**Aims**

- Deeper understanding of consumers’ preferences and perception of wines can help the industry to produce and market wines targeted to specific consumer segments.
- The aims of this study were to examine consumers’ preference of wine flavours and to evaluate how distinct flavours influence consumers’ perception of white wine.

**Consumer online survey**

1000 Australian regular wine consumers completed an online survey stating their liking or disliking of 35 common flavours/aromas in white wine.

**Consumer white wine tasting**

**Wine sample selection**

- Based on the survey results, five flavours were selected to prepare wines for the consumer wine tasting including desirable citrus, fruity/tropical and oaky/vanilla flavours and less desired flavours of floral and green.
- To produce five wines with these flavours without altering other parameters, a neutral, unoaked Chardonnay was chosen as base wine and spiked with food-grade flavour compounds. Optimum spike concentrations were co-created with consumer input and a descriptive analysis (n=11) of the flavoured wines.

**Table 1: Spiked wine samples**

<table>
<thead>
<tr>
<th>Flavour</th>
<th>Aroma compound 1 mg/L</th>
<th>Aroma compound 2 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrus</td>
<td>Citral 0.5</td>
<td>Limonene 5</td>
</tr>
<tr>
<td>Fruity</td>
<td>Isoamyl acetate 10</td>
<td>Ethyl hexanoate 2</td>
</tr>
<tr>
<td>Floral</td>
<td>Geraniol 5</td>
<td>Phenethyl alcohol 150</td>
</tr>
<tr>
<td>Green</td>
<td>cine-3-Hexen-1-ol 2</td>
<td>Hexanal 2</td>
</tr>
<tr>
<td>Oak</td>
<td>Vanillin 1</td>
<td>Oak lactone 0.25</td>
</tr>
</tbody>
</table>

- The descriptive analysis panel results showed that the selected flavours were clearly perceivable in the spiked wines without significantly changing other taste perceptions.

**Consumer tasting**

- Regular white wine consumers (n=113) evaluated liking and product-evoked emotions by blind tasting the five spiked samples plus the base wine under standardised conditions in the sensory laboratory of the University of Adelaide.
- Samples were presented sequentially monadic, randomised and coded in clear ISO glasses at 14-15 °C.

**Wine-evoked emotions**

- Significant wine effects on emotions were observed for all three clusters, showing that liked samples evoked more intense positive emotions and the opposite was true for less liked samples which evoke more intense negative emotions.

**Figure 1:** Consumer liking (1 = “dislike extremely” to 9 = “like extremely”) of common white wine flavours from a survey of Australian wine consumers.

**Figure 3:** Consumer liking (1 = “dislike extremely” to 9 = “like extremely”) for the base wine and five white wines spiked with different flavours.

**Figure 4:** Consumers’ wine-evoked emotion ratings (1 = “not at all” to 9 = “extremely”) for the three clusters tasting the six wines. Significant effects are marked with * p<0.05, ** p<0.01 and *** p<0.001.

**Conclusions**

a) Three clusters of consumers with different flavour preferences were identified.

b) Distinct white wine flavours evoked different emotions in consumers.

c) Emotional responses are strongly correlated with liking.

d) Results of the consumer wine tasting did not fully align with the results of the liking of verbal flavour stimuli in the online survey.

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