

# NEW ZEALAND BATTLES OVER CLOSURES

AS SCREW CAPS GAIN GROUND OVER CORKS, NEW STUDIES SUGGEST THEY MAY CAUSE PROBLEMS OF THEIR OWN BY BOB CAMPBELL

Buy a New Zealand wine with a 2004 vintage date and it's more likely to be sealed with a screw cap than with a cork.

Frustrated at the high incidence of cork taint and encouraged by market acceptance of alternative closures, New Zealand winemakers are increasingly turning away from natural cork.

But if the cautionary words of screw-cap critics are valid, then New Zealand winemakers could be blithely running like lemmings toward a cliff. The naysayers argue that wines with screw-cap closures are more likely than cork-finished bottles to develop unpleasant odors that resemble burnt rubber or onions.

The culprit seems to be sulfur-based compounds that can remain in the wine after bottling. New studies show a higher incidence of sulfur-based stinky aromas in wines under screw caps. Cork proponents say that corks minimize the problem by allowing oxygen to leak into the wine; oxygen reacts with the sulfides and dissipates the off odors. Screw-cap proponents say careful winemaking that avoids or removes these sulfides before bottling can prevent the situation in the first place.

New Zealand's march toward screw caps started in 2001, after four Marlborough winemakers decided to form the Screwcap Initiative. This new organization aimed to promote the use of screw caps and to assist with the technical issues involved in applying the closure.

According to ACI Glass, the company that makes approximately 90 percent of New Zealand's wine bottles, 1.6 percent of the still wines made in 2001 wore a screw cap. The following year, that figure rose to 12.6 percent, then to 34.5 percent in 2003. In 2004, approximately 65 percent of all New Zealand still wines will be sealed with a screw cap.

Michael Brajkovich, Kumeu River winemaker and Screwcap Initiative board member, cites a number of compelling reasons for switching from corks. Cork taint, which causes a musty wet-cardboard odor, would be eliminated with screw caps. Bottle variation, a frustrating feature of wine sealed with corks, would disappear. In a world without corks, wine would last longer, taste fresher and deliver exactly what was expected of it.

The domestic market reacted cautiously at first, but quickly embraced the screw caps, according to Brajkovich. Several wine exporters noted that the U.S. market was slower to accept the



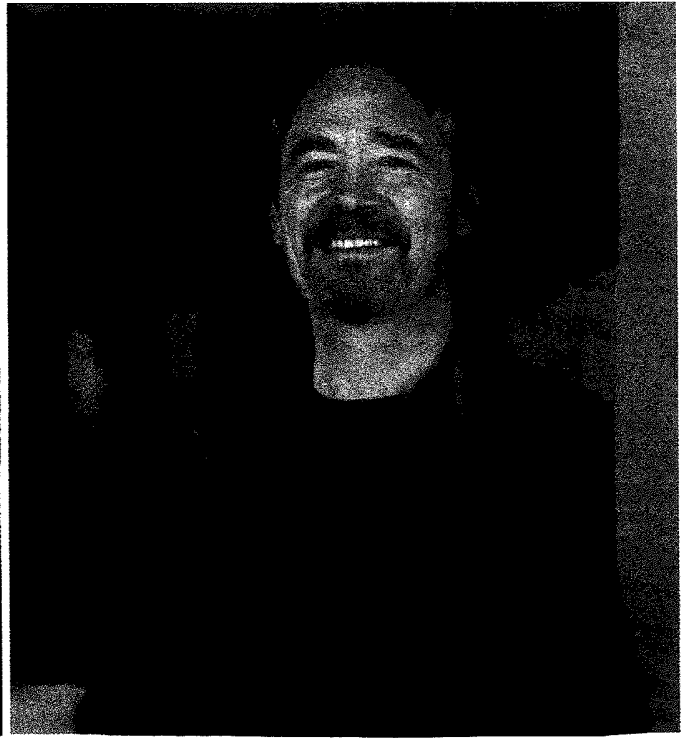
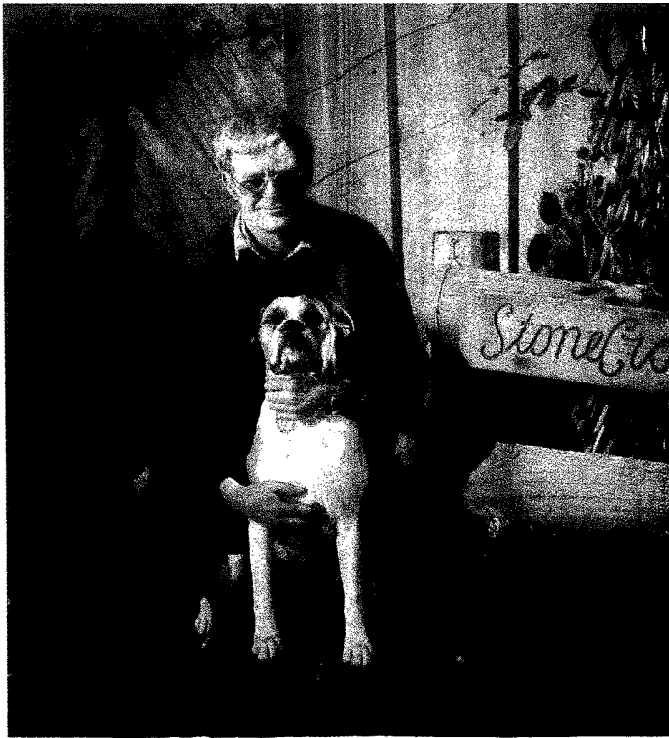
new closure, but they say resistance has gradually weakened as Americans have experienced the benefits of screw caps.

