

Cork fights back

Cindie Smart

When Bonny Doon Vineyard owner Randall Grahm held mock funerals for cork in New York and San Francisco a few years ago, he may have been a little premature. In 2006, cork is far from dead, but it has received a much-needed rocket.

Ongoing problems with 2,4,6-trichloroanisole (TCA) contamination have forced winemakers away from corks in their droves. But dramatic improvements in harvesting techniques, transport protocols and storage systems, improved processing strategies, including boiling techniques, and other innovations should see TCA problems being significantly reduced.

Amorim, the world's largest cork producer, has led the revolution. The company has not only improved quality control throughout the supply and production chain, it has replaced the somewhat inaccurate system of sensory

analysis with solid phase micro-extraction (SPME) and gas chromatography (GC). Amorim uses the GC method to routinely check cork stoppers, discs and granules, up to 12,000 per month, using seven machines. A variable number of samples per lot are analysed in accordance with ISO standards. Backing up this technology is ROSA, Amorim's TCA extraction process. Contaminated lots of corks and discs are sent for ROSA treatment. The result has been positive—for the past four years, ETS Laboratories in California has tested Amorim cork shipments, with results showing TCA intensity has fallen to below 1.5 nanograms.

Amorim is not alone. Other cork companies have been working hard in recent years to fix the TCA problem. There is Procork, which combines natural cork with membrane technology to regulate water, oxygen, taint and flavour transmission. The Cork Supply Group, Cork Supply Australia's parent company, introduced SPME-GC/MS testing in Portugal in 2000 as part of its rigorous Triple Quality Assurance Program. ASA

Cork is also using GC/MS technology which can detect chloroanisole taints in the low parts per trillion. And Oeneo Closures is celebrating the opening of a new cork treatment facility in Spain which will manufacture cork closures using a TCA-extraction process based on supercritical CO₂. The facility will produce up to 40 million Diam closures per month.

Despite all this activity, cork's market share has suffered. But cork companies say there is no need for panic—they still own 80 to 85% of the global wine stopper market which is impressive in any language.

But the Australian market for cork isn't as buoyant and the market for cork in New Zealand is almost non-existent. While consistent figures are hard to find, it seems that of the total Australian bottled wine market (approximately 1.1 billion bottles), between 320 and 350 million bottles are sealed with screwcaps, indicating a 33% market share. (This from virtually nonexistent market position in the 1990s.) And in New Zealand, the market share of screwcaps is nearing 90%.

Alcan regional sales manager John



Amorim director of sales and marketing Carlos de Jesus and public relations manager Joana Mesquita.

Leake, whose company sells the Stelvin, said uptake of screwcaps in Australia was still occurring at a good rate and forecasts indicated the next 12 months would see screwcap purchases rise to between 450 and 500 million units, close to a 50% share.

The trend towards screwcaps in Australia started in the late 1990s with a group of Clare Riesling producers, but use of the technology soon spread to other fresh aromatic whites, then to Pinot Noir and Chardonnay and now premium reds are also being closed with screwcaps.

"Debate is ongoing about the role of

the country's top-selling Chardonnay. A spokesperson for the company said closure choice was a quality, not cost, issue.

From a worldwide perspective, synthetic corks are thought to represent five percent of stoppers used, and cork is believed to still have 80 to 85% of the market, leaving 10 to 15% for screwcaps.

Amorim & Irmaos is the world's largest cork producer and boasts a 25% share of the global cork market. Amorim makes three billion corks per year and products include natural corks and technical corks such as Twin Top.

are in Portugal. Other dominant cork producing countries include Spain, Italy, France and North America. But Amorim doesn't consider these countries to be competitors and often buys cork from them.

Amorim says its biggest threat isn't screwcaps or synthetics either—it's poor cork manufacturing standards.

There are about 600 cork producers and many of their processes are sub-standard. I saw this first hand when visiting Oporto recently as a guest of Amorim—some cork factories were completely enclosed in concrete and stainless steel while other factories had dirt storage areas and chickens roosting on cork planks.

In an effort to change this, APCOR, the Portuguese Cork Association, is building a cooperative processing park for cork producers who don't have the resources to build their own high-tech facilities. This will give many cork producers first time access to the latest technology for reducing TCA.

The facility will be government run with a pay-per-use cork boiling unit. The president of APCOR is Antonio Amorim, who is also chairman of Amorim & Irmaos. Many of the technologies to be used in the processing park have come directly from Amorim which set up an R&D department in 1999. Amorim expects the new communal processing park will significantly lift the

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oxygen in the ageing process, but market growth is still occurring. The premium red market is our next big challenge," John said.

