



## Comparison of traditional profiling by a trained tasting panel and free profiling by wine professionals

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- The most common method used to evaluate sensory properties of wines is *conventional profiling*, which uses techniques such as descriptive analysis. However, despite its great reliability, conventional profiling is not well adapted to experts and professional tasters due to their lack of time and availability for group training. On the other hand, alternative methods such as *free-choice profiling* do not demand training and allow for individual tasting sessions, but are also more subjective.
- According to these authors, free profiling conducted by experienced wine professionals –who often share a very specific wine vocabulary- could provide a good compromise between the time-consuming trained panel sessions and the very free commentaries of the wine industry in general. To test that hypothesis, the authors conducted *conventional profiling* and *free profiling* of 10 Loire Valley Chenin blanc wines, and compared the results of the two. We will refer to these wines as Wine 1 through 10.
- Here is how both types of profiling were conducted. **Conventional profiling** was carried out by 17 **trained panelists** (they had trained at least 1hr per week for 3-6 years). After tasting the wines, the panelists generated a list of attributes, which were reduced by consensus. Each panelist then scored the wines for each retained attribute using an unstructured scale which was later converted to scores from 0 to 10. Two replications were conducted.
- **Free profiling** was carried out by 12 **wine professionals** (winemakers, enologists, and wine merchants). Each professional was asked to “taste the wines and flash-generate attributes that would permit discrimination among them”. Using the same unstructured scale as above, professionals then scored each product for each attribute on their own list. To assess judge reproducibility, two of the wines were presented twice.
- 1) **Sensory results of conventional profiling.** The trained panelists agreed on the use of 17 descriptors. Here are some of the wines that stood out in the two-dimensional representation of the wines. Wines 4 and 5 were perceived as sparkling, with aggressive attack, and with citrus fruit notes. Wines 8 and 10 were described as full-bodied, intensely colored, with oaky, lactic, honey, and tropical fruit notes. In contrast with the rest of the wines, Wine 3 did not present any of the above attributes and was considered a “stale” wine, “difficult to describe”.
- 2) **Sensory results of free profiling.** The professional panelists used 109 different terms –when combined-, 69 of which were cited only once, and 8 of which – acid, sweet, length, oaky, fruity, bitter, vegetal, and floral – were cited 6 to 12 times. Wines 6 and 8 were described as “oaky”, with professionals reaching a very good consensus on this term. (This is in agreement with the wines’ history, as they were aged entirely in oak barrels.) Professionals also reached a very good agreement when describing Wines 1 and 2 as “sweet”. (This also agrees with the wine’s “pedigree”, as these had approximately 20 g/l of residual sugar). Wine 3 –which was described as an outlier by conventional profiling- was also described here with the terms “stale”, “chemical”, “pharmaceutical note”, and “flawed”.

• **Comparison of the two profiles.** 1) Wines were described similarly with free profiling and conventional profiling. In summary, Wines 6 and 8 stood out as intense, complex, oaky, and full-bodied; Wines 4 and 7 as lively; and Wines 1 and 2 as sweet. 2) However, some wines were considered more distinctive by free profiling than by conventional profiling. One example is Wine 3, which was judged as “extreme” by the free profiling. 3) Given this disparity in judging Wine 3, the authors conducted a second conventional profiling, this time including the attributes “chemical aroma” and “chemical flavor”. This time, the gap between both panels disappeared, and conventional profiling data matched the free-profiling data.

• **Individual judge performance.** Using sophisticated data analysis, the authors were able to represent on a two-dimensional map the relationship between the overall performance of each panel as a group, and the performance of each individual taster. They were able to see that professionals showed more differences among themselves, and they disagreed more not only in the use of certain terms, but in the way of organizing their tasting (i.e. what were the more important terms to start characterizing the wines). In contrast, trained panelists were all more clustered together – more homogeneous than professionals. The authors attribute this to their training process. Still, both panels showed they could reach a good consensus on the main sensory characteristics of the 10 white wines studied.

• Summarizing, *some “pluses” of free profiling include:*

- its speed and flexibility;
- the main wine characteristics found with conventional profiling were also found with free profiling, thus demonstrating that both methods can lead to the same results;
- free profiling served as a valuable back-up to complement the sensory terms reached by conventional profiling (without free-profiling, the attribute “chemical”, needed to describe Wine 3, would have never been found);
- free profiling allowed for larger discrimination among wines (more distance along a given axis);

*Some “pluses” of conventional profiling include:*

- the common list of attributes, and the analysis of variance used, allow for a better detection of subtle differences among wines (provided the list of descriptors is complete);
- judges using conventional profiling are more homogeneous and use language in a more similar way than judges using free profiling.

In conclusion, *conventional profiling* seems better adapted in studies of particular treatments likely to lead to small sensory differences, whereas *free profiling* may better fit a situation in which wines need to be characterized but time for training is lacking.

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