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MECHANICAL HARVESTING OF WINE GRAPES

9. CHOICE BETWEEN MECHANICAL HARVESTING AND HARVESTING BY HAND

The choice between machine harvesting and harvesting by hand must be made by each individual producer. The decision must consider the financial and physical aspects of the farm, as well as factors such as the cellar where the grapes will be delivered.

9.1 This choice is dependent on the following

- Availability and cost of manual labour.
- Use of the farm's own permanent labour or contractors.
- Whether labour is also required throughout the rest of the year for other activities.
- Size of the farm unit – it must justify the purchase of a harvester.
- The design of the vineyard and the suitability of the trellis system for mechanical harvesting.
- The harvester must be able to cope with the slope at which the vines have been planted.
- Cultivars planted on the farm unit must be suitable for mechanical harvesting. Cultivars such as Semillon and Sauvignon blanc which yield a lot of juice are less suitable for mechanical harvesting.
- If mechanical harvesting is chosen, there is a choice between a towed harvester or a self-propelled harvester.
- If a self-propelled harvester is chosen, it can also be used for other tasks during the year, such as topping, pre-pruning, disease control and leaf removal.
- Some winemakers however still prefer hand-harvested white and sometimes red grapes for production of their top wines.
- The ability of the cellar to receive grapes harvested at night, during the night or in the early morning to take advantage of the benefit of cool grapes.
- In South Africa, grapes infected with *Botrytis cinerea* and used for the production of noble late harvest wines can never be harvested by a machine. It requires too much selection for noble rot and removal of sour rot.
- Grapes earmarked for sparkling wine, the whole pressing of clusters or whole cluster fermentation will still have to be harvested by hand.

9.2 Prerequisites for mechanical harvesting

- Current trends indicate that the mechanisation of the harvesting process is becoming increasingly popular.
- For cellars to receive mechanically harvested grapes, it is essential that they make certain adaptations to ensure that the harvest process flows smoothly.

Receiving systems:

- The approach ramp to the receiving bins must not be too steep, this ensures that the must does not run over the back edge of the pressing bin and is lost.
- Pressing bins containing mechanically harvested grapes should not be too full and should preferably have transverse partitions to limit the movement of the must during transportation.
- The pressing bin must have a drainage system consisting of several sieves through which the must can flow to the exit pipe.
- The exit pipe must be fitted with a tap so that the exit flow can be controlled.
- The receiving bin must be designed so that it limits microbiological spoilage.

Crushing machine:

- The crushing machine must have so-called splatter walls to prevent juice loss.
- A hydraulic valve must be fitted to the exit of the crushing machine to control the flow of the mechanically harvested grapes and must, so that there is sufficient time for the large amount of must in the load of grapes to drain.
- A strong magnet is strongly recommended to collect metal objects before they damage the machinery and the interior of bladder presses.
- The design of the crusher must be such, that the de-stemmer can be switched on for hand-harvested grapes and switched off for machine-harvested grapes.

Preparation of the vineyard which is to be harvested:

- During pre-inspection of the vineyard block, one must ensure that there are no infections or contaminations which could affect the final wine quality.
- The cultivar to be harvested, the temperature at which it will be harvested and the style of the wine to be made from it must be taken into account. Adjustments must be made, if necessary, such as in the case of an oxidative or a reductive approach. Red grapes can for instance be harvested later in the day.
- The time that elapses from harvesting to delivery to the cellar is critical, since it simulates skin contact as practised in the cellar. The longer the time and the higher the temperature, the more the extraction of phenols, heat labile proteins and potassium.
- If the grape temperature in the vineyard becomes too high, smaller loads must be sent to the cellar at more regular intervals.