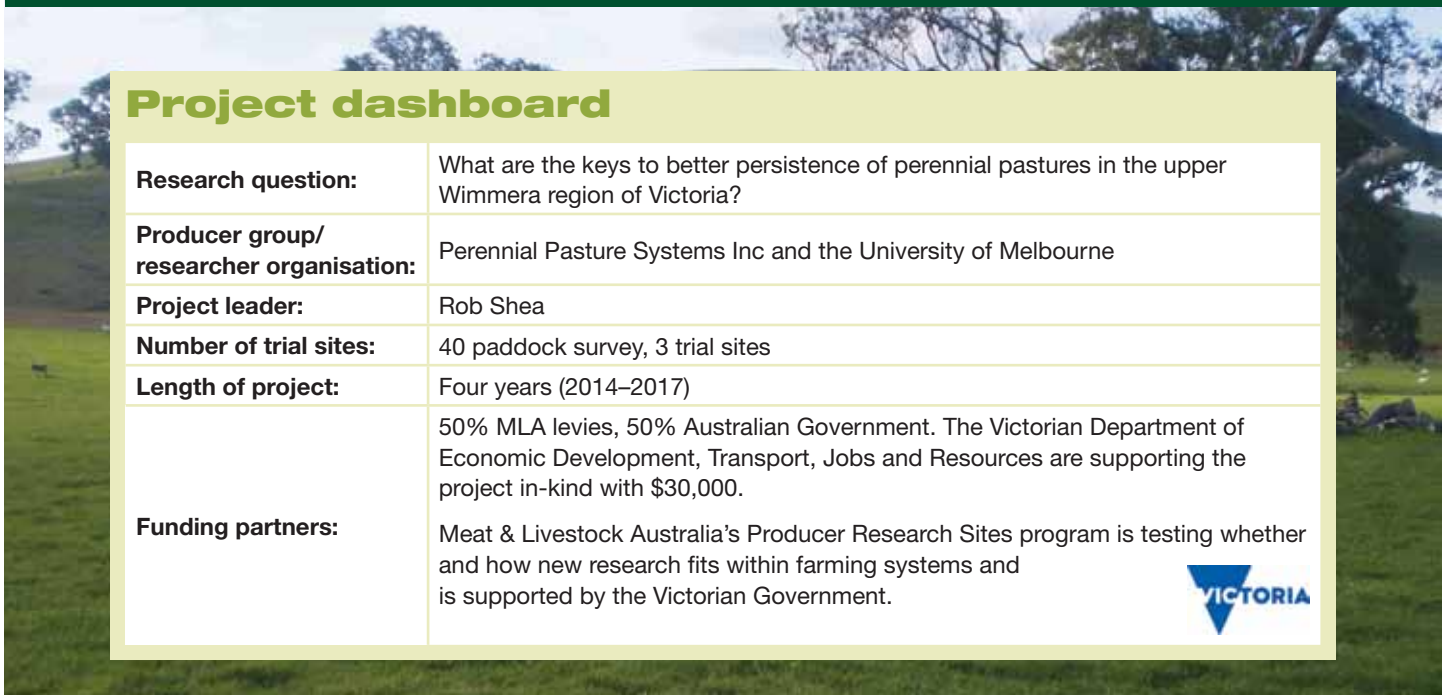
Keys to better persistence of perennial pastures

Upper Wimmera, Victoria



Project dashboard

Research question:	What are the keys to better persistence of perennial pastures in the upper Wimmera region of Victoria?
Producer group/ researcher organisation:	Perennial Pasture Systems Inc and the University of Melbourne
Project leader:	Rob Shea
Number of trial sites:	40 paddock survey, 3 trial sites
Length of project:	Four years (2014–2017)
Funding partners:	50% MLA levies, 50% Australian Government. The Victorian Department of Economic Development, Transport, Jobs and Resources are supporting the project in-kind with $30,000. Meat & Livestock Australia's Producer Research Sites program is testing whether and how new research fits within farming systems and is supported by the Victorian Government.

Locations of these Producer Research Sites

Sites	Rainfall	Soil types
Project covers the area of Victoria incorporating Ararat, Stawell, Balmoral, Elmhurst and St Arnaud. See next page for detailed map.	450–620mm	Ordovician clay loams

Why this topic is important

Improvements in the productivity and longevity of perennial pastures in the Upper Wimmera and similar areas are important for the long term profitability of sheep and beef producers. Identifying the key management strategies for better pasture establishment and persistence will help producers achieve this.

