

Research Shows *Terroir* Matters

Tests on German Riesling show strong similarities based on soil types

by Gary Werner



London, England -- Research conducted over three years by an agricultural research center in southwestern Germany appears to offer scientific proof of a nebulous tenet long championed by enophiles: *Terroir* exists and matters.

The results of the study were presented to the U.K. wine trade and press during a seminar sponsored by the German Wine Institute in London on Nov. 7th. Speaker Andrea Bauer of the DLR-Rheinpfalz in the city of Neustadt, said, "We have tried to explore how conditions in a vineyard influence the sensory profile of the wines that it produces."

To do so, Bauer and research director Dr. Ulrich Fischer focused exclusively on Riesling. Bauer explained that wines from this variety were appropriate for their study because they are recognised as being particularly expressive of their origins--not least because their production traditionally avoids character-altering techniques such as oak-influenced fermentation or malolactic acid conversion.

The study began with the 2004 harvest in Germany, and it enlisted the assistance of several growers across the Pfalz region. From the 2005 vintage, the work expanded to include estates in other regions such as the Mosel and Rheinhessen. Vineyard sites were selected for the program according to criteria including specific soil types--such as sandstone, basalt, limestone and slate. The idea was to determine if there are discernable similarities across wines from well separated sites having comparable soil types, as well as any consistent differences in wines from proximate sites with different soil compositions.

Another aspect of the research went even further to permit site-driven aspects of the wines to manifest themselves--by removing the influence of the winemakers. "We harvested about 100kg of grapes from each test site, with the participating estate owners," Bauer said. "But we vinified the batches ourselves under standardized conditions at the DLR's experimental cellar. So each wine was made in the same type of vessel, and with the same yeast strain before racking and bottling in an identical manner."

She continued, "Then came the centerpiece of the research--the sensory analysis of these Rieslings. We conducted qualitative analysis of each wine with expert panels trained to use sensory descriptors that we developed to highlight the differences between the various samples. Each of them were tasted in duplicate or triplicate."



This clinical approach offered very distinct results. Bauer said, "Diagrams that aggregate the results clearly showed that wines produced on slate were citrusy, with markedly sharp acidity. Basalt showed richer fruit flavours and smoother acidity. Limestone showed more intense color and more tropical fruit and even honey aromas. Sandstone showed mineral and citrus characters on the nose and pronounced acidity on the palate.

"Even when comparing wines from, for example, the very similar soils and steep slopes of the Birkweiler Kastanienbusch vineyard in the southern Pfalz, and the Urziger Wurzgarten site in the Mosel-- which are more than 200km (120 miles) apart--we saw only slight differences. The wine from the warmer south was bigger or more textured on the palate. But more interesting were the similarities. Sensory analysis showed a significant grapefruit and smoke profile in both, which seems to be evidence of the overt role of soil in wine character. And the results were consistent across 2004 and 2005, too, which were quite different viticulturally in Germany."

Bauer said the research is continuing with the 2007 vintage, and that consideration of climatic and topographic factors is an important part of future work. But even now she has been able to conclude, "Sensory analysis showed consistent differences across the wines produced from different vineyard site types, and also very clear similarities among those produced from similar site types. There were some variations, but they never over-rode the essential profiles or characters or, in other words, the *terroir* of these places."