



## Summary of the 2006 AFV/ETS Study

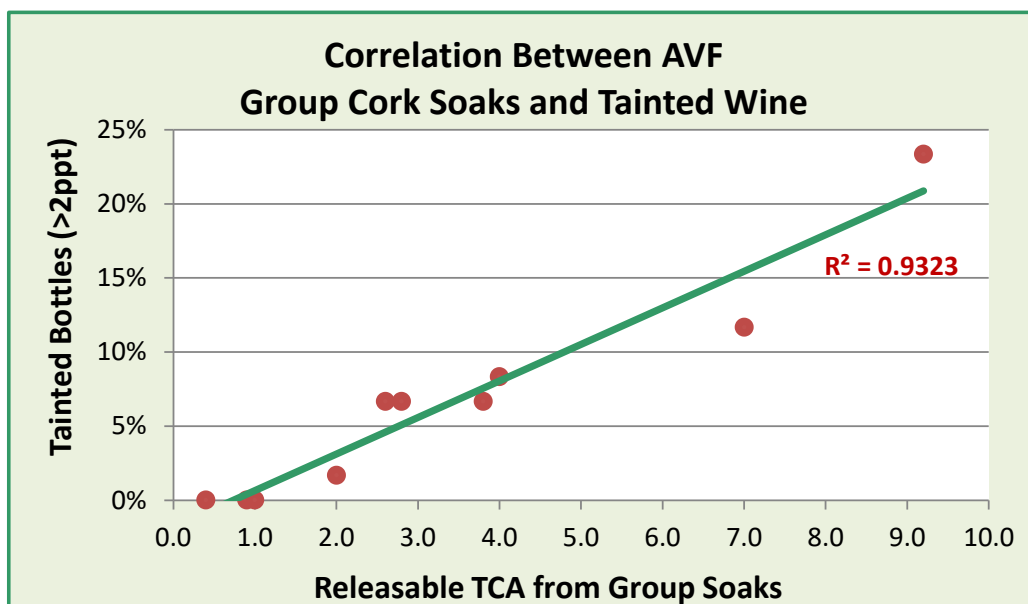
# Evaluation of a Quality Control Tool for Predicting the Distribution of 2,4,6-trichloroanisole in Bottled Wines

In 2006 the American Vineyard Foundation sponsored a research project conducted by ETS Laboratories to verify the validity of using group cork soaks as a predictive tool. Their report “Evaluation of a Quality Control Tool for Predicting the Distribution of 2,4,6-Trichloroanisole in Bottled Wines” supports the use of group soaks as a quality control tool.

The report concludes, “This study demonstrates clearly that cork’s RTCA is a good predictor of TCA transfer to bottled wine, at least within several months. It also shows that RTCA tests from group cork soaks, if applied in large scale QC programs, can reduce dramatically the occurrence of both “muted” and “corked” bottles in the marketplace.”

In the AVF study, cork bales were screened using 50-cork group soaks in a similar manner to the CQC protocol. Bales were classified by the average TCA value determined from 10 fifty-cork group soaks. The study included a range of corks that ran from an average of <1.0ppt to over 7.0ppt. There were a total of 10 bales selected for the study, but only three of bales had TCA scores within the acceptable range of CQC requirements.

Bottled wines were segregated by cork bale and tested for TCA at intervals ending at twenty months. The results after twenty months showed a distinct correlation between the RTCA measured in group cork soaks and TCA found in the bottle. With an  $R^2$  value of over 95% the predictive value of group cork soaks was well established.



From a practical standpoint, three of the ten bales tested in the AVF Study would have been accepted under current CQC protocol (A, B & C). Sixty bottles from each lot were tested at 14 months. Of the total 180 bottles in the three acceptable lots, 179 contained no reportable TCA. The only bottle that had a reportable concentration measured TCA at 1.6 part per trillion.

<b>Cork Bales that would PASS CQC Screening</b>						
Bale	Releasable TCA from Group Soak	TCA Detected in Bottled Wines at 20 Months				
		<1.0ppt	1-2ppt	2-4ppt	4-8ppt	>8ppt
A	<1ppt	100.0%	0.0%	0.0%	0.0%	0.0%
B	<1ppt	100.0%	0.0%	0.0%	0.0%	0.0%
C	1.02ppt	98.0%	2.0%	0.0%	0.0%	0.0%
<b>Percent Total</b>		<b>99.4%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Total Bottles</b>		<b>179</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>

Of the seven sample lots that would have been rejected by CQC Protocol, three are displayed below. They had an average RTCA score of 4.33ppt in group soaks and generated 12 bottles with TCA over 4ppt — for a 6.6% taint rate.

<b>Cork Bales that would FAIL CQC Screening</b>						
Bale	Releasable TCA from Group Soak	TCA Detected in Bottled Wines at 20 Months				
		<1.0ppt	1-2ppt	2-4ppt	4-8ppt	>8ppt
E	2.56ppt	88.3%	5.0%	3.3%	3.3%	0.0%
G	3.78ppt	88.3%	5.0%	1.7%	3.3%	1.7%
I	6.95ppt	85.0%	5.0%	0.0%	1.7%	8.3%
<b>Percent Total</b>		<b>86.7%</b>	<b>5.0%</b>	<b>1.7%</b>	<b>3.3%</b>	<b>3.3%</b>
<b>Total Bottles</b>		<b>156</b>	<b>9</b>	<b>3</b>	<b>6</b>	<b>6</b>