Project objectives

1. To determine the key reasons for pasture persistence in the Upper Wimmera through a survey of Perennial Pasture Systems members who have existing new and old pasture varieties in their paddocks.
2. To test the key reasons for increasing the life of phalaris pastures identified through the survey.
3. To develop an understanding of the economic value of sowing phalaris pastures using data from survey results, economic benchmark paddocks and paddock trials.

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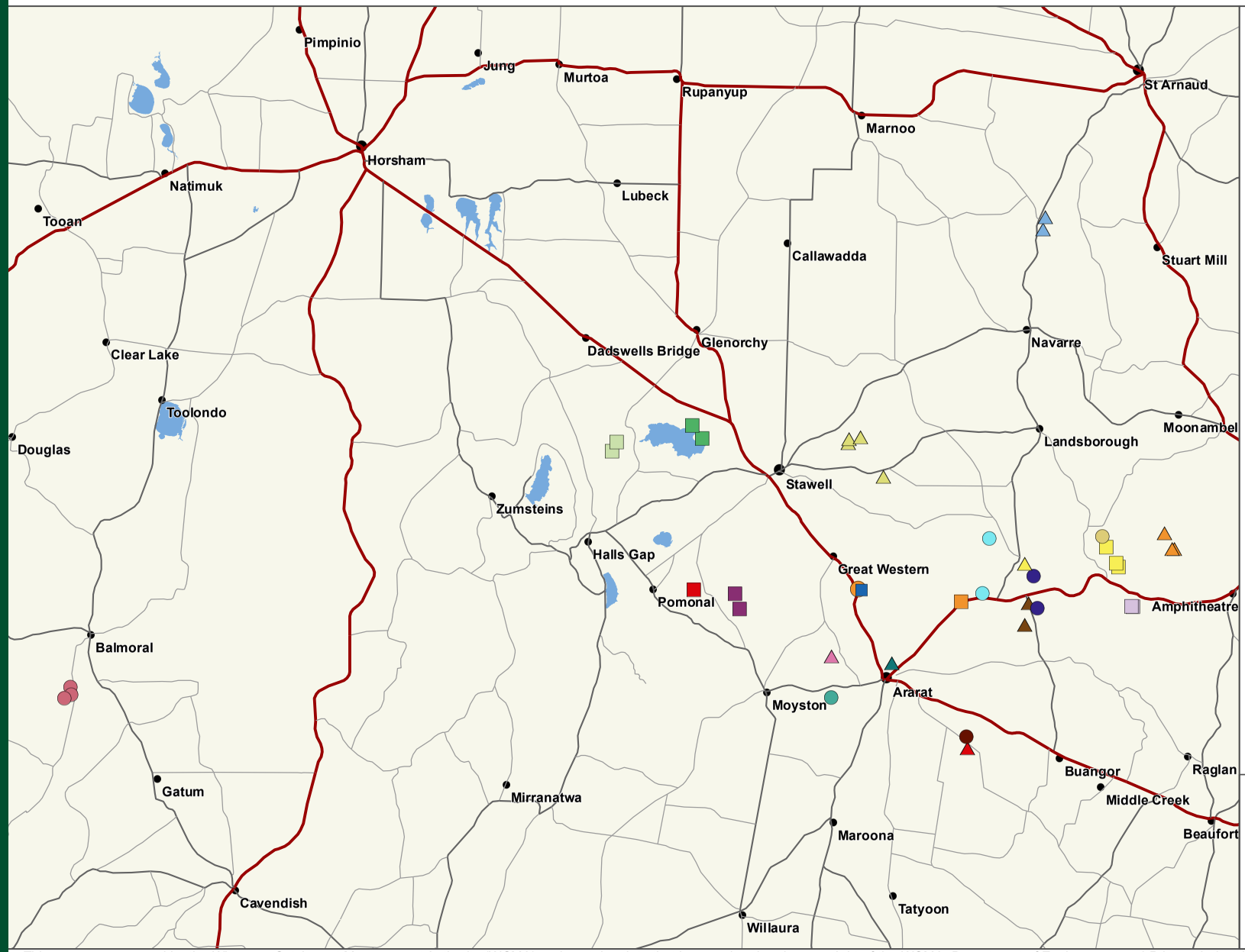
Perennial Pasture Systems: Persistence Project



