



Australian Government  
Department of Agriculture



Pernod Ricard Winemakers  
*Leading Wine Innovation*



The Australian Wine  
Research Institute



# NATIONAL LIVESTOCK METHANE PROGRAM

## PROJECT FACT SHEET

### Lowering methane emissions from livestock using grape marc

<b>Lead organisation</b>	The Australian Wine Research Institute (AWRI)
<b>Lead researcher</b>	Karl Forsyth
<b>Funders</b>	Department of Agriculture, The Australian Wine Research Institute, Pernod Ricard Winemakers
<b>Communication contact</b>	Ella Robinson P: 08 8313 6600 E: ella.robinson@awri.com.au

#### About the project

Grape marc, the leftover skins and seeds from the winemaking process, contains tannin and lots of it. When fed, as a dietary supplement, to cattle or other ruminant animals, grape marc has been shown to reduce methane emissions, and has been linked to increases in liveweight gain.

The project will characterise different types of grape marc and assess their performance and suitability as a methane-reducing feed supplement, while measuring their impact on productivity. An additional objective is to identify if there are potential risks associated with agrochemical residues within grape marc for the livestock industries.

So far, the project team at the AWRI has developed and refined analytical techniques and methods that enable tannin levels and composition to be understood and quantified in grape marc. These analytical techniques have revealed the incredible diversity of both tannin type and tannin concentration in grape marc. The next stages of the project will use digestion simulation methods to quantify the methane suppression and productivity enhancing properties of different tannin types.

#### What does it mean for producers?

The knowledge from this project will enable livestock producers to better understand how they can use grape marc in their production systems to lower methane emission and maintain or increase productivity. The results may also be used in the development and validation of methodologies that

producers may use to potentially claim credits under the Carbon Farming Initiative (CFI) and the future Emissions Reduction Fund (ERF).

### **Location(s):**

The research is being undertaken at the following locations:

- Chemical testing of grape marc at The Australian Wine Research Institute, Urrbrae, SA.
- Laboratory testing at The University of Melbourne, Vic.
- Field studies at Ellinbank Dairy Research Centre, Vic.

Grape marc samples have been collected from the Hunter Valley, Yarra Valley, Mornington Peninsula, the Riverina, the Adelaide Hills and the Barossa Valley.



*Grape marc being prepared for analysis at the AWRI's laboratory at Urrbrae, SA.*

## **BACKGROUND FACTS ABOUT ...**

### **The National Livestock Methane Program**

The National Livestock Methane Program (NLMP) has been developed to provide producers with practical strategies and tools to help them lower methane emissions while increasing productivity and profitability.

The program consists of 16 research projects grouped into five streams including: measurement of methane, genetics, supplements, forages, and rumen microbiology. These projects commenced in mid-2012 and will run until May 2015.

The NLMP is funded by the Department of Agriculture. It is managed by MLA and receives support from 11 collaborating organisations. For more details on the projects and collaborators, please visit [www.mla.com.au](http://www.mla.com.au)

### **The link between ruminant biology, methane and productivity**

When cattle and sheep digest feed, between 2-10 per cent of the feed energy they consume is lost in the form of methane gas. This is caused by the activity of micro-organisms that naturally live in the animals' stomach (rumen) and assist with digestion.

The methane gas (CH<sub>4</sub>) is belched out by the animal and into the atmosphere. Simply put, they are 'leaking' feed energy, rather than converting it to muscle. Scientists are working to reduce this loss of feed energy by developing treatments to lower methane emissions. Preliminary research results indicate that some treatments can reduce methane-related energy loss by more than 50 per cent.

Methane is also a potent greenhouse gas and in Australia about 10 per cent of all greenhouse gas emissions and two thirds of agricultural emissions come from methane produced by cattle and sheep. Knowledge and practices aimed at reducing methane emissions from livestock therefore serve the dual purpose of improving feed efficiency, productivity and farm income, while also helping lower Australia's greenhouse gas emissions.