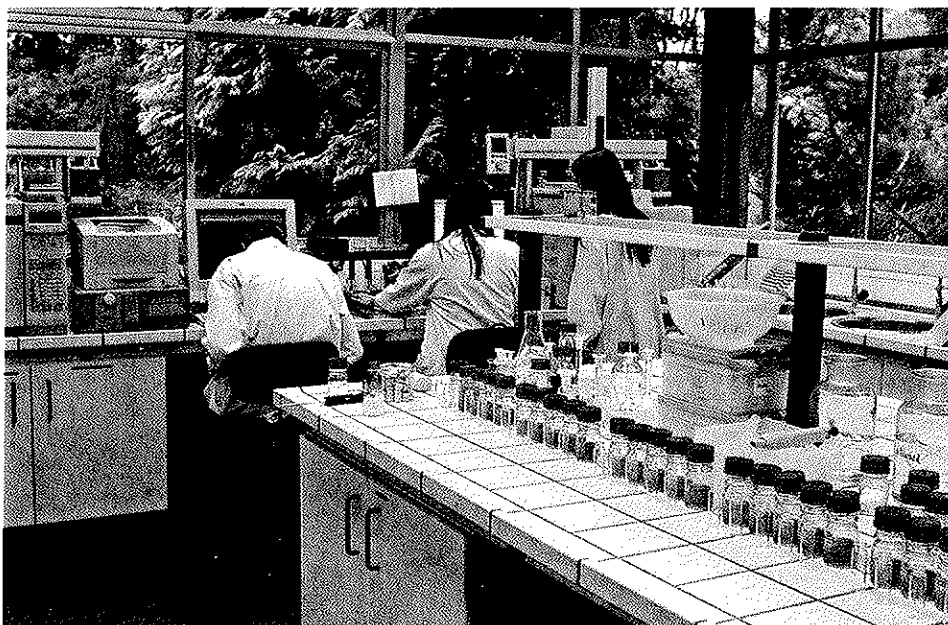
And then there are synthetic products such as Supremecorqs and NuKorcs. Synthetic corks are generally associated with lower priced wines as the stoppers themselves often cost less than 10 cents per unit. However, one of California's largest winemakers, Kendall-Jackson Wine Estates, uses Nomacorc stoppers exclusively in three brands ranging from \$7 Cabernets to

Amorim director of marketing and communications Carlos de Jesus admits cork market share is lower than previously. "But we don't think it's a catastrophic situation. Do you know how many industries in the world can claim 85% market share?" he said.

"There is no need to hit the panic button. There was certainly a need for us to hit the wake up button, which we did and we woke up."

More than 54% of the world's cork forests

CORK R&D SNAPSHOT



Amorim's central laboratory.

standards of cork from Portugal.

Then there is the International Code of Cork Stopper Manufacturing Practice (ICMP) which was developed in 1997. The first version of the code advised manufacturers of conditions for manufacturing and subsequent versions enforced those conditions.

Hundreds of companies are certified today and every year the code is made stricter. It is a dynamic code, incorporating every new discovery and technological advance.

"People were quick to condemn cork, but it wasn't the product that should have been questioned, it was the practices that should have been questioned," said Carlos.

"About 60% of cork manufacturers are now certified and up to standard but there are still too many shoddy practices."

The Australian Wine Research Institute agrees. Peter Godden, manager of Industry Development and Support at the AWRI said there was no evidence that the incidence of TCA (the percentage of tainted bottles) had changed significantly.

"Judging by data from our Advanced Wine Assessment Courses in 2004 and 2005, in which thousands of bottles are assessed, TCA incidence was at the same levels as in the early to mid 1990s," Peter said.

"But we would say that the general intensity of taint appears to have fallen, and I would say quite markedly. Logically, the technologies that have been put in

place aren't likely to drop the incidence of TCA in the short term, but would be likely to drop the intensity. This is occurring.

"We would say that if the cork industry's commendable efforts to reduce TCA have been successful, we would expect to see this in data from our Advanced Wine Assessment Courses in the next two years."

The fight will continue for those cork companies that are doing their best to reduce TCA contamination, particularly in such a crowded marketplace.

"If winemakers knew what questions to ask cork manufacturers it would help," said Carlos de Jesus. "Questions such as do you have stainless steel pallets? How do you integrate your preventative and curative measure? Do you invest in Gas Chromatography? How many machines do you own? Do you have the ability to exercise preventative measures on all of your cork?"

Amorim has invested more than AUD \$72 million since 2000 on preventative and curative methods for TCA control. Its seven GC machines cost more than AUD \$150,000 each. TCA analysis by gas chromatography was instigated by a group of cork producers who together formed the Cork Quality Council. While TCA was formerly determined by sensory analysis, the Cork Quality Council implemented testing via chromatography.

