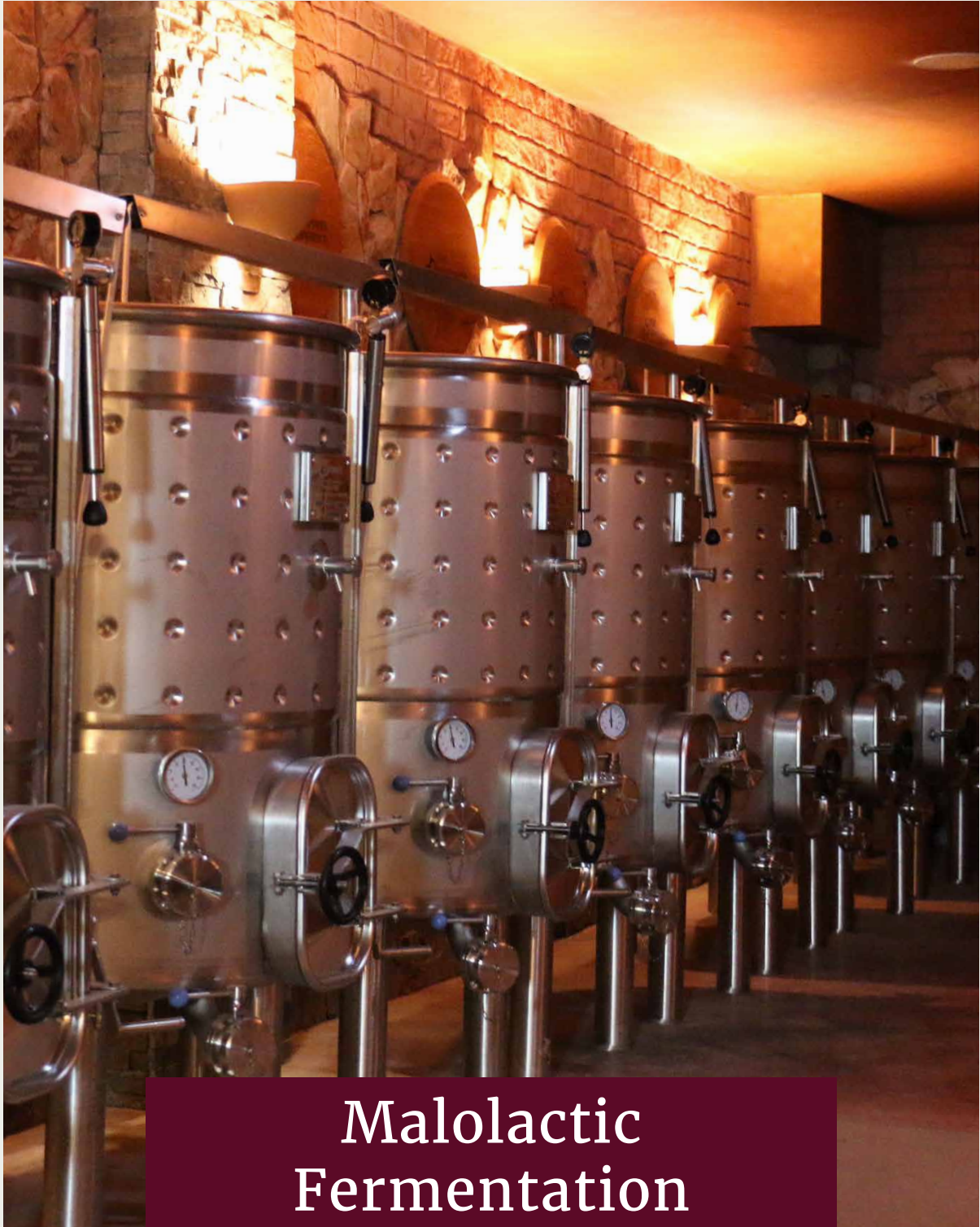




THE
WINEMAKER
EXPERIENCE
QUINTA DOS VALES



Malolactic Fermentation



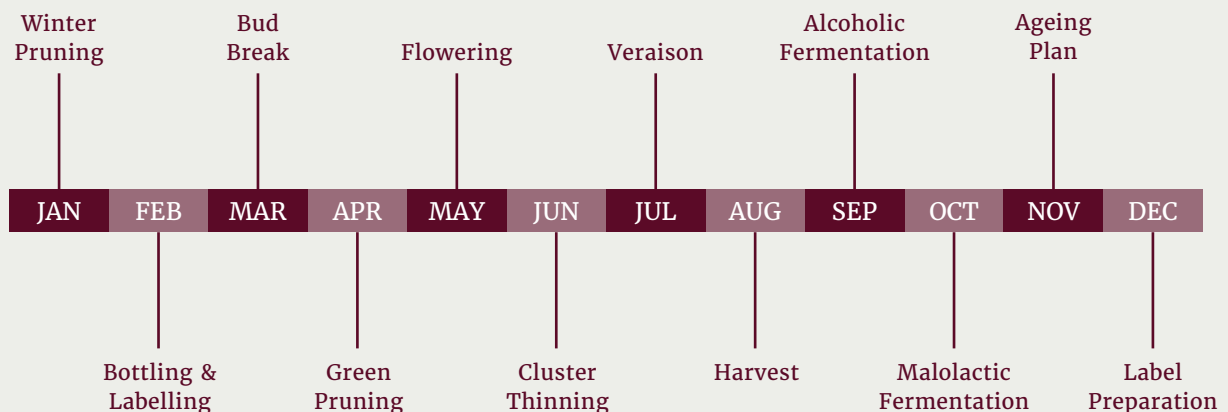
QUINTA DOS VALES
WINE ESTATE

THE WINEMAKER EXPERIENCE

Malolactic Fermentation

PROJECT TIMELINE

Starting one's own wine production is an exciting process, which brings participants face to face with all of the different aspects required to produce a natural wine. In this timeline we have presented some of the most exciting steps along the way, but not to worry, there are many more.



Malolactic Fermentation

After completing the alcoholic fermentation red wine still needs to undergo a second fermentation, named the malolactic fermentation. However, contrary to the alcoholic fermentation, during the malolactic fermentation there is neither contact between the wine and the skins, nor with oxygen.

