Southcorp Wines’ approach to oak input in winemaking

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Introduction
This paper is presented from the perspective of a purchaser and consumer of new oak barrels and the other forms of oak wood used in winemaking in Australia.

General approach
The approach to the use of oak input in winemaking for Southcorp Wines in Australia is to consider oak as a direct material in the production of wine. That is, the use of new and used oak barrels, oak chips and immobilised oak planks installed into wine tanks are written into a product’s makeup in a similar way as grapes. Collectively for all of Southcorp Wines products it is called the Oak Maturation Specifications. It is written and stored as an electronic spreadsheet using the Microsoft Excel® format. An example is provided in Table 1.

The oak maturation specifications are used for the following purposes:

- Procurement planning and forecasting (one and up to five years)
- Product costing
- Budget preparation and revision
- Winemaking

Vital to the success of this approach is the maintenance of flexibility in the use of the Oak Maturation Specifications for wine style setting in winemaking and for costing reasons. This results in regular revision of the specifications.

This approach to the utilisation of oak input as direct material does have inherent problems, such as:

- Potential for over-use of oak input in products
- Assumes an open-handed budgetary position

Table 1. Example of oak maturation specifications – new and used oak barrels

<table>
<thead>
<tr>
<th>Product name</th>
<th>Planned volume</th>
<th>Time in barrels</th>
<th>North American oak*</th>
<th>European oak*</th>
<th>Used oak*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10,000</td>
<td>18 months</td>
<td>100%</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>B</td>
<td>25,000</td>
<td>15 months</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>C</td>
<td>100,000</td>
<td>12 months</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>D</td>
<td>20,000</td>
<td>15 months</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
</tbody>
</table>

*Proportion of oak barrels given as the percentage of the planned product volume

Setting Oak Maturation Specifications
In the setting of the Oak Maturation Specifications for products there are two areas for consideration.

Product cost structure restraints
The price point on a product must be able to carry the cost of the use of oak inputs and return the expected margin or profit, for the product will influence the setting of the oak maturation specification for individual products. The type and proportion of oak input will be tailored to meet cost restraints for the product. For example, if a product is utilising new and/or used oak barrels in its production, but the cost structure cannot support the use of the barrels then oak, the use of oak chips or oak planks immobilised in wine tanks could become the viable alternative.

Product style requirements
(a) Established products
For many of Southcorp Wines’ premium and super-premium products, the wine styles have been developed over a number of years by the Southcorp winemakers through experience of trial and error, or by more inspired means. For these products, the oak maturation specifications are set and any revision to them is exceptional, for example, Penfolds Bin 707 Cabernet Sauvignon which utilises new North American oak hogshead barrels for its maturation.

(b) New products
For the development of new products the winemaker is presented with a product brief which defines the wine style required (including grape variety and regionality requirements), and the retail price point targeted. After establishing specifications for grape inputs for the new product it then becomes the task for the winemaker to develop a suitable oak maturation specification for it.

Options for defining oak input for wine style in new product development are:

- Oak type—country of origin and oak grain density
- Barrel shape
- Cooperage technique—stave bending technique and toast level
- Length of time in barrel
- Proportion of new and used barrels
- Cellar techniques—barrel fermentation, method of barrel topping and storage conditions for barrels
- Use of oak chips and/or immobilised oak planks in wine tanks
In Southcorp Wines, importance is placed on balancing the depth of wine fruit flavours with the amount of oak flavour and maturation characters derived from barrels, or other means of oak usage.

**Expectations of suppliers of new oak inputs**

As a customer, Southcorp Wines has a number of expectations of suppliers of new oak barrels and other new oak inputs.

- A ability to supply in a timely manner
  A large number of products produced by Southcorp Wines in Australia are made utilising barrel fermentation during the vintage period of February to April each year. This is true for both white and red table wines. The filling of barrels with new vintage red table wine continues after the vintage period through to September. The need to have new oak barrels available for use by Southcorp's winemakers is self evident.

- A ability to supply barrels in the quantities and types required
  As a major producer of premium quality table wine in Australia, Southcorp utilises a large number of new oak barrels for its products each year. If the difference in quality and type of barrels between suppliers is narrow or undetectable, the major proportion of barrels are purchased from a small number of core suppliers. This minimises costs incurred in the management of procurement, and the logistics for new oak input.

- A ability to provide the level of quality required
  There are two important aspects to quality in oak input.

