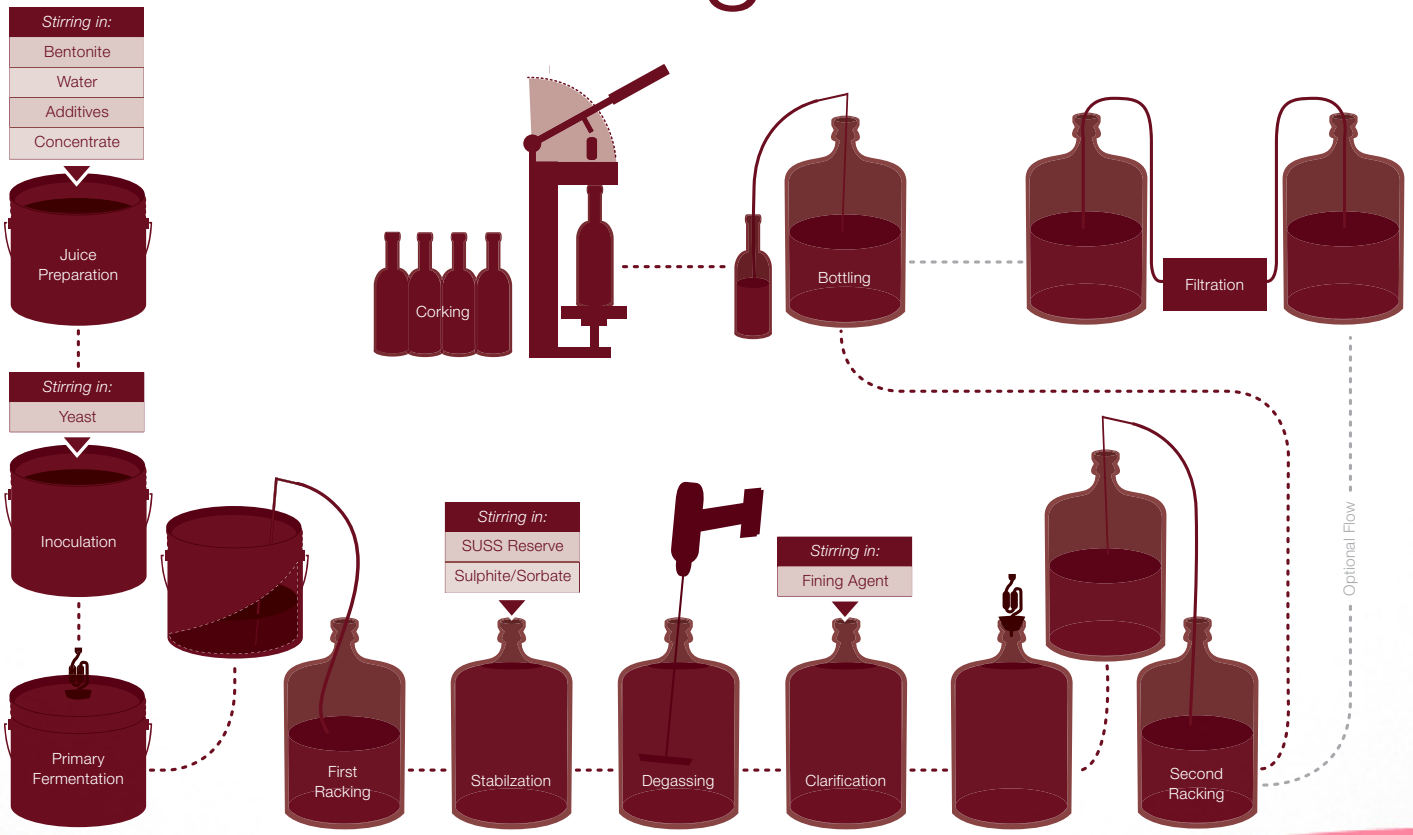
Chapter 1:

Winemaking

General Single-Stage Kit Winemaking Process



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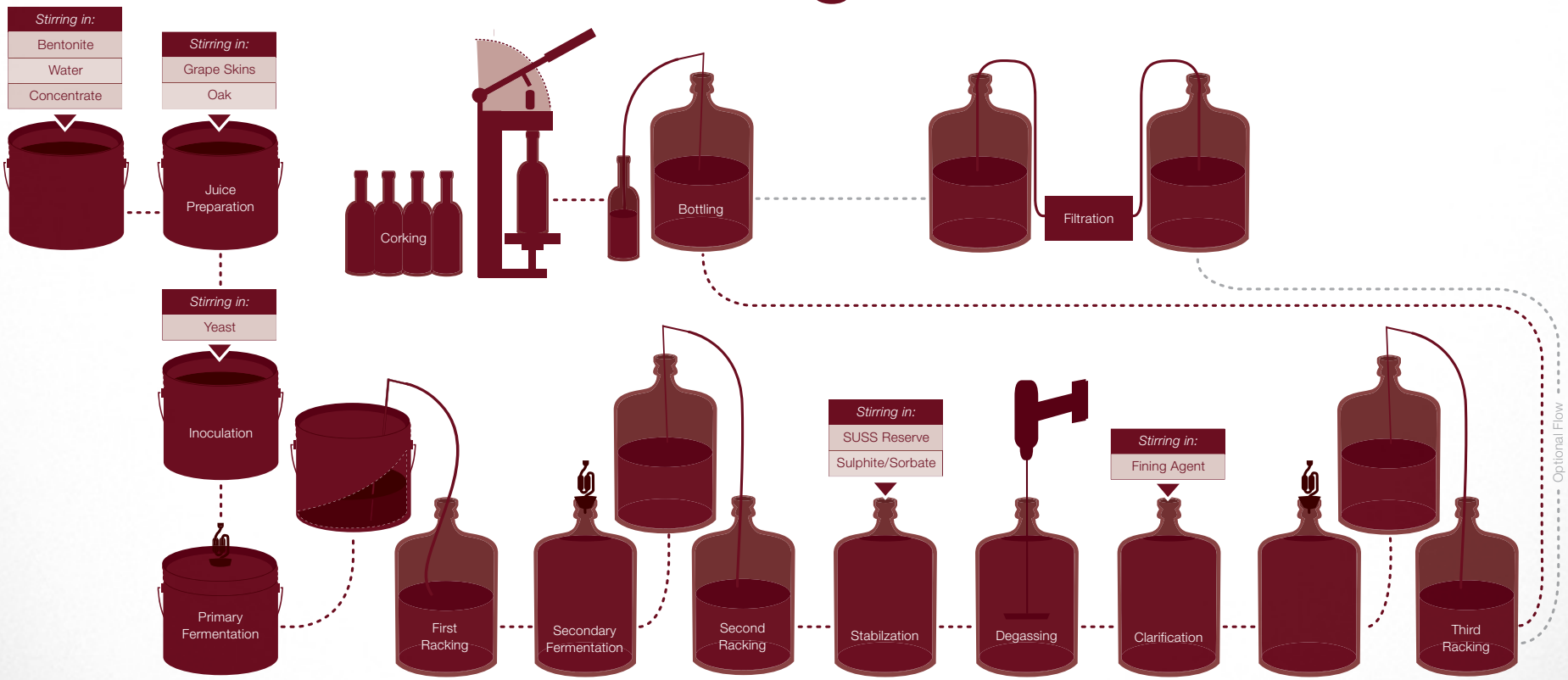

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Some important wine components

Colour pigments (anthocyanins) are drawn from skins; juice is yellowish, even in (almost all) red varieties.

Tannins are mainly drawn from skins; affect mouthfeel (puckery, dry sensation); act as antioxidants; improve aging potential.

Aroma and flavour compounds are mainly bound to other compounds in juice and are set free by yeast enzymes during fermentation.

Proteins, pectins & minerals are sources of instability such as cloudiness, haze and precipitates; these must be dealt with during winemaking.

Alcoholic Fermentation

Alcoholic Fermentation (AF) is the transformation of sugar into alcohol (ethanol) by wine yeasts (Saccharomyces cerevisiae); carbon dioxide (CO^2) gas is a major by-product.

Many other by-products including: flavour and aroma compounds, glycerol, sulphite, hydrogen sulphide (H^2S), acetaldehyde, acetic acid, etc.

AF is complete when SG ≤ 0.995, or as specified in the instructions for the style of wine.

Incomplete AF can cause refermentation... in the bottle!!

Alcoholic Fermentation

Most kits use a SINGLE-stage fermentation process where the AF is completely carried out in a primary fermenter (i.e. pail).

- Minimizes risks of oxidation and microbial spoilage by eliminating one racking from the process.
- Reduces *total* labour.
- Simplifies the *winemaking* process.

Stabilization & Clarification

Stabilization uses:

- Sulphur dioxide (SO^2) to protect wine from harmful oxidative effects as well as from yeast and bacterial spoilage effects.
- Sorbate to protect wine from renewed AF; notably used in wines with residual sugar.
- Other wine additives to protect wine from, for example, precipitation of tartrate crystals.

Clarification uses:

- Fining agents to help precipitate proteins, pectins and other colloidal matter that may affect clarity.
- Racking to separate wine from precipitates.

Trouble-free Winemaking

Maintain an absolutely clean environment.

Properly clean and sanitize ALL equipment.

Clean and store away equipment immediately after use.

Dispose of all garbage in appropriate containers.

Follow instructions meticulously; do not try and rush any part of the process.

Record all winemaking operations and additions.
Logs will come in handy if troubleshooting problems.

Always dissolve additives according to instructions
before adding to juice/wine.

Trouble-free Winemaking

Ferment within the recommended temperature range.

Monitor winemaking progression by using sensory cues.
Problems can typically be corrected if detected early and acted upon quickly.

Store wine within the recommended temperature range,
away from light. Avoid large temperature fluctuations.

Always keep carboys FULL after Secondary AF; a carboy with headspace
is an invitation to oxidation and microbial spoilage.

Preparing solutions

Winemaking often requires preparation of solutions, e.g. 10% sulphite solution.

10% solution means 10 g of solute dissolved in water to make exactly 100 mL of solution.

Weigh 10 g of solute, add to 50 mL of room temperature water in a beaker, add water to the 100-mL mark.

Never use hot water for dissolving solutes; efficacy of additive may be compromised.

Always add the solute to water; never add water to a solute.