This separation is realized directly after the alcoholic fermentation is completed, this is done by simply pumping the liquid wine into an empty container and leaving the skins and seeds in the stainless-steel vat. When only the skins and seeds remain these are manually moved into a pneumatic press, to extract the wine that was absorbed by the skins.



Micro-Press



Winemaker adding the remain skins and seeds

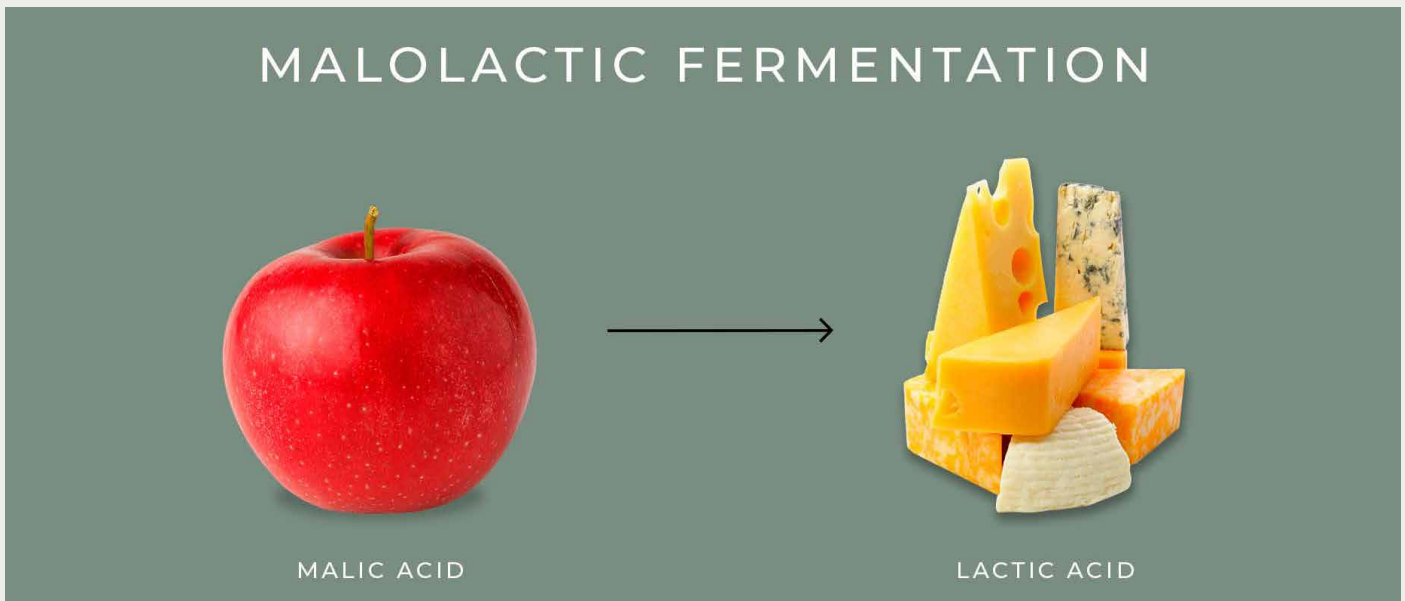
The micro-press has a special setting for this type of extraction, as the last thing you want is to apply too much pressure, because this will break the seeds and add bitter flavours to the wine. Which is why this setting applies the gentlest of pressure, and primarily uses the rotation of the cylinder to extract the liquid absorbed by the skins. Once this process is completed the vat is cleaned and only the wine, now completely separated from skins and seeds, is pumped back into the same vat in which the alcoholic fermentation took place.



