



BARK TO BOTTLE



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AMORIM

Major study boosts cork

A major study of wine closures has confirmed that natural corks and Amorim Twin Top® corks are among the very best closures for short-term cellaring of wine.

At the two-year mark, the trial by the Australian Wine Research Institute (AWRI) rated cork as best or close to the best for ease of extraction, the preservation of fruit characters in the wine and low incidences of leakage, oxidation and taint.

The trial, conducted under industry-like conditions, compared 14 commonly-used wine closures, including screwcaps and a range of synthetic stoppers. Cork was represented by Amorim Twin Top® technical cork and reference 2 and 3 natural corks.

Mr António Amorim, the chairman of Corticeira Amorim, described the results as “a big boost for cork”, with three of the top four performers being cork.

“These findings are consistent with similar studies by Excell Laboratories in France and Geisenheim Research Institute in Germany, and provide further evidence of cork’s effectiveness as a wine closure,” he said.

Amorim’s head of research and development, Professor Miguel Cabral, said Twin Top® had performed exceedingly well in the trial.

“On the key parameter of free sulfur dioxide (SO₂), which protects wine from oxidation, Twin Top® was the highest ranked closure that had no significant adverse impact on the wine,” he said.

Mr Amorim said he expected that the AWRI results would further boost rapidly growing sales of this closure. Twin Top® is now one of the world’s most popular corks, with global sales expected to exceed 800 million in 2001.

“Not only is Twin Top® a great performer, it is competitively priced and has all the attributes



AWRI closure trial project leader Peter Godden undertakes one of many tests at the Institute’s Adelaide-based laboratory.

that consumers value in cork. It also makes very efficient use of a natural resource,” Mr Amorim said.

While the study shows that Amorim’s research and development and quality improvement efforts are bearing fruit, Mr Amorim said the company was conscious of the challenges that remain.

He emphasised that Amorim would not relax its commitment to improving technical

performance and would maintain its \$US6 million a year investment in research and development and product improvement.

“The AWRI results are evidence of the hard work we have done in the last few years,” Mr Amorim said.

“But the demands of our customers do not stand still — and nor can our efforts to meet those demands.”

(see page 2 for more detail on the AWRI trial)



Closures on trial: strong showing for cork

The closure trial conducted by the Australian Wine Research Institute (AWRI) is investigating the relative performance of 14 different wine closures against a range of physical, chemical and sensory parameters.

In May 1999, bottles were filled with a Semillon wine and sealed in an environment that mirrored bottling conditions in a well-run winery or contract bottling facility.

With more than 7200 bottles in the trial, the researchers have enough wine to generate valuable comparative data on closures for up to 10 years.

The first published results cover the performance of the closures over 18 to 24 months of storage.

The results so far

After two years of the trial, cork stoppers have shown their superiority over other closures against a range of performance criteria, including ease of extraction, leakage, free sulfur dioxide (SO₂) and the preservation of fruit attributes.

Underlining its unique physical properties, cork scored very well for mechanical function, including ease of removal from the bottle and corkscrew, ease of reinsertion into the bottle, and prevention of wine leakage at three and 12 months after bottling.

The AWRI described synthetic closures as least 'consumer-friendly' on mechanical functions.

In terms of chemical performance, cork also performed well, scoring above average for retention of ascorbic acid and sulfur dioxide and the prevention of browning.

Of these, perhaps the most important is sulfur dioxide, a common wine preservative. Sulfur dioxide in wine prevents oxidation but is gradually consumed in the process, eventually dropping to a level (i.e. 10 milligrams of sulfur dioxide per litre or less) where excessive development and oxidation are likely to proceed quickly.

At 12 months after bottling, the majority of the closures (11 out of 14) — including all four cork or cork-based stoppers — had retained adequate levels of sulfur dioxide in the wine. But their relative performances changed significantly in the following months.

By the 24-month mark, just six of the 14 closures were maintaining adequate levels of sulfur dioxide. Of these, four were cork or cork-based stoppers.

The researchers reported that the concentration of sulfur dioxide at six months after bottling was probably the most reliable predictor of the wine's freshness at a later stage.

Based on the physical and chemical evidence to date, it appears that synthetic stoppers do not perform as well as cork and screw-caps for retention of sulfur dioxide, especially in the second year of storage.

Sensory performance

The researchers undertook detailed sensory analysis of the wine stored under each of the closures and scored them for a range of



The AWRI study showed both whole natural corks and Twin Top® corks were strong performers after 18 and 24 months of storage.

aroma or palate attributes — both positive and negative.

After 18 months, a panel of judges rated cork, especially Twin Top®, very highly on attributes such as *overall fruit* (2nd out of 14), *lime* and *pineapple* aromas (1st out of 14 on both).

On the *oxidised* and *glue-like* attributes, cork achieved the second-best and best scores, respectively. The wine stored under screw-cap performed poorly on the *reduced* or *rubbery* aroma attribute, as did the cork-synthetic hybrid for *TCA* aroma.

