

Research enables yeast supplier to expand options

Mauri Yeast Australia has worked closely with the Australian Wine Research Institute in the preparation of two hybrid yeast strains, AWRI 1501 and AWRI 1503, for use by winemakers.

The company, which has been manufacturing three commonly used AWRI wine yeast strains (AWRI 796, AWRI 350 and AWRI R2), became aware of the two hybrids in October 2004.

Anthony Heinrich of Mauri Yeast Australia says these hybrid strains were reported to have the fermentation profiles of an efficient, reliable fermenter while being associated with a specific range of aromas and flavours. In particular, small-scale trials had found them to add complexity to white wines like Chardonnay.

'Mauri acquired the strains in November 2004 and began work immediately to create master cultures,' he said.

'Following this step, both AWRI 1501 and AWRI 1503 were subjected to our yeast fermentation program, which essentially assesses if the yeast can be made on a production scale or not.

'This program includes testing to determine optimum fermentation conditions and once it was confirmed that each strain could be manufactured, a brewing protocol for each was established.

'Pilot scale production is possible at our Toowoomba plant where we have a fermenter that can produce

as little as 250 kg of active dried yeast, as opposed to other commercial yeast fermenters which generally produce around four metric tonnes.'

AWRI 1501 and AWRI 1503 were brewed in this pilot fermenter, dried, and packaged ready for trials in the Australian wine industry by the 21st of January, 2005. A stringent set of quality control procedures included confirmation of strain by DNA typing and checking of the microbiological content to ensure it met specifications. Activity upon rehydration was monitored and samples were also sent to the AWRI for confirmation.

'In just two months, these novel wine yeast strains had gone from colonies on an agar plate to active dried yeast ready for trials in grape juice fermentation around the country – an incredible achievement,' Anthony Heinrich said.

While most early use has been for white wine fermentation, an unexpected result came from one Australian winery that had trialled each of the hybrids in Shiraz grape juice. The resultant wines were described as having a particularly noticeable increase in palate length, fruit concentration and overall mouth-feel compared to other red wine yeast.



Anthony Heinrich of Mauri Yeast has used the yeast research to expand product choice for clients.

AWRI 1501: *Saccharomyces cerevisiae* x *Saccharomyces paradoxus* hybrid

Saccharomyces paradoxus is sometimes found in grape must but having low vigour it generally fails to complete fermentation. The hybrid yeast has medium to high vigour fermentation, on the other hand, with properties similar to *S. cerevisiae* AWRI 838, and produces low residual sugar in Chardonnay. Basic wine chemical parameters are also similar to those of *S. cerevisiae* AWRI 838. The aroma profile is described as low in ester with nuts and figs, based on a barrel fermented Chardonnay trial. This hybrid yeast appears to be well suited for building flavour complexity in white wines and recent trials suggest that this yeast contributes to mouth-feel in red wines.

AWRI 1503: *Saccharomyces cerevisiae* x *Saccharomyces kudriavzevii* hybrid

Saccharomyces kudriavzevii is not capable of fermenting grape juice on its own, whereas the AWRI 1503 hybrid yeast made with *S. cerevisiae* AWRI 838 has improved fermentation and flavour properties. In winery as well as laboratory scale trials made with Chardonnay it can complete fermentation, however, this hybrid is not as robust as AWRI 838, and can benefit from the use of yeast foods, especially in non-optimal juices or musts. Basic wine chemical parameters are similar to those obtained with *S. cerevisiae* AWRI 838. In a barrel fermented Chardonnay trial (2004), the aroma was described as estery, floral, tropical, citrus, nutty and waxy, and the palate showed a creamy texture with complex acid, with a late mineral character. This hybrid yeast appears to be well suited for building aroma and palate complexity.

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