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MECHANICAL HARVESTING OF WINE GRAPES

4. INFLUENCE OF MECHANICAL HARVESTING ON THE QUALITY OF RED WINE

The influence of mechanical harvesting on the quality of red wine is not as drastic as is the case with white wine. Since red wines are fermented on the skins, the damage to berries does not play such a big role; in fact it can even have some advantages. It is nevertheless still the practice to apply metabisulphite in the pressing bin to protect the grapes and juice against oxidation. Guard against the harvesting of grapes at abnormally high temperatures, especially in the afternoon. Long transportation distances and long waiting periods at the cellar, where there is usually insufficient shade, are also undesirable.

4.1 Experience abroad

Modern harvesters are equipped with sorting tables, GPS-directed steering mechanisms and automatic height adjustment – improvements which ensure that whole berries with minimum free run juice and hardly any MOG (material other than grapes) are delivered to the cellar. Thus it is a false perception that harvesters can only be used for mediocre wines.

Pinot noir grapes which are harvested mechanically, of which the berries have broken and have been transported for long periods, have a doubled protein concentration compared to the grapes prior to transport. For both hand and mechanically harvested grapes where berries stayed intact, the protein concentration remained the same. This protein can cause milky wines and must be avoided by addition of bentonite. Apart from the extraction of phenols from leaf and cluster stems, there is actually no detrimental effect on red grapes from mechanical harvesting (Fig. 1). With the correct machine settings this MOG is negligible in any case.

The damage to stems and green plant material can be a significant source of green flavours if they end up in the pressing bin. For this reason, the harvest machine must be set so that this possible source of green flavours is limited. This means that a lower beater speed as well as a lower ground speed must be maintained. The only concern is the time that elapses between the harvesting process and inoculation with cultured yeast. At high temperatures as well as low levels, or the absence, of SO_2 there is an opportunity for bacterial growth, oxidation and/or natural yeast activity which can cause possible spoilage. This problem can be avoided if harvesting takes place at low or cool



Figure 1: In mechanically harvested red grapes with a low MOG percentage and thus low phenolic extraction, mechanical harvesting has no detrimental effect on the wine. (Photo: Robert Stolk)

temperatures and with application of sufficient SO₂. Where mechanical and minimum pruning techniques are applied, mechanical harvesting is the only practical harvesting method.

4.2 Experience in South Africa

The colour of different Cabernet Sauvignon wines was not affected by whether the grapes were harvested by hand or machine, time of harvest or the time that elapsed before the grapes were delivered. For the same criteria small differences regarding extraction, total soluble sugar, volatile acidity and pH was recorded. These differences were confirmed by sensory evaluation, but had no impact on total wine quality. It thus appears that Cabernet Sauvignon can be harvested with modern harvesters without any detrimental effect on wine quality. Due to the high temperatures in the afternoon it is advisable to do mechanical harvesting in the cool morning hours (Fig. 2).



Figure 2: Red grapes being harvested early in the morning. (Photo: Robert Stolk)

4.3 Conclusion

- With red cultivars, temperature and time between harvesting and pressing play a lesser role than with white cultivars.
- Skin contact at moderate temperature is not so detrimental and in lower quality grapes with poorly coloured clusters, it can even assist in better colour extraction.
- Temperatures above 30°C must be avoided (Fig. 3).
- Additions in the form of metabisulphite to guard against oxidation can be made.
- Harvesting at night and in the early morning is the best option.



Figure 3: Red grapes which have spent a long time in the sun waiting to be off-loaded can become warm. This should be avoided where possible. (Photo: Robert Stolk)