



Noble Rot

Dr. Jeff Snow
SES Education Director
March 2021



The title may sound like a risqué report on the unseemly behavior of the Bonny Prince of Wales. But although I don't disagree that Prince Charles has tarnished the reputation of the Brits' royal family, this is about grapes that fortuitously become infected with a little fungus called *Botrytis cinerea*. And the crazy thing is that when dessert wine is the goal, winemakers pray for this kind of fungus!



It was Jack Leininger's Wineminder article (Feb. 2021) about chocolate and wine that turned my thoughts to dessert wines; wines defined as high in both sugar and alcohol. Since grapes at maturity have only enough sugar for yeast (*Saccharomyces cerevisiae*) to convert it to about 13% or 14% alcohol when fully fermented, you can't have both (high sugar and high alcohol) – and I'll refrain from saying “*you can't have your cake and eat it too.*” But dessert wine makers have several ways to retain high sugar and have high alcohol. One method is to stop fermentation while much sugar remains by adding “neutral wine spirits” (cheap brandy) which boosts the alcohol. Examples of such “fortified wines” are Port, Sherry, Madeira and Muscats of S. France. But that is a subject for another day. Another approach is to raise the sugar concentration of the grapes by removal of water. In warmer regions water is removed by drying grapes on mats after picking. In cooler climates mature grapes can be left to shrivel on the vine and then be picked in a “late harvest.” When grapes are left hanging into winter and freeze, ice crystals pull off more water within the already shriveled or raisined grapes. If grapes are rushed still frozen to be pressed in cold presses, the resulting “must” is even sweeter.

But perhaps the most blessed sequence occurs when the fungus *Botrytis cinerea* begins to grow on the long hanging and already raisined grapes. *Botrytis* organisms form spikes which perforate the grape skin and suck out water (concentrating the sugar) while imparting the beguiling flavors of honey, apricots and nuts.



Since vignerons (a person who cultivates grapes for winemaking) go to great length to prevent mold and fungal growth on grapes, which typically ruins the grape crop, one has to wonder how they discovered this particular fungus was good. When Julie and I visited the storied Rheingau estate, Schloss Johannisberg, we learned the pure serendipity of it. As the estate manager lead our group on a tour of the grounds, I spotted the statue of a man on horseback with a three-cornered hat, satchel under one arm and holding a scroll in the other. The pedestal was dated 1775 (similar to the Boston North Church statue of Paul Revere). I asked the estate manager if that was the legendary Spatlese Messenger. “Of course, as everyone knows,” he answered. When he learned no one in our group did know, he got a little twinkle in his eye and told us the story, and now I am passing it on.

It seems that in 1775 the estate was then a branch monastery that was governed by the Cistercian abbey Kloster Eberbach a few miles away, at Eltville. The local monks were not allowed to begin harvesting the grapes until the Abbot of Eberbach inspected the grapes. A horseback messenger was to carry a pouch of grape clusters to the Abbot, an easy day's ride away. If he agreed the grapes were ready then a “writ to harvest” was sent back with the messenger. Only in 1775 the messenger did not return, and as the despondent monks watched, the grapes began to shrivel and rot with mold. Finally the messenger returned, and although the monks thought the harvest was ruined, as “good German Monks,” they followed instructions.



The grapes were picked, pressed, and the must fermented and put in barrels, but because they “knew it was ruined” they put the barrels out of site far in the back of the cellar. With Spring came the Abbot, demanding to taste the wine. The monks tried to explain that during the delay of the messenger the grapes had shriveled and rotted, so of course the wine was ruined. Still the demand “I must taste the wine.” Reluctantly he was given a sample and exclaimed to the amazed monks, “this is the best wine ever produced anywhere on the Rhine!” So late harvest, or in German, “spatlese,” became a thing and the fungal mold that improved rather than ruined it was dubbed the “**Noble Rot.**”



But it didn't end then and there. Over the next few years selected grapes were harvested later and later, making even drier grapes and of course sweeter wine, even though fully fermented to 12 to 13% alcohol. Bragging rights for the sweetest wine became a German passion, and higher sugar became synonymous with higher quality.

A system of government regulated quality levels based upon sugar at harvest was developed. Table wine is the lowest level, followed by a first level of quality wine (labeled QbA) and the highest quality wine (labeled QmP). Within QmP are the five ascending quality designations: **1)** Kabnett is made from the finest fully ripe grapes; **2)** Spatlese is the first level of late harvest; **3)** Auslese grapes are harvested later and selected carefully; **4)** Beerenauslese grapes are even more dried and shriveled and highly selected; and **5)** Trockenbeerenauslese (in Germany a Trochner is the dryer in the laundry) are the latest, driest, and the wine like syrup. Ice wine has similar sweetness to Trockenbeerenauslese, but is governed by a separate regulatory scheme.

It also didn't end in Germany, and soon late harvests, blessed by Botrytis, were being produced in Eastern Hungary, Alsace, and Bordeaux. Hungarian Tokay is produced from the white grape Furmint which is Botrytis affected. In Alsace, above the plane of the Ill and in Rhein rivers, Pinot gris is made into the famous Tokay d'Alsace. And in Bordeaux along the Garonne river Semillon is similarly made into delicious wine in Sautern, Barsac, and Cadillac. As you may have noticed, all of the Botrytis affected late harvest dessert wines share two things: all come from white grapes, and all grow near water where morning and evening mist is present to facilitate the Noble Rot of Botrytis.

Oh, and there is such a thing as too much of a good thing.
Too much Botrytis Cineria can cause “grey rot” which ruins the grapes, showing that the noble can go bad, both in grapes and British rulers.