Legend

- Highway
- Major Road
- Other Road
- Major Storages

ProducerResearchSites (2014)

- Allanvale South
- Ben Nevis Farms (2 sites)
- Crochan
- Dunneworthy (2 sites)
- Eylos-Merther
- Gorrinn North
- Greenwood (3 sites)
- Jallukar Park (2 sites)
- Karingal (2 sites)
- Kimbarra
- Lonsdale (2 sites)
- Marenda (2 sites)
- Millbanks (3 sites)
- Mooneys Gap
- Mountview
- Mullingar
- Mundarring
- Newlands (3 sites)
- Overdale (4 sites)
- Quamby
- Springfield
- Tirranna (2 sites)
- Tottington (2 sites)

N

0 2.5 5 10 15 20

Kilometres

Neil James, DEDJTR applies fertiliser to constraints trial.

Jim Caldwell, SFS takes soil cores in each paddock.

Deep soil cores were taken at each paddock for site description and further analysis.

Research approach

This project involves three components: a survey of paddocks for persistence (2014-15), site trials to test key reasons for improved persistence and an economic analysis.

Paddock persistence survey (2014)

During 2014 a survey was undertaken on 40 paddocks to compare the persistence of existing pastures (with newer and old varieties). The survey should identify the key reasons that enable pastures to remain productive for at least 10 years and the economic value of persistent and productive phalaris pastures.

Survey information will be used to identify production changes over the lifetime of a phalaris pasture, for example, when pasture reaches its peak production, how long pasture remains productive, when production starts to decline and how long pasture remains in an unproductive state before it requires resowing.

Each paddock was surveyed in the following way:

- Pasture composition (spring 2014)
- Establishment of fixed sampling points following the EverGraze protocol (autumn 2015).
- Soil sampling (autumn 2015).
- Recording of pasture history including sowing practices, weed management, grazing management etc (late spring and summer 2014).
- Soil type and rainfall.

Site trials to test key reasons for persistence (2015–2017)

The key reasons for persistence that are identified in the paddock survey will be tested to determine if they do improve pasture and persistence in paddock trials. These trials will be conducted on two paddocks during 2015–2017. Trial design will be informed by the results of the paddock persistence survey.

The Department of Economic Development, Jobs, Transport and Resources has also established two nutrient and soil constraints trials in 2015 which will add to the understanding of the effect that nutrients and in particular nitrogen may have on phalaris persistence.

Economic analysis (June 2014— March 2017)

A detailed economic analysis is being undertaken for four phalaris paddocks with different pasture scenarios:

- Greenfields, established in 2014.
- Mooney's Gap EverGraze supporting site, established in 2009.
- Elmhurst MLA producer demonstration site, established in 2009.
- Jallukar MLA producer demonstration site, established in 2009.

The economic analysis is also drawing upon background information from about five paddocks with good historical records that will be identified from the paddock persistence survey and from the site trials.

The economic analysis includes collation of the following information:

- Costs — establishment and maintenance (weed control, fertiliser, supplementary feed costs, cost incurred when the paddock is non-productive).
- Benefits — annual production (livestock income, hay income, contribution of income to other parts of the farm, e.g. spelling pastures and reduced supplementary feed).

The following records will be collected from these paddocks to determine the production of phalaris over its lifetime, including stocking rate (DSE/ha) and grazing days:

- Pasture composition in winter and spring.
- Plant persistence as a result of monitoring the frequency of desirable sown perennial grass in autumn.
- Farm diary kept by the farmer of all management practices that occur on each paddock over the experimental period.

Progress (August 2015)

The survey of 40 paddocks has been completed. The PRG group has found good phalaris persistence regardless of annual rainfall and cultivar and as long as phosphorus was greater than 6mg/kg (Olsen test) and paddock size less than 30ha. Individual paddock factors seem to be having more of an impact on persistence than environmental issues. The data collected will be continue to be analysed to identify further reasons for phalaris persistence which could be hidden amongst complex relationships between soil and grazing factors. This data shows the persistence and performance of different cultivars of phalaris under farm conditions rather than in research trials which could be of great value to the industry.

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