Put a cork in it

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The New Zealand wine industry's adoption of screwcaps is part of a revolution that has Portugal's cork industry worried – so worried it flew KARL DU FRESNE around the world to give him the good news about cork.

Remarkable stuff, cork. "It's the only solid material that, when compressed at one end, doesn't expand at the other," marvels Carlos de Jesus.

As the director of marketing and communications for the Portuguese company Amorim, the world's largest cork producer, de Jesus is paid to talk up the merits of cork. But he speaks with the passion of a true believer.

He tells me the story of the visitor to one of the company's processing plants who asked to see the machine that moulded the mushroom-shaped corks for champagne bottles.

De Jesus had to explain that there's no special machine for champagne corks – they have the same cylindrical profile as all other corks, at least until they're driven into the neck of the bottle. The cork's pliability enables it to mould itself to the contours of the bottle neck, thus forming a tight seal.

"Next time you uncork a bottle of Champagne," de Jesus suggests, "leave the cork on a shelf. In a few weeks you'll see it has resumed its natural shape."

It's not just cork's elasticity that makes it such a good stopper. The unique microstructure of cork, which consists of small, closely packed cells (800 million in a single stopper), surrounded by intercellular spaces filled with air, also makes it light, chemically inert and impermeable to liquids. It is tolerant to changes in temperature and pressure, and can age without deterioration.

We are in de Jesus's Renault Laguna, speeding over the sandy plains east of Lisbon. It's scruffy, sparsely populated country, but it does one thing very well: it's the perfect habitat for the cork oak, Quercus suber, whose spongy bark has been used for centuries to seal wine bottles.

Portugal accounts for half the world's cork production and is acknowledged as the source of the world's best.

Everywhere around us are cork trees, many of them marked with a prominent single numeral indicating when their bark was last harvested ("4" denotes 2004, and so on). The cork forests are strictly regulated: the bark can't be harvested until the tree is at least 25 years old, and then only at nine-yearly intervals.

De Jesus explains that only the third harvest yields cork with a cell structure good enough to produce bottle stoppers. Cork from the first two harvests goes into products such as floor tiles, insulation, footwear and gaskets.

He tells me there are about 600 cork processors in Portugal, ranging from big undertakings such as Amorim – which supplies about 25 per cent of the global cork-stopper market – down to what he calls "Mom and Pop" operations. (De Jesus's excellent English is peppered with Americanisms, a legacy of several

years as a partner in a Wall Street investor-relations firm.) The industry employs about 60,000 Portuguese out of a population of 10.6 million.

De Jesus says it's socially as well as economically important, helping to sustain the traditional culture of the Portuguese countryside by keeping people "fixed to the land" when otherwise they might drift off to the cities. Skilled cork harvesters can earn C90 ($NZ170) a day.

Yet there is a dark threat to this centuries-old enterprise, and it's the reason Amorim has flown a journalist all the way from New Zealand to hear its story. The threat is called the screwcap revolution, and New Zealand winemakers are leading the charge.

Fed up with quality variations in wines sealed with cork, and especially with the high incidence of cork taint caused by a contaminant called trichloroanisole (TCA), 27 leading New Zealand wineries got together in 2001 to launch the Screwcap Initiative. That year, for the first time, some of this country's best-known wines were sealed with screwcaps instead of corks.

Marlborough winemakers in particular despaired at their fresh, vibrant white wines being ruined by the mouldy smell and sour taste of cork taint, and were prepared to run the risk that consumers would reject screwcaps as cheap and nasty.

Many wine enthusiasts, all too familiar with the disappointment of opening carefully stored wines only to find they were "corked" (tainted by TCA), cheered from the sidelines.

The success of the Screwcap Initiative surprised even its proponents. Consumers quickly embraced the new stoppers, welcoming the convenience of being able to open a bottle with a quick twist of the wrist. In cafes and bars serving wine by the glass, the ease of opening and resealing screwcapped bottles gave them a clear advantage over those with corks.

It's now estimated that 80% to 85% of New Zealand wine is bottled under screwcaps – by far the highest rate in the world. Encouraged by the screwcap's acceptance in New Zealand, New Zealand winemakers have extended their crusade overseas, forming an International Screwcap Initiative chaired by Michael Brajkovich of the highly regarded West Auckland winery Kumeu River.

"Our mission is to ensure that consumers drink our wines in the best possible condition, exactly how the winemakers intended them to be," says Brajkovich.

Although the adoption of screwcaps has been much more tentative overseas, especially in conservative Europe, the trend has clearly rattled cork producers. It doesn't help that the world's most influential wine writer, American Robert M. Parker jun, has predicted that by 2015, screwcapped wines will outnumber those sealed with cork.

De Jesus admits cork sales to New Zealand have nosedived but says demand for cork stoppers worldwide is steadily increasing. Cork still supplies about 80% of the world wine-stopper market compared with 15% to 17% for plastic stoppers and a "minute" 3% to 5% for screwcaps, he says.

