



FACT SHEET

BIOPROTECTION – FACTS AND TESTING CAPABILITIES

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Bioprotection – what is it?

The term ‘bioprotection’ is a relatively new term in the wine industry, in this case referring to control of microorganisms with the use of specific microorganisms (from the grapes ecosystem). Use of bioprotection strategies may be used in the pre-fermentation stage to increase microbial protection, particularly relevant when SO₂ is used at much lower rates.

There are several commercial options on the market that involve non-*Saccharomyces* yeast species mostly involving *Metschnikowia* spp and sometimes *Torulasporea delbrueckii*. These species are commonly found among the indigenous microflora, are generally non-fermentative and will not interfere with the inoculation of yeast for primary fermentation or bacteria for malolactic fermentation. The below information is based on research by the Laffort group; however, it is always recommended that you follow the manufacturer’s instructions as there is a high degree of strain and species variation. Bioprotection:

- Reduces known spoilage microorganisms on surfaces and in must.
- Some strains of *Metschnikowia* spp exhibit oxygen scavenging capabilities.
- Enables the winemaker to reduce the level of SO₂ used at picking/processing.
- Can protect fruit for a limited amount of time from fermenting if not able to be processed straight away.
- Used in extremely low rates.

Applications of bioprotection

The concept of bioprotection is proposed anywhere where there is a gap between picking and alcoholic fermentation. The addition of bioprotection in the form of *T. delbrueckii* and *M. pulcherrima* combined led to a decrease in fungal communities, especially *Aureobasidium* and *Botrytis* in grapes; and a reduction in acetic acid producing *Acetobacter* spp and *H. uvarum* in wine. This combination has been studied in the following applications in conjunction with standard winemaking practices such as SO₂ and tannin additions:

- Cold maceration red wines.
- Stabulation for white and rose wines.
- Harvesting equipment.
- Laccase management in conjunction with tannins and SO₂.
- Bins and cellar equipment.
- Whole juice transportation.
- Volatile acidity management in spontaneous fermentations.

How much protection does this provide and for how long?

The level of protection will be determined by the time and temperature the bioprotection microorganisms are exposed to. It is very important to talk to the manufacturer about the specific strain in question to ensure maximal protection. Normally these strains are very poor fermenters, meaning that *Saccharomyces cerevisiae* will naturally outcompete these species and overtake if correct conditions are not adhered to.





Winemaking stage	Objective	Analysis bundle	Sample required
Pre-fermentation – surfaces and crushing equipment*	Validation of bioprotection application – before and after application	<i>Metchnikowia pulcherrima</i> <i>Torulaspora delbrueckii</i> <i>Saccharomyces cerevisiae</i> <i>Hanseniaspora uvarum</i> <i>Acetobacter aceti</i> <i>Acetobacter pasteurianus</i>	2 x 50 mL
Must or wine*	Validation of bioprotection application – before and after application	<i>Metchnikowia pulcherrima</i> <i>Torulaspora delbrueckii</i> <i>Saccharomyces cerevisiae</i> <i>Hanseniaspora uvarum</i> <i>Acetobacter aceti</i> <i>Acetobacter pasteurianus</i> <i>Brettanomyces bruxellensis</i>	2 x 50 mL

*Available in select laboratories including the Barossa Valley

Sampling

It is important to take the cleanest sample possible to minimize any contamination. Clean 50 mL tubes are sufficient and can be provided by the laboratory upon request. Alternatively, samples may be taken in 200 glass bottles. The samples should be kept cold at 4°C until they are able to be submitted to the laboratory and frozen if this period goes beyond 3 days. Samples may be frozen straight away if preferred.

Swabs are provided by the laboratory upon request for surface monitoring. Ideally swabbing the surface in question before bioprotective treatment and then after the treatment.

For queries around time of testing to ensure best results please email info@winechek.com

Result Interpretation

- The results provided by this Laboratory are based on the sample or samples provided, in the condition and quality as delivered to the Laboratory.
- We are a testing laboratory; consultation is available as a separate offering
- The above information is based on research conducted by Laffort Oenologie, and detects most microorganisms commonly used in bioprotection.

References available upon request.

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