"We are working hard to solve problems.

GC Analysis

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A range of cork manufacturers now routinely use GC analysis.

Amorim—ROSA and ROSA Evolution

Development of the ROSA system to reduce TCA levels in cork granules was achieved in 2003. Amorim says ROSA has led to an 80% reduction in detectable TCA in cork granules. Head of R&D at Amorim, Miguel Cabral says a ROSA process for natural cork is not far away, and will be known as ROSA Evolution.

The future at Amorim—corkscrew-less corks?

A corkscrew-less cork (a mix of a bar top cork and a Champagne cork) is under development at Amorim. Director of marketing and communications Carlos de Jesus said the company recognised that many consumers enjoyed the simplicity of the screwcap.

"There is an intrinsic advantage in using your thumb rather than using a corkscrew. This is an advantage for the screwcap and it clearly has to be recognised," he said. "So if we can incorporate that factor into a cork closure then we will meet the demand from consumers who don't want to use screwcaps and we'll appeal to other consumers who like the convenience of the screwcap. We're covering both sides."

Oeneo

In 2004 Oeneo won the Gold Award at Vinitech in Bordeaux for its Diam composite cork wine closure. The technology was jointly developed by Oeneo's cork division and the French Atomic Energy Commission. It uses carbon dioxide in a supercritical (or highly compressed) state as a solvent, in a technique similar to that used to decaffeinate coffee beans. Diam corks will be mass produced in Oeneo's new Spanish plant. The AWRI considers this to be the most encouraging technology for reducing TCA levels in composite corks.

Cork Supply

Cork Supply has introduced the VAPEX process which it says reduces TCA levels in cork granules. In the VAPEX process, pressurised steam is used to force out volatile contaminants from the cork granules destined for use in the production of 1+1 corks.

We are selling more corks than ever with fewer complaints than ever. We must be doing something right," Carlos said.

"And we are happy about the development of screwcaps and plastics—they were the best things that could have happened to us. They were the proverbial kick in the pants we needed. Our enemy is the 600 cork companies out there, the majority of which have not invested in efforts to fight TCA."

As well as continuing to fight TCA, Amorim is now also working to encourage winemakers to allow the Amorim mark on corks. "We want traceability and we need identification in order for that to happen," Carlos said.

Amorim's most successful product is its Twin Top, of which 820 million were sold in 2004. "But because it's so successful, it has become almost a generic product so there is some confusion in the marketplace," he said.

"The issue is that we have to be our own Intellectual Property police force and you have to decide whether to commit resources to policing your IP or committing resources to R&D and staying two steps ahead of the competition. We're seeing a lot of ROSA copycats, but it's a good thing for the industry so we're happy to help raise the standards generally.