TCA and cork

The AWRI's sensory panel identified TCA aroma in all 14 closures, including the screw-cap, although the researchers discarded many of the identifications as the sensory scores were deemed too low for further consideration.

The cork-synthetic hybrid closure fared worst for TCA aroma — all of the bottles sampled were assessed as TCA-affected. A total of 10 bottles sealed with corks were similarly assessed.

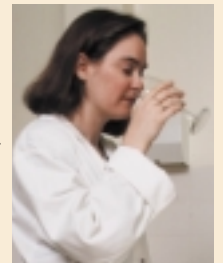
However, follow-up chemical analyses on these bottles established that the concentrations of TCA present in the wine were extremely low — typically under two parts per trillion (see *How big is a whiff?* at right). With Twin Top®, the only positive sample analysed recorded a TCA concentration too low to quantify.

Despite the encouraging sensory results for cork, the TCA scores indicate a need for the cork industry to continue its efforts to eliminate this problem.

Reference: Godden, et al. 'Wine bottle closures', *Australian Journal of Grape and Wine Research* 7, 64-105, 2001.

How big is a whiff?

Analytical techniques can routinely detect 2,4,6-trichloroanisole (TCA) at very low levels, such as two parts per trillion (ppt), but the ability of individuals to recognise TCA in wine varies dramatically.



The respected US laboratory ETS established a TCA sensory threshold of six ppt for a trained panel of tasters using spiked samples of white wine.

However, other researchers have emphasised the wide range of sensitivities to TCA aroma. The University of California, Davis, examined the sensory thresholds of 23 oenology students trained to recognise TCA in white wine. While they found two judges who were able to detect it at or below one ppt, almost half of them could only detect TCA at or above 25 ppt. The average TCA threshold for the trained panel was 17 ppt. The average threshold for an untrained panel was much higher.

What is clear is that the sensory threshold is strongly affected by the taster's training and familiarity with TCA, as well as the complexity of the sensory background against which the TCA is presented.

Reference: Suprenant & Butzke (1996). *Proceedings of the Fourth International Symposium on Cool Climate Viticulture & Enology*, VII 70-74.



Twin Top® sales boom

Amorim is experiencing unprecedented growth in the sale of its Twin Top® corks with global sales expected to exceed the 800 million mark in 2001.

Director of marketing at Amorim, Francisco Brito Evangelista, said sales of the company's 'technical cork' have surged this year as winemakers turn to Twin Top® for brands designed for short-term cellaring.

"The most pleasing aspect of the growth in Twin Top® sales is that it is across the board globally," he said.

"It is not being driven by one market in particular.

"Twin Top® has proven itself on performance and price and we are now witnessing a flight back to natural cork for short-term cellaring."

In the United States, Twin Top® has won strong market approval and is now Amorim's biggest selling closure, representing 40 per cent of sales.

The product is also popular amongst French winemakers — its second biggest market — and is widely used in Italy and Germany.

However, Mr Evangelista said the switch from alternative closures back to natural cork was most evident in the New World wine producing countries such as Australia and South Africa.

In South Africa, for example, bottled wine exports have increased by more than 10 per cent this year, with 'fast-drinking wines' representing

a significant proportion of total exports.

Amorim has been a beneficiary of this growth with several major wineries — including Darling Cellars and Van Loveren Wines — moving large volumes of their production from synthetic closures to Twin Top®.

In two years, Amorim's sales in the country have grown more than 250 per cent with Twin Top® corks now used on 10 per cent of all bottled South African wine.

"This year we have seen a lot of wineries that were previously committed to synthetic closures moving back to cork," Mr Evangelista said.

The increase in current and forecast demand has forced Amorim to review its production of Twin Top®.

In Portugal, it has rearranged facilities dedicated to the production of cork discs, increasing capacity to 900 million technical corks per annum.

The company also recently purchased Discork Cortiças — a move that could increase production by 700 million discs a year.

Less than two years ago, Amorim also opened a new Twin Top® manufacturing plant in Australia as part of a strategic global response to demand for technical corks.



Amorim Twin Top® — quality material and high-tech production.

The top one plus one

How does Amorim's Twin Top® cork differ from other 1+1 closures? The difference lies in the quality of raw material used and Amorim's modern high-tech production processes. In particular:

- the discs and the granulated cork shank are made from the same high-grade material as Amorim's natural whole wine corks
- only Twin Top® corks utilise large (3-7mm) granules in the shank to ensure identical elastic memory
- the 4mm thick discs of high-grade cork are cut in line with the growth rings of the cork bark so they exert strong uniform pressure inside the bottle neck and provide a better seal
- Twin Top® corks are the same diameter (24mm) as whole corks so they replicate a natural whole cork's sealing properties
- the cork discs are subject to the world's most advanced cork production technology, including Amorim's exclusive INOS II and CONVEX extraction processes.

This proven formula has seen Amorim's Twin Top® cork acknowledged as a highly consistent performer in closure trials conducted by major research organisations in France, Germany and Australia.