The future for screw caps looked rosy—until someone detected a faint odor of rubber.

The first indication that screw caps might not be the perfect wine closure arose from a scientific study of corks, screw caps and synthetic (plastic) corks by the Australian Wine Research Institute (AWRI). The AWRI "closure trial" began in May 1999 when a Sémillon was bottled using 14 different closures. Changes in the chemical and sensory properties of the wine were measured in an effort to determine the most effective closure.

The screw-capped bottles were consistently rated highest in fruit flavor and lowest in oxidized and cork-taint characters. However, the sensory evaluation team detected an odor that re-

Michael Brajkovich, of Kumeu River, is one of his country's best winemakers and a staunch advocate of screw caps, which now seal more than half of New Zealand's wines.



sembled rubber or struck flint in the screw-capped wines.

A technical paper on the study, published in February of 2003, confirmed that if there is hydrogen sulfide in a wine sealed with an airtight screw cap, the chemical can develop into compounds that give the wine a rubbery or gun-flint odor.

Brajkovich, who seals all his wine with screw caps, dismisses the study as “a storm in a screw cap.”

“Hydrogen sulfide is produced by yeasts during fermentation,” he explains. “A diligent winemaker should be able to detect the distinctive egg yolk smell of hydrogen sulfide and remove it. If the hydrogen sulfide remains undetected and the wine is bottled with a very tight cork or a screw cap, then it may develop reductive rubbery aromas. To avoid any bad smells the winemaker simply needs to make sure that the wine has no dissolved hydrogen sulfide before bottling.”

It's not quite that simple, responds Alan Limmer, owner and winemaker of Stonecroft, a small, premium-focused Hawkes Bay winery that does not use screw caps. “The introduction of screw caps has brought into focus an aspect of wine chemistry that has largely been taken for granted—the redox [reduction/oxidation] potential of wine. Wines under screw cap, particularly red wines, not only have the propensity to produce sulfurlike odors but they age more slowly than [with] cork and with a different palate profile.”

The redox potential of wine is influenced by the presence of phenolics, a group of compounds that includes anthocyanins (which produce color), tannins and various flavor components that are found in the skins and seeds of grapes. Wines with high levels of phenolics, such as red wines, are more resistant to oxidation because phenolics have an antioxidant property. They

have a low redox potential, meaning they are at greater risk of developing these off aromas.

Neil McCallum, founder and winemaker of Dry River, a Martinborough winery whose intensely flavored wines have built a cult following, supports Limmer's view that red wine under screw cap has a higher risk of developing rubbery odors.

“Antioxidants such as phenolics attack sulfur compounds in wine and can create rubbery ‘reduced’ odors,” says McCallum, who holds a Ph.D. in chemistry. “Corks allow a slow leak of air into the bottle. Oxygen has the ability to diminish rubbery ‘reduced’ odors. Screw caps are an airtight seal and [screw-capped wines] are therefore more at risk of developing these odors. That risk is greatly increased when wines have higher levels of phenolics, such as red wines.”

McCallum recalls a 1995 Dry River Pinot Noir that smelled like onions after a year in bottle. That odor completely disappeared in another year or two. He believes that if the wine had been sealed with a screw cap it might have retained the off odor. Brajkovich argues that if McCallum had ensured that the wine had no hydrogen sulfide when it was bottled, it would never have developed an off odor in the first place, regardless of closure type.

Until now, proponents of screw caps could claim the scientific high ground, arguing that the new closures could prevent the undisputed risks that came with corks. The new studies suggest that, despite their benefits, screw caps may bring risks of their own. The debate shows no sign of resolution, at least until further research brings more conclusive results.

Meanwhile, hundreds of New Zealand winemakers have switched from corks to screw caps. So far, it appears, none have gone from screw caps back to corks.

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Left: Alan Limmer of Stonecroft is among those who feel screw caps may have an adverse effect on wine. Right: Neil McCallum of Dry River shares Limmer's view that screw caps can harm red wine by preventing oxygen, which can help to avoid the build-up of off-putting aromas and flavors, from entering the bottle.