

ELLAGIC MAGIC

When wine ages in an oak barrel, a new barrel not only adds aromatic complexity to the wine, but also protects the wine against oxidation. This is done by regulating the oxidation-reduction phenomenon during maturation and/or micro-oxygenation. The component which is primarily responsible for this phenomenon is ellagic tannins. These are tannins that are hydrolysed to ellagic acid, which in turn is a natural phenol antioxidant. The amount of ellagic tannins in a barrel decreases significantly every time it's used. More than 50% is lost during the first year of use and there's hardly any ellagic tannins left in a barrel after three years of use.

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GENERAL OVERVIEW & MATURATION OF WINE

Barrel inserts were used to introduce integrated oaky notes and enhance the flavour and aromatic profile of wine. Tannins were used to restore the levels of ellagic tannins that are lacking in older barrels and necessary to protect a wine from oxidation, and becoming brown and oxidative during the maturation process.

The cost to treat these wines is about R1.70 a litre (\$USD0.48 per gallon). The trial was conducted during the 2014 vintage in

the Robertson Valley. Maturation of the wine took place in barrels.

For this trial 10 barrels from the same cooperage were selected to reduce variability. Four of these barrels were new 2014 barrels. The other six barrels were older, from the 2004 vintage, thus 10th fill barrels. **NOBILE® BARREL REFRESH** (barrel inserts) was used to simulate the new wood component and **QUERTANIN®** (stave wood-quality ellagic tannins) was used to adjust the level of ellagic tannins lacking in the older oak barrels. See [Table 1](#) for a complete summary of all the treatments.

WINE	BARRELS			BARREL REFRESH		ADDITIONAL TREATMENT			TRIAL DURATION (months)
	BARREL AGE	TOAST	FILL	PROFILE	DOSAGE	TANNIN	DOSAGE (at racking)	DOSAGE (3 months intervals)	
1	2004		10 th			QUERTANIN®			12
2	2004		10 th	FRESH	20% new wood	QUERTANIN®			12
3	2004		10 th	SENSATION	20% new wood	QUERTANIN®	1 g/hL (10 ppm)	1 g/hL (10 ppm)	12
4	2004		10 th	INTENSE	20% new wood	QUERTANIN®			12
5	2004		10 th	REVELATION	20% new wood	QUERTANIN®			12
6	2004		10 th	AMERICAN REVELATION	20% new wood	QUERTANIN®			12
7	2014	L/M, FG	1 st						12
8	2014	M, FG	1 st						12
9	2014	M+, OG	1 st						12
10	2014	M+, FG	1 st						12

The 2014 barrels were filled with wine and weren't given any additional treatment. These barrels however did have different toasting levels (L/M, Light/Medium; M, Medium; M+, Medium Plus) (FG, Fine Grain; OG, Open Grain). As the wine was drained off the skins and racked into the respective 2004 barrels, each was given a **QUERTANIN®** dose of 1 g/hL (10 ppm). These six barrels continued to be given 1 g/hL (10 ppm) of **QUERTANIN®** every three months for the duration of the 12-month ageing period. In addition, five of these barrels had one **NOBILE®** barrel insert. Each **NOBILE®** barrel insert resembles 20% of a new 225 L barrel. The barrel that was not given a barrel insert served as a control. The maturing red wine barrels were checked at regular intervals and topped up as necessary.

SENSORY EVALUATION

After 12 months the SO₂ levels were adjusted and the respective wines were hand-bottled. They were then stored under cellar conditions until they were evaluated in four tasting sessions by winemakers from various wine regions. The wines were evaluated and scored out of a total of 20 points.

Looking at the top five wines, wine 10 was the most preferred wine and scored 16.3. It was from one of the new 2014 barrels with a fine grain and a medium plus toasting.

The wine with the second highest score of 15.7 was also from a new 2014 barrel. The oak had a fine grain and medium toasting. Hot on the heels of this wine was a wine from one of the older 2004 barrels. It scored 15.6 and contained one **NOBILE® BARREL REFRESH REVELATION** insert and had been given a **QUERTANIN®** dose every three months.