Strong global demand for its Twin Top® corks has forced Amorim to expand its production capacity.



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In brief

Cork trade mark

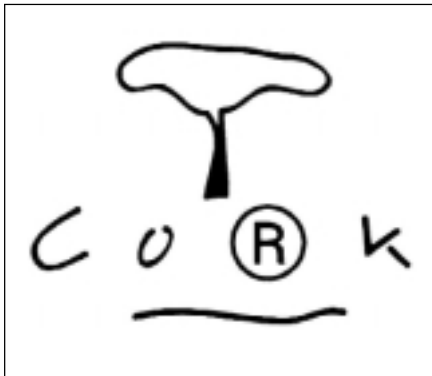
A new trade mark symbol for cork has been developed to guarantee the authenticity of goods made with this unique natural material.

Featuring the stylised outline of a cork oak tree and the words 'cork', the trademark has been developed and registered by the European Confederation of Cork (C.E. Liège).

The Confederation took this initiative in response to the increasing use of the word 'cork' as a generic term for all wine closures.

The symbol is designed for use on wine packaging, amongst other applications, so consumers can purchase wine with a guarantee that the closure hidden under the foil seal is natural cork.

It has been registered in all European Union countries and is in the process of being registered in other countries throughout the world.



The new cork trade mark.

VINEXPO debate

In June, the Amorim Academy facilitated a major debate involving industry leaders from across the globe at VINEXPO in Bordeaux.

Part of the Academy's push to play a broader role in the global wine industry, the debate was titled 'Brand, vine and soil: responding to the crisis in viticulture.'

Chaired by *Harpers* magazine editor, Tim Atkin, the debate featured leaders in wine production, retailing, marketing, journalism, politics and trade analysis.

Under discussion was the global wine surplus and the problem this presents to the international wine trade.

The debate covered issues such as regulated versus unregulated production, wine quality and the New World promotion of brands versus the Old World appellation system.

Showcasing Australian wine

Amorim is again demonstrating its support for the Australian wine industry with a major sponsorship of the country's new National Wine Centre in the city of Adelaide.

The sponsorship includes naming rights to the Amorim Showcase — an exhibit that will actively promote Australia's individual wine regions.

Anne Ruston, chief executive officer of the National Wine Centre, said Amorim is contributing to one of the centre's prime aims, namely to actively promote awareness of the 10,000-plus Australian wines produced in more than 50 different wine regions.

"Amorim and the National Wine Centre have developed a strategic alliance that will be beneficial to the future development of the Australian wine industry," she said.

Amorim at OIV & AWITC

Amorim will play a major role at two major industry conferences to be staged in Australia later this year.

The 26th World Congress and 81st General Assembly of the Office International de la Vigne et du Vin (OIV) will be held at the Adelaide Convention Centre from 11-18 October. Amorim will sponsor the oenology stream at the congress.

At the same venue, the biennial Australian Wine Industry Technical Conference (AWITC) will be staged from 7-11 October and Amorim will sponsor the conference dinner.

Amorim is also running a seminar for winemakers at the AWITC, where the head of its research and development department, Professor Miguel Cabral, will outline the latest developments in cork production. Professor Cabral is looking forward to speaking with winemakers at the Amorim Hospitality Suite throughout the conference.

LIWSF

More than 11,000 visitors attended this year's London International Wine & Spirit Fair in May.

Amorim was again well represented with a stylish stand highlighting the recent developments in Amorim's cork manufacturing processes.

The CorkFacts website on touch screen computers and a video showing the complete manufacturing process from bark to bottle were the most popular items on the stand.



The stylish Amorim stand at this year's London International Wine & Spirit Fair.

Guides fly recycling flag

Guides throughout the UK are continuing to fly the cork recycling flag and are collecting large volumes of cork in 2001.

After passing the one million mark late last year, Amorim challenged Guide units to create a photograph to mark the achievement. Numerous photos were submitted with the 1st Hay on Wye Guide unit judged the winner.



Members of the 1st Hay on Wye Guide unit celebrate their cork recycling achievements.

Amorim buys in Tunisia

Corticeira Amorim has bought 60 per cent of Soci t  National du Li ge (SNL), Tunisia's public cork company.

SNL employs more than 100 people and produces between 25 and 30 million corks per annum. The company is in Tabarka, the centre of cork production for Tunisia and Algeria.

Tunisia produces about 9000 tonnes of cork from 78,000 hectares of cork oak forests.

South African partnership

Amorim Cork South Africa is investigating a significant partnership with one of the leading wine producing companies in the country, KWV South Africa.

KWV has developed a 'Suppliers Partnering Program' with the objective of improving its international competitiveness.

Following an intensive 12-month selection process, which included reviews of product and service quality, KWV selected Amorim as one of its preferred wine closure suppliers.

The selection was based on Amorim's reputation in the South African market and its capacity to meet all KWV's requirements, particularly in relation to quality assurance, planning and research and development.

Drop us a line

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