

# **Wine Aroma Profiles of a Chardonnay Wine Aged in Four Different Oak Types**

Richard Gawel <sup>1</sup>, Tony Royal <sup>2</sup> and Peter A. Leske <sup>3</sup>

<sup>1</sup> Recognose Pty Ltd, PO Box 487, Unley, South Australia, 5061  
www.aromadictionary.com

<sup>2</sup> Seguin Moreau Australia, King William Road, Unley, South Australia, 5061

<sup>3</sup> Nepenthe Vineyards, Charleston, South Australia, 5244

## **Abstract**

An large (n=43) untrained but experienced group of winemakers was used to produce the wine aroma profiles of a Chardonnay wine<sup>1</sup> aged for 10 months and stirred once weekly for four months, in four different oak types<sup>2</sup> sourced from the same cooper (Seguin Moreau: American oak U stave plus toasted heads, French, Russian and Napa coopered American). Analysis of intensity ratings given by assessors who were reproducible in repeat assessments of the wines showed that the American oak U stave barrel with toasted heads produced wines with greater coconut, vanilla, toast, butter, in-mouth texture, and overall oak character than did the other treatments (Figure 1). The degree of fruit displayed in the wines was inversely related to the overall degree of oak character. Despite there being some differences in the levels of important oak impact compounds between the French and Russian oaked wines, their sensory profile was perceived to be similar.

## **<sup>1</sup>Base Wine Analysis**

Vintage and Origin: 2000 Carneros-Napa Valley Chardonnay.

Analysis: Juice: 23.5° Brix: pH 3.36

Wine: EtOH 14.6%: pH 3.46: Residual 1.0 g/L

## <sup>2</sup>Oak Details

Oak Source	Seguin Moreau French Chagny White	Seguin Moreau American Oak U Stave	Seguin Moreau Russian Oak	Seguin Moreau American Oak, Napa Cooperage
Toast Level and Type	Medium Plus	Medium Plus Toasted Heads	Medium Plus	Medium Plus
Aroma/Flavour Volatiles				
Cis-oak lactone (µg/L) (coconut like)	75	205	51	52
Trans-oak lactone (µg/L) (coconut celery like)	49	32	103	33
Guaiacol (µg/L) (smokey like)	11	45	9	16
4-methylguaiacol (µg/L) (smokey like)	11	20	9	16
Vanillin (µg/L) (vanilla like)	306	397	262	343
Eugenol (µg/L) (clove like)	13	18	16	15

The band-aid like 4-ethyl phenol and the spicy 4-vinyl phenol were not detected in any wine.

All wines had almost identical pH, TA, Alcohol, VA and residual sugars.

The American oaked wine had a higher malic acid content (0.56g/L) compared with the other treatments (0.02-0.03g/L)

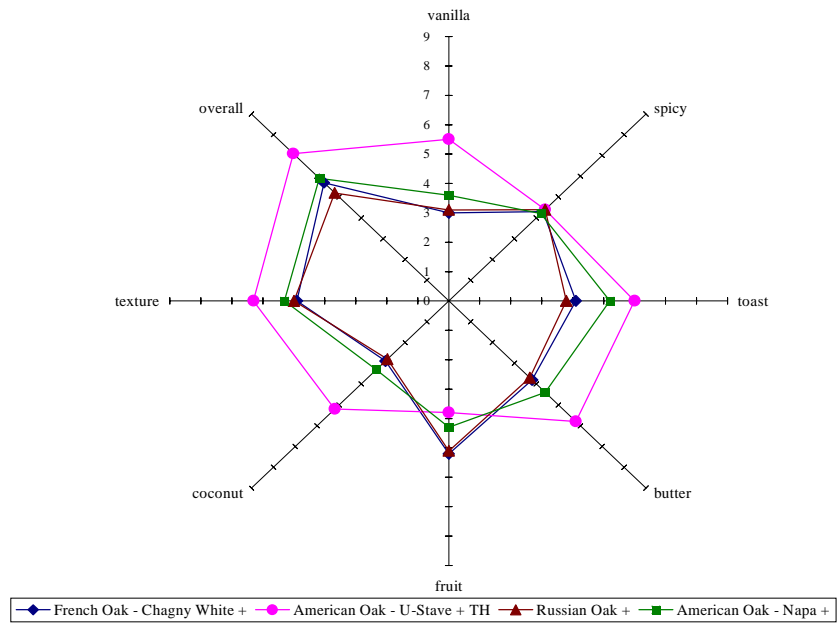


Figure 1: Wine Aroma Profiles of a Chardonnay Wine Aged in Four Different Oak Types