

# GOOD GRAPES MAKE GOOD WINE

by  
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High quality wines can only be made from high quality fruit, so the potential quality of any wine is established in the vineyard. Grape quality is a complicated issue because it depends on many factors including soil, climate, viticulture, vineyard age, etc. In addition, grapes are very perishable. High quality grapes must be picked at just the right time and this complicates the quality issue. Optimum grape ripeness and quality only lasts for a few days, so deciding when to pick is often the most important decision a winegrower makes each year.

The vine extracts water and minerals from the soil and carbon dioxide up from the air. When sun shines on leaves, sucrose and small amounts of other materials are produced from these materials by photosynthesis. Then sucrose is transported from the leaves to the berries and other parts of the vine. The sucrose is hydrolyzed into glucose and fructose and stored in the berries. Flavor and aroma producing compounds are also synthesized and stored within the berries. Later in the veraison process, sugar accumulation stops and the berries start dehydrating. The skins slacken and the pulp is less firm. The Brix of the berries may continue to increase, but the increase is caused by a loss of water rather than by sugar gain. Photosynthesis continues, but instead of being transported to the grapes the sucrose is stored in the woody parts of the vine to provide energy needed to start vine growth the following year.

## Fruit Quality is Important

Under-ripe grapes are lower in sugar, low in flavor, high in acid and under-ripe red grapes usually lack phenolic structure and color. Over-cropped vineyards produce grapes that are lower in sugar, lower in flavor, lower in acid and lower in phenolic structure and color. Vineyards with big shaded canopies produce grapes with undesirable, “green” herbaceous taste and red fruit flavors seldom develop under these conditions. Over-ripe grapes are often high in sugar, low in acid, high in color, and may have intense flavors. But, over-ripe fruit often has undesirable cooked or stewed fruit flavors. Old or under-cropped vineyards generally produce high quality fruit, but sometimes the wine is overly astringent and requires an excessively long aging period.

The impact of some of these grape deficiencies on wine quality can be mitigated during the winemaking process and talented winemakers can make commercial quality wine out of almost any reasonable quality fruit. Excessive amounts of acid can be reduced chemically or biologically. Acid deficiencies can be corrected by adding tartaric acid. Sugar deficiencies can be corrected by adding sucrose (not allowed in California). Excessive alcohol levels can sometimes be successfully reduced by dilution. Cold soaking and *saignée* (juice removal) can increase flavor intensity and red wine color. Extended maceration, pressing techniques or tannin additions can be used to increase phenolic structure or protein fining can be used to remove excessive amounts of tannin and reduce astringency. Sometimes objectionable cooked fruit flavors can be hidden under a little extra oak.

Some grape defects can be more or less mitigated, but other flaws can be very difficult or even impossible to correct. There really isn't much a winemaker can do to increase varietal character in a deficient wine. Making a big red wine from under-ripe grapes is a hopeless task (making a blush wine is often a better solution). Green, herbaceous flavors are difficult to hide, so fruit grown under a big, shady canopy makes poor quality wine.

## When Are Grapes Ripe

Grape ripeness depends upon the intended use. Table grapes are usually picked at 16 to 18 Brix. Grapes intended for sparkling wines are usually picked at sugar levels of 18 to 20 Brix. Light, fruity table wines are usually made from grapes picked at 21 to 23 Brix. “Big” red wines are expected to have high alcohol, intense flavors and color concentration, so grapes intended for making big red wines are often picked at sugar levels of 25 Brix or higher. Grape ripeness depends upon the style of wine being made and the crop is considered ripe when the grapes have the correct amount of sugar, acid, color, flavor-intensity and varietal character for the intended use.

## Evaluating Grape Ripeness

Sugar and acid content can be quickly and easily measured and have been the historic way of specifying and documenting grape ripeness. But, sugar and acid levels are only part of the story. Red grapes from one vineyard may be perfectly ripe and make excellent wine when harvested at 23 Brix, while the same variety of grapes in a nearby vineyard may not be fully ripe until they reach 25 or 26 Brix. Sugar and acid content alone are a poor way of gauging grape ripeness so winegrowers measure Brix, TA and pH but they also consider other parameters when making harvest decisions.

Here are some of the additional parameters that winegrowers and winemakers use to judge grape ripeness just prior to harvest.

(1) Berry Texture: The texture of the pulp in the berries change as grapes ripen. When transport in the phloem slows, the berries start to desiccate. The skins slacken and the pulp softens.

(2) Pedicel Attachment: The pedicels can be pulled off the berries with little or no pulp attached when the grapes are ripe.

(3) Red Fruit Flavors: Under-ripe grapes often have a green, herbaceous smell and taste. Ripe grapes have less herbaceous character and more plum and cherry flavors.

(4) Brown-Crunchy Seeds: As grapes ripen the color of the seeds changes from green to brown, and the seeds become less soft and more crunchy.

(5) Ripe Tannins: Early in the season, the tannin in the skins is harsh and astringent. Then, as the grapes ripen, the harsh, bitter astringency of the tannin diminishes.

Of course, the above parameters are only partial indicators of grape ripeness. Brown seeds and clean pedicels do not guarantee ripe grapes. Even so, when harvest time approaches, the winegrower goes to the vineyard every few days to check the status of the fruit. First, he looks at the overall condition of the vineyard to see if the vines are strong enough to continue ripening the crop. Then the winegrower walks up and down the rows and picks sample grapes. (1) The winegrower looks at each berry and he gently squeezes the berries between his thumb and forefinger to see if the grapes have started to soften. (2) He removes the pedicel from the berry and looks to see how much pulp is attached. (3) The winegrower tastes the berries and smells the berries to see if the herbaceous character has diminished and if the desired red fruit flavors have developed. (4) The winegrower spits some of the seeds into his hand to look at the color and he crunches some seeds between his teeth. (5) Then the winegrower chews the skins to see if the tannins have softened. After the winegrower has sampled several dozen grapes, he walks up and down the vineyard again and collects a “sugar sample” of at least a hundred berries. Later, the winegrower will measure the Brix, TA and pH of the sample grapes. The Brix, TA and pH data, together with his vineyard observations, will help the winegrower decide when his crop should be picked.

The winegrower knows by experience that high quality wines are made from properly ripened grapes, so this pre-harvest ritual of walking up and down the vineyard picking, squeezing, smelling, tasting and spitting seeds is done with considerable care and deliberation each year.