The use of alternative containers as barrels

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According to the Afrikaans explanatory dictionary a barrel is "a hollow, round, slightly arched object which is used to preserve or store amongst other wine, beer, butter, meat and salt". This corresponds mainly with the original purpose of barrels namely to serve as a suitable container. The influence of the wood character on the product in the barrel developed in course of time. The positive contribution of wood flavour and taste on wine and spirits is also coincidental. The limited lifespan as a source of wood character and the ever increasing purchase price of barrels forced wine industries and researchers to investigate alternative products.

A barrel is basically a porous container. Any product which is kept in it will extract wood flavours and taste from it and will also be exposed to the air (oxygen) which moves through the pores into the product. The interaction between product, wood and air can consequently lead to different results in the product composition. When considering alternatives for wooden barrels, alternative sources of wood, air exposure or combinations of it must also be considered. Alternative wood products can be considered in different forms like staves, blocks, shavings or even powder and are usually combined with micro oxygenation (MOX). It is however also possible to change the barrel as container while both the wood and air influence are maintained.

The Australian "STAKVAT" that had been launched in 1988 is a cubic container with a steel framework with removable sides. These vats can be stacked, thus storage space is utilised much better than with barrels. Initially the sides were made of wood to obtain a wood character, but the latest design has only two removable sides with replaceable maturation membranes. The membranes are air permeable as this imitates barrel maturation. The thickness of the membrane determines the rate of air exposure, but can also be replaced by stainless steel plates in which case it becomes a normal container. When these membranes are combined with alternative wood products they fulfil the same role as MOX. Wood character can be obtained by placing alternative wood products inside the STAKVAT. As a result of the membrane composition, liquid evaporation is limited and the annual evaporation loss is less than 0.05%. A recent comparison with new and used barrels proofed the STAKVAT wines to be better (Warren, 2013).

Modern Cooperage in California developed stainless steel barrels which address the three key issues of traditional barrels namely wood, labour and maintenance. The stainless steel barrel has an unlimited lifespan, although the purchase price compares favourably with that of barrels. The external dimensions are similar to those of barrels and it fits on standard barrel racks. The use of thinner stainless steel and the better utilisation of the external dimensions lead to a capacity of 390 litres in comparison with 300 litres of a standard barrel. By putting 10 to 12 wood staves in the stainless steel barrel the wood contact surface is double that of a standard barrel. The combination of wood staves can also be changed if necessary. The stainless steel barrel needs not to be removed from the barrel racks and if required a removable exterior handle can be used to stir the lees in the barrel. Seeing that the stainless steel is not permeable no evaporation occurs and topping up is also unnecessary. The cleaning of the stainless barrels can also be executed more thoroughly. After the used wooden staves have been removed the barrel is rinsed and sterilised with steam (Pregler, 2013).

The Spanish ROC CUVE was developed in the Castilla La Mancha wine region. It is a cubic barrel with wooden sides, kept together by a steel framework. These barrels can be transferred by a fork lift. The wood type of the sides and the wood treatment can be selected by the cellar and also replaced if required. It is easy to assemble and the utilisation of storage space is 4 to 5 times more than with traditional barrels. It can be stacked ten high and also require no barrel racks or stacking structures. The wood contact surface is 20% more than with traditional barrels and as result of the potential replacement of the sides different types of wood and age can be combined. Used wood can be sold for furniture making, which makes the ROC CUVE environmentally friendly (www.roccuve.com, 2013).

Photo: Modern Cooperage.

A stainless steel barrel.

ROC CUVE cubic barrel.

References

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