

Sensory and Aromatic Comparison of Wine in 3 Barrel Types

Principal Investigator: Terence Van Rooyen

Project Partner: Dr. Jim Hedges, Canadian Oak

Research Assistants: Melissa Smits

Chelsea Andrade

Introduction

The Sensory and Aromatic Comparison detailed here is currently being conducted at the Niagara College Teaching Winery. It began at the end of harvest in 2007. We put several distinct varieties of wine into one of each of the following barrel types: Canadian Oak, American Oak and French Oak. The varieties that we are using are Sauvignon Blanc, Cabernet Franc, Cabernet Sauvignon, Merlot, and Pinot Noir.



Sampling the Sauvignon Blanc for testing (above).



Aim

The goal of the Canadian Oak trial is to define the distinct characteristics of Canadian Oak and its use, including the flavour profiles and terroir inherent in this unique barrel style.

Only select wine regions can claim to have an entirely locally influenced product, and in terms of production, this also involves the aging of their wines in oak grown and coopered locally. The Niagara Region, for the first time, has a chance to become part of this group by using barrels produced from our own trees.

The use of Canadian oak is currently inhibited by the cost of the production of barrels, since the wood needs to be sent elsewhere for cooperage. By establishing a Canadian-based cooperage, we can eliminate these costs and facilitate the use of our barrels in Niagara wine production.



Sampling the Pinot Noir for analysis (above).

Method

Canadian oak has certain desirable characteristics, and is the same species as the popular American oak, *Quercus alba*. Experiments began in 1999 which involved several Ontario wineries maturing their wines in Canadian oak.



Description	Start	Finish
Put 6 wines into 3 different types of barrel at Niagara College Teaching Winery	Oct 1, 2007	Nov 1, 2007
Sensory Test and GC - MS Test # 1 of Wine Aromas, data entry	February 2008	February 2008
Sensory Test and GC - MS Test # 2 of Wine Aromas, data entry	April 2008	April 2008
Sensory Test and GC - MS Test # 3 of Wine Aromas, data entry	July 2008	July 2008
Comparative Sensory Analysis	September 2008	September 2008
Possible 4 th Wine Aroma and GC-MS Tests (based on results)	October 2008	October 2008
Presentation of Data for Final Report	November 2008	November 2008
Final Report	December 2008	



The winemaker draws a sample from the barrel for analysis (top). A chart detailing the project timeline (above). A test for acidity (left), Canadian Oak Cooperage was established in 1999. <http://www.canadianoak.com> (below).



Results

The wines are currently maturing in barrel in the Niagara College Teaching Winery. The GC-MS tests and sensory comparisons will take place over the course of 2008.



Moving barrels for storage (above). Retrieving full grape bins for processing during the 2007 harvest (below).

Conclusion

The barrel trial is still in its beginning stages. The wines need to be stored for a longer period to see the effects of maturation, chemically and organoleptically. Regular barrel maintenance practices are performed as needed.



Quercus alba: the inspiration behind Dr. Jim Hedges' Canadian Oak Cooperage (above).

We have been working with Dr. Jim Hedges of Canadian Oak Cooperage for this trial. He is a physician from Hamilton who is also an amateur winemaker and woodworker. The GC-MS for a quantitative sensory analysis will be carried out with the assistance of Dr. George van der Merwe from the University of Guelph.

Acknowledgements

Thank you to Niagara Research; the OCE; Dr. Jim Hedges, Canadian Oak Cooperage; Dr. Isabelle Lesschaeve and Erika Neudorf, Brock University; Dr. George van der Merwe, the University of Guelph