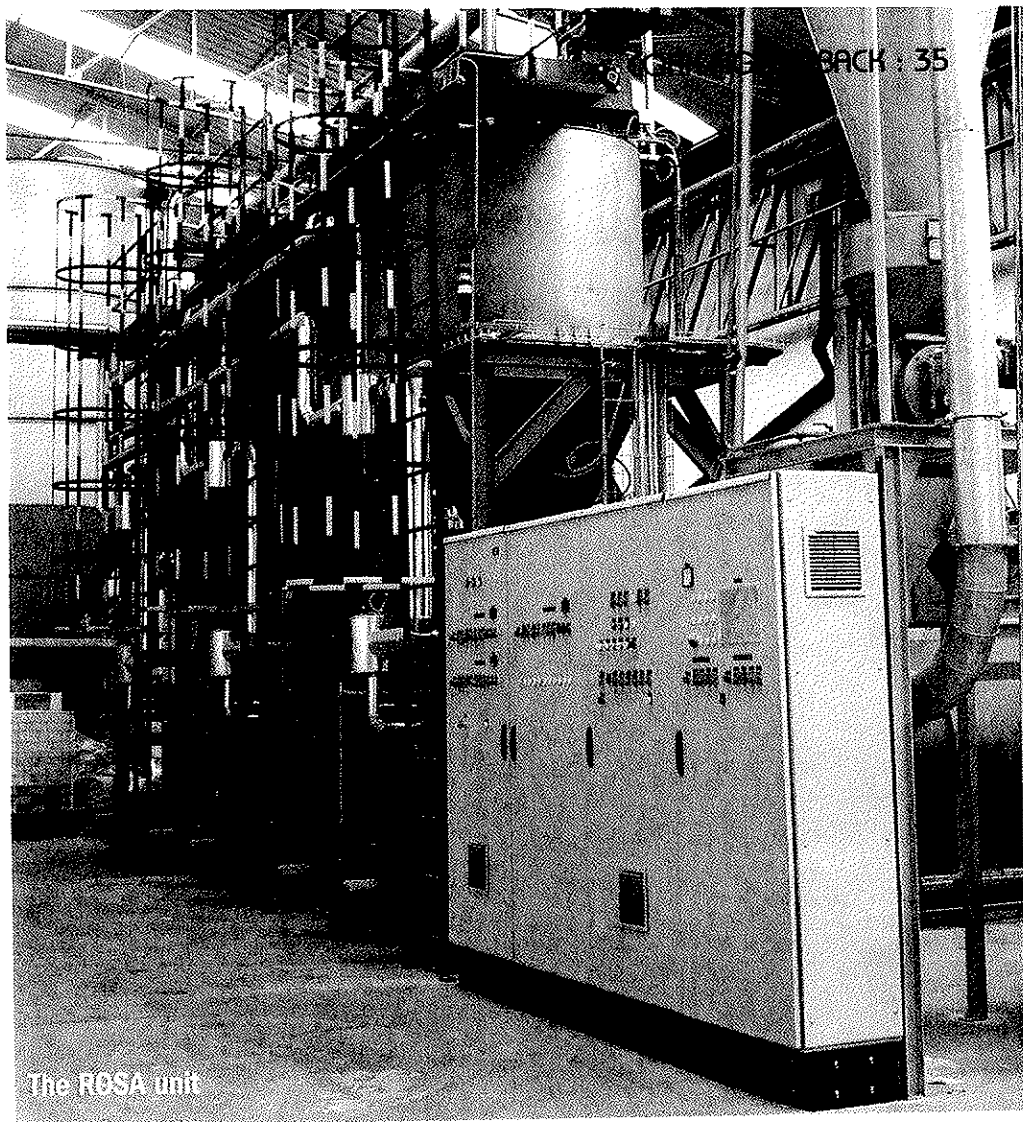
"But it's also difficult because we know the 600 cork companies aren't all moving at the same or even in the right direction. So while we're trying to give the good guys a push, we know others won't move forward. But we also know consolidation will happen and the quicker it happens the better."

While Amorim admits screwcaps have made a dent in the Australian closure market, the company is also quick to point out that scientific trails, such as the closure trial conducted by The Australian Wine Research Institute, have shown screwcaps can encourage reductive characters in wine.

"We keep hearing that 25% of wines sealed under screwcaps are reduced. If the percentage of reduction is true, then we need to be careful with screwcaps," Carlos said.

However, Peter Godden said scientific studies had shown that the overwhelming majority of wines sealed under screwcap were not reductive.

"You can't blame reduction on the closure, he said. "Data from our Advanced Wine Assessment Courses in relation to reduction show that in 2004 the same percentage of cork and screwcap sealed wines were considered to be reductive. In 2005, a far higher percentage of the wines



The ROSA unit

that were reduced were sealed with corks, rather than screwcaps."

Peter said reduction in screwcaps was simply a teething problem.

"When a significant number of winemakers started using screwcaps we saw a bit of reduction. People were making wines that would have been closed with cork and were putting them under screwcap, but not changing their winemaking or bottling conditions. We have worked with several wineries in Australia where the issue of reduction under screwcap became a driver for better winemaking, particularly during fermentation," Peter said. "Winemakers have addressed this and now it's really not an issue."

Amorim also admits it would be very easy to set up a screwcap arm of the Amorim business, but Carlos says this will not occur, at least in the short term. "The most important thing in any business is the distribution network. If you look at the world map and at all the dots where Amorim is, you can see we are in every single wine market of the world. So the distribution network is there and it would be the easiest thing on earth to start selling screwcaps tomorrow if we wanted to," he said.

"But we have to be very careful about jumping into things. I have spent the past

two and a half years defending cork and I don't want to spend the next two and a half years defending a different product.

"There is simply not enough information about screwcaps for any of us to go to the Amorim Board and recommend that we look at it. We are cork specialists, we are not aluminium specialists.

"If we didn't believe we had the best material to stop wine, then we would have a different philosophy."

Carlos said he thought the future would see corks and screwcaps continuing to live a happy co-existence, as long as both sides stuck to the facts.

"And it would be much better if we could all accept that we cannot deliver perfection. How can you eradicate something that is measured in nanograms? It's a naturally occurring, omnipresent compound," Carlos said.

"TCA is one of the coffee industry's biggest problems. It is everywhere. When someone says they have 'eradicated' the problem, I ask to see scientific evidence. Even if we could eradicate TCA from every single cork in the world, there would still be a TCA problem. What we can do is have good risk management and quality control management. The purpose of all our work is to defeat TCA and remain in business."