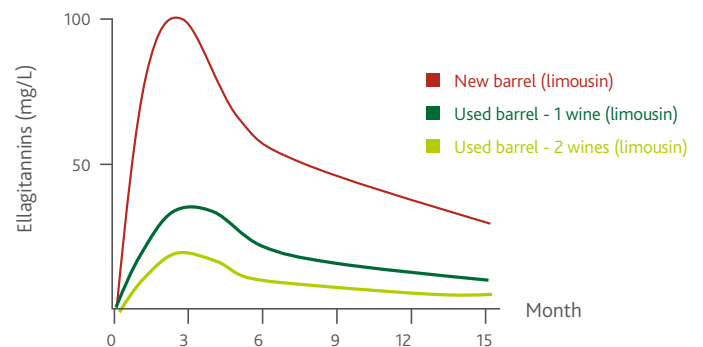
The wine that came fourth with a score of 15.4 also came from a 2004 barrel, but it contained one **NOBILE® BARREL REFRESH AMERICAN REVELATION** insert and had also been given **QUERTANIN®** dosages.

The fifth-placed wine was wine 3 with a score of 15.2. This wine also contained the combination of **QUERTANIN®** and barrel insert, namely **NOBILE® BARREL REFRESH SENSATION**. This barrel insert is convection-oven toasted. The convection-oven toasting process creates a uniform toast throughout the oak which drastically reduces the ellagic tannin concentration. Therefore this barrel insert contributes mostly to the flavour and aroma of the wine, but is not as effective in preventing oxidation.

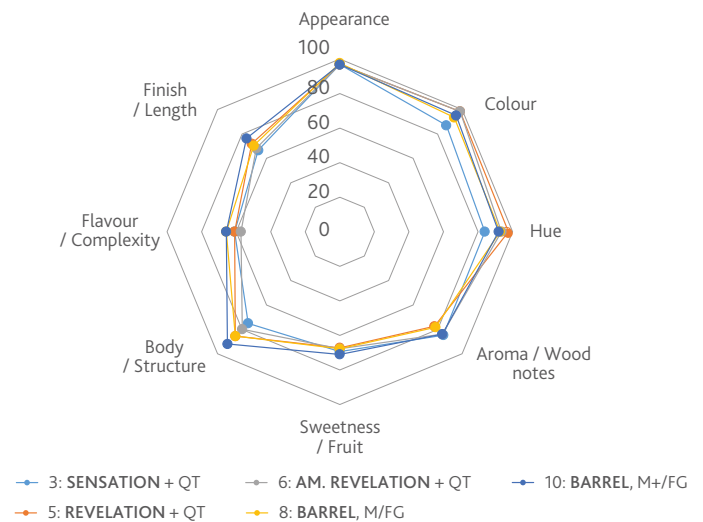
On the other hand wine 2 (**NOBILE® BARREL REFRESH FRESH**), wine 5 (**NOBILE® BARREL REFRESH REVELATION**) and wine 6 (**NOBILE® BARREL REFRESH AMERICAN REVELATION**) all had barrel inserts that were either untoasted (Fresh) or received a toasting similar to fire toasting (Revelation and American Revelation).

Toasting takes place on the surface of the wood and therefore doesn't affect the concentration of the ellagic tannin as much compared with the convectionoven toasted oak products.

ELLAGITANNIN CONTENT IN BARRELS



A COMPARISON OF THE 5 MOST PREFERRED WINES



CONCLUSION

All wines were well received by the tasters who evaluated them. All the wines from the 10-yearold barrels did exceptionally well compared with the wines aged in new oak barrels. Although the wines from the barrels with **NOBILE® BARREL REFRESH** and **QUERTANIN®** combinations didn't have the highest score and complexity and structure of wine from a new barrel, they clearly demonstrate that **NOBILE® BARREL** alternatives used in conjunction with the **QUERTANIN® RANGE** can be used to extend the life of older barrels, while protecting the wine.