  (a) Physical quality attributes
  - Barrels that do not leak when received and filled for the first time
  - Freedom from taints and foreign matter
  - Manufactured to Southcorp Wines specifications—hoop configuration, bung hole detail, barrel dimension and volume, presence of correct barrel markings

  (b) Organoleptic quality attributes
  The measurement and assessment of this quality attribute is nebulous, but with the development of analytical techniques for measuring oak aromatics, there is potential to set and monitor specifications for this in the future.

**Consistency and predictability**

For winemakers to know what they can expect out of the use of new oak input in the production of wine styles, the question of consistency and predictability is very important. The areas of consistency are:

- Between barrels within a batch of barrels from a supplier
- From one year to the next for a given type of oak barrel from a supplier

**Commercial considerations**

**Pricing and terms of payment.**

**Risk management considerations**

For risk management reasons Southcorp Wines prefers to utilise the minimum number of two independent suppliers for the supply of any individual type of oak input. This also provides flexibility in commercial considerations.

There is also an on-going commitment to the purchase of new oak barrels from Australian cooper's but manufactured out of North American- and European-sourced oaks. The need to import large numbers of new oak barrels into Australia, from both Europe and the United States of America, puts the Australian wine industry in a vulnerable position in the event of problems with shipping.

**Quality assessment**

The characteristics of new oak input are assessed in three different ways.

- Physical quality assessment on receipt of new oak inputs
  When new oak barrels and other new oak inputs are received into store at each Southcorp winery in Australia, assessment is made for the following.

  (a) Conformance to Southcorp Wines specifications
  Conformance to Southcorp Wines physical specifications for new oak barrels uses a simple check list. This is an exception report, where response is sought in the instance of non-compliance to a Southcorp specification. The form also provides for the reporting on the subjective observation of other barrel characteristics, for example the colour and evenness of toasting, and the presence of blistering on internal barrel surfaces.

  (b) Organoleptic assessment for presence of taints
  Screening for presence of taints, or other non-oak derived characters. Up to five barrels from each delivery are opened up and scrapings taken from internal stave and head surfaces. These scrapings are immersed in neutral white table wine for twenty four hours before the bouquet of the wine is assessed organoleptically. If taints or non-typical characters are detected, then further samples are collected and new assessments made.

- Unstructured organoleptic assessments
  Wines produced using oak inputs are tasted by winemakers a number of times during the production of the wine, from vintage through to bottling and commonly after bottling. A t each of these tastings, the oak character in the wine will be assessed either with or without conscious intent by the taster. Normally these tastings are informal and the results not reported on, except where a problem is detected. Occasionally comparisons will be made between new or used barrels during tastings, but the assessments made during these tastings are subjective in nature.

- Structured organoleptic assessments
  The structured organoleptic assessment of barrels in comparison trials, provides an invaluable means of clearing some of the confusion out of what is a subjective and often emotive topic. Southcorp Wines has a programme in place for comparison assessments of barrels to measure the performance of barrels from new and existing suppliers, and to measure different options available from cooper's for oak barrels (oak type, toast level, barrel shape, etc.). However, in the winery situation there are a number of difficulties in carrying out controlled trials and providing structured assessments. These are:

  - Variability between barrels of the same type from a supplier. Work by Towey and Waterhouse (1996) showed the large degree of variability that can occur within sample sizes with new oak barrels. To compare barrels accurately, large sample numbers of barrels must be used. This is impractical and expensive
  - There is the question of what type of wine to use for the assessment. For example, a full-flavoured wine may taste better in one type of barrel, compared with another, and would therefore produce skewed results.
staves is believed to modify the characters offered by new oak barrels. What technique does the cooper use?

(d) Toast
In simple terms the toasting of barrels is a function of heat (temperature) and time of exposure. Close control of this critical step in the production of wine barrels and the provision of specifications defining exactly what is meant by light, medium and heavy toast levels in terms of heat and time or other means, will provide for greater predictability.

Environmental concerns
The matter of environmental concerns relates to the question of whether the oak that winemakers use for oak inputs is from sustainable resources. It is known that more and more oak from eastern European countries is being used for the manufacture of wine barrels. Is this oak being taken from managed forests or is there the risk of an ecological problem emerging at some time in the future? If a problem does emerge, what is the risk of the wine industry being held responsible, at least in part for this problem? If the wine industry is held responsible, how will it affect wine sales? These are all pertinent questions which the stave milling, cooperage and wine industries should be examining together.

References