Stainless steel vat

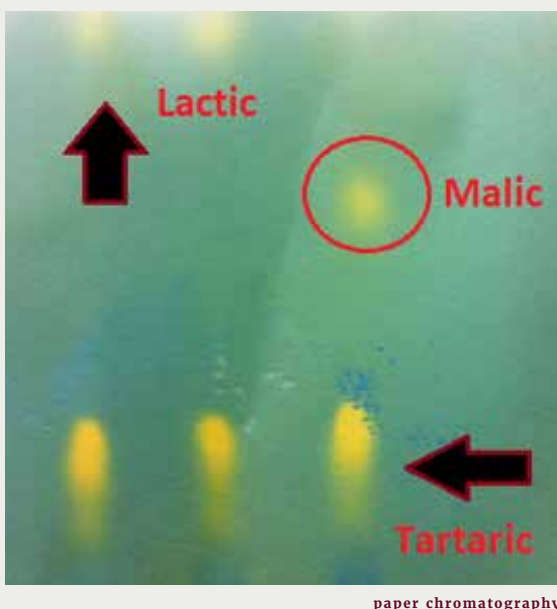
Aim

Malolactic fermentation is standard for almost every professionally produced red wine, as this process generally enhances the body and flavour persistence of wine, producing wines of greater palate softness. In a nutshell, malolactic fermentation is a process in which tart-tasting malic acid is converted to softer-tasting lactic acid, and therefore results in a wine with a rounder, fuller mouthfeel.



Methodology & monitoring the progress

Once the wine is pumped back into the stainless-steel vat the next step is to initiate the malolactic fermentation, this is done by adding a specific species of bacteria (lactic acid bacteria) into the wine, in our case we use *Oenococcus oeni*. After the bacteria is added the pressurised lid of the vat is closed, to the level of the wine, in order to avoid oxygen contact during this process.



Malolactic fermentation can take anywhere between 1-4 months, and the process is monitored continuously by the winemaking team of Quinta dos Vales. This is done by use of the Paper Chromatography method, an example of which can be seen here. Small samples of the wine are dropped onto a chromatograph paper, the paper is then rolled and placed in a jar filled with an acetic acid solution containing bromophenol blue indicator dye for several hours. After the paper is pulled out and dried, the distance of yellow coloured “splotches” from the base line denotes the presence of various acids, with tartaric being closest to the baseline followed by malic, and finally lactic acid near the top of the paper. Essentially, the process is completed when no more presence is visible on the level of the malic acid, meaning it has all been converted into lactic acid.

On a chemical level, the general rule is that 2 grams of malic acid are transformed into 1 gram of lactic acid, which is why the acidity levels decrease after the malolactic fermentation is over. Therefore, the definitive total acidity values of a red wine can only accurately be defined once the malolactic fermentation is completed.



Winemaker analysing the chromatography paper



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