Despite this apparently commanding market position, he gets surprisingly

agitated about the threat emanating from tiny New Zealand. He knows the names of the leading screwcap advocates – such as Brajkovich and George Fistonich, of Villa Maria – and refers to them often in exasperated tones, at one point disparagingly referring to Brajkovich's winery as "the twilight zone".

He suggests the move to screwcaps and plastic stoppers (common in Australia) is largely driven by cost (screwcaps are cheaper) and asks why a country with a good environmental record like New Zealand's favours stoppers made from non-renewable resources.

At times the normally affable de Jesus comes close to ranting, accusing some screwcap advocates of dodgy science and of trying to shut down scientific debate over the respective merits of corks and screwcaps.

This relates to a bitter dispute over claims by some wine-industry figures – notably Alan Limmer, of Hawkes Bay winery Stonecroft, who has a doctorate in chemistry – that wines sealed with a screwcap are susceptible to faults of their own, notably an unpleasant, sulphurous smell that Limmer calls "Stelvin stink" (Stelvin being the main brand of screwcap).

One point that de Jesus doesn't dispute is that the incidence of cork taint was unacceptable before competition from screwcaps and plastic stoppers forced cork suppliers to lift their game. Although, he says, the percentage of corks tainted by TCA has historically been overstated (estimates vary from 2% to 15%), he acknowledges that a complacent cork industry, accustomed to doing things traditionally, failed to deal with it.

Fortuitously, the threat from synthetic stoppers coincided with a generational change at the top of the family-controlled Amorim company.

Since the relatively youthful Antonio Amorim, a fourth-generation family member, took over as chief executive in 2001, the company claims to have spent C43 million overhauling production processes and recruiting scientific experts in a determined effort to beat TCA.

Over lunch in the pretty two-storey villa where the family enterprise began in 1870, Antonio Amorim – a gracious host with a patrician air – told me firmly: "Our enemy is not screwcaps or plastic, but poor-performing cork".

As chairman of the Portuguese Cork Industry Association, he is eager to see other producers introduce more stringent quality controls.

Like de Jesus, Amorim is well acquainted with the New Zealand wine industry and seems genuinely hurt that the country has so enthusiastically embraced screwcaps.

"How come we are good enough for Dom Perignon but not for Cloudy Bay?" he asks.

He makes no bones about the historical problems with cork but says Amorim has made the transition from being a "commodity-driven Third World producer" to a sophisticated, market-driven company. "What we are delivering to the world today is incomparable with what we were delivering six years ago."

Some of the measures introduced to control TCA are surprisingly simple, such as not making stoppers from cork harvested from the base of the cork oak's trunk.

Because soil can harbour TCA, cork harvested close to ground level is now used for other purposes such as floor tiles and footwear.

Similarly, harvested cork is now stored and "seasoned" on concrete instead of being left on the forest floor. And because TCA can lurk in timber, Amorim's factories now move cork around on pallets made from stainless steel rather than wood.

Inside the huge cork-processing plants, new procedures have been devised for washing cork in boiling water.

Gas chromatography machines operate around the clock, analysing 12,000 cork samples a month, and any batches that test positive for TCA are subjected to steam treatment to extract the contaminant. De Jesus laments that not all cork producers share Amorim's commitment to quality control.

In a narrow back street in the outer suburbs of Oporto, he pulls up outside one of the "Mom and Pop" operations and gestures contemptuously at the piles of cork lying on bare earth in a dirty yard.

TCA is a stubborn foe. Miguel Cabral, Amorim's director of research and development, explains that it's detectable in tiny amounts – six parts per trillion is enough to make wine smell like wet newspaper – and is ubiquitous.

A derivative of the pesticide trichlorophenol (and hence essentially a man-made problem), TCA is dispersed by air, water and soil and can find its way into beer, coffee, fruit and even wine itself. The company claims that although TCA contamination is invariably blamed on cork, it's sometimes the wine that taints the cork rather than vice-versa.

A former professor at the University of Oporto, Cabral was headhunted in 2000 to lead Amorim's assault on TCA. He says that as a result of the measures adopted, the rate of TCA contamination declined by 76% between 2001 and 2005.

And though de Jesus has said Amorim can never guarantee its corks to be 100% TCA-free, the perky and engaging Cabral feels confident enough to say: "I think we have defeated TCA. I am very proud of that."

He acknowledges that it wouldn't have happened without the threat from screwcaps and plastic stoppers. It is, he says, a classic case of competition driving innovation.

Cabral is now turning his attention to research on another point of friction between cork and screwcap advocates – the question of how wine changes in the bottle.

The argument hinges on whether wine development in the bottle, which produces the complex, aged character so valued by wine aficionados, depends on corks allowing a tiny amount of oxygen to penetrate (Amorim says yes), and whether wine sealed under screwcaps can acquire the same mature character.

It is an argument of almost ideological intensity and one that, by its very nature, will take time to resolve. And in the meantime the divide between the rival cork and screwcap camps promises to grow even wider.

* Karl du Fresne visited Portugal as a guest of Amorim.