Determining Harvest Priorities

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It is critical to properly monitor and assess the fruit maturity and characteristics to make the appropriate management, harvest, and winemaking decisions to produce the best quality grapes and wine possible. Previous Timely Viticultures on Crop Development Sampling and Evaluating Samples described how to take a proper sample that best represents the actual ripeness stage of the cultivar in that vineyard. The next step is to set the Harvest Priorities that will optimize fruit quality and allow you the opportunity to make the best possible wine and then evaluate your sample and time your harvest based on that criteria. Since red wine grape harvest can be more challenging, these principals and priorities are more geared to those cultivars where tannin/phenol maturity is critical but will serve for whites also.

Principals to consider

- Differentiating types of fruit maturity
  - **Physiological Maturity** is the time when the grape reaches its largest diameter and maximum sugar content per berry; this is when the fruit is ripe from the vine’s priority of “sustainability and survival.”
  - **Technological Maturity** is the harvest timing in relation to ultimate utilization; this is when the fruit is ripened to the winemaker’s priority of making a specific style of wine. For example early harvest (higher acidity) for sparkling wines or late harvest (high sugar, ripe flavors) for dessert style wines.

- Fruit aroma and flavor components
  - **Primary metabolites** are carbohydrates (sugars), acids, and related compounds.
  - **Secondary metabolites** are fruit derived aroma and flavor components as well as tannins/phenols
    - Secondary metabolites are the main source of wine aroma, flavor, color, and taste sensations and are therefore essential to evaluate for appropriate ripeness.

- A critical principle here is that **high quality grapes and wine is the confluence of obtaining grapes with the**:
  - Desired fruit derived flavor components
  - Desired fruit derived aroma components
  - Reduction of immature tannins

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- The next principle is: to obtain a desired characteristic aroma or flavor in the final wine, it must be present in the grapes at the time of harvest!
  - It is important to pick the grapes when they contain the aroma and flavor components that the winemaker ultimately wants in the wine.
  - Therefore, the individual sampling must be diligent to monitor for and prioritize those aromas and/or flavors in the sample.

Priorities

- Quality and quantity of varietal aroma/flavor. Most varieties go through a distinct succession of changes in secondary components that are distinct and consecutive.
  - A succession from under-ripe to fully ripened for Cabernet Sauvignon would be something like:
    - Green
    - Herbaceous – “Stemmy”
    - Herbaceous – “Green Pepper”
    - Herbaceous - Minty
    - Cherry
    - Blackberry
    - Black currant
    - Elderberry
  - By regular, continuous sampling you will learn through experience the succession of aromas, flavors and textures that each cultivar goes through.

- The next highest priority, especially for red wines, is the texture of the grape tannins in skin and the seed.
  - These quality and quantity of the tannins determine the structure, body, astringency, bitterness, dryness, and color intensity of the wine. Mature tannins are critical to the production of quality red wines.
  - The degree of ripeness and polymerization of the tannins will determine the astringency and mouth feel of your wine.
    - This can range from the undesirable, hard and course tannins of immature grapes, through to the desirable, “supple and silky” profile of mature grapes.
      - Hard, Course
      - Green
      - Firm, Chewy
      - Dusty, Supple
      - Fine
      - Silky

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Procedure (some of this a repeat of the previous TV on Evaluating Samples)

- Select a few random grapes (or from your sample) and place them in your mouth.
- Without macerating the skins, gently press the juice out of the berries and assess the juice for sweetness (front of tongue) and acidity (back sides of tongue). With experience (and comparison against numbers obtained from running the lab samples) you will be able to reasonably guestimate the Brix and TA level of the grapes.
- Next gently separate the seeds from the skins and “spit” the seeds into your hand. The color of the seeds gives you a clue to the level of ripeness.
  - Green seeds are immature, green to tan and tan to brown seeds are maturing, and brown seeds are mature.
  - Ripe seed tannins are desirable as they are less easily extracted and more supple on the palate.
- Finally macerate the remaining skins and press them in your cheeks to assess the ripeness of the skin tannins.
  - You will be able to “feel” the astringency (dryness/pucker) of the skins. The intensity of the astringency decreases as the grapes ripen.
  - A good way to practice is to first sample an early grape cultivar such as Merlot and then immediately go to a later cultivar such as Cabernet Franc and then to Cabernet Sauvignon, and you will feel the increase in the astringency.
- Of course, other factors must still be considered, such as the total acidity and pH
  - Generally you would like to harvest white grapes in the 3.2-3.4 pH range and reds in the 3.4-3.6 range, as long as the varietal character is appropriate as described above. Remember the winemaker can adjust the acidity at the crush but it is almost impossible to increase varietal character in the wine.
- Brix or sugar level is good to follow on a “relative” scale but levels can greatly vary from vintage to vintage.
  - In some years the grapes will be fully ripened and have great varietal character at 21 Brix and another year they may still not have developed ripe varietal character at 23 Brix.
- Monitor to see if the grapes are deteriorating do to fruit rots, berry softening, and/or animal predation.
- Look at the short and long range forecast.
  - If the forecast looks good and the grapes have the ability to ripen further, then there may be a benefit to letting them hang a bit longer.
  - However, if a tropical storm is on the way, think twice.
  - When grapes are close to optimal ripeness, it is typically preferable to harvest before a significant rainfall than to wait until after the rain and allow them to concentrate the sugar again afterwards, especially if the rain pattern is continuing.
  - However if the grapes are in good condition (firm skin, no rot) and there will be an extended period of desirable ripening weather coming (no precipitation; warm days, cool nights) it may be preferable to wait and harvest later; obviously this comes with some risk.