

Dairy Directions — Analysing Farm Systems for the Future

Providing robust analysis of the impact of on-farm changes and innovation on the profitability of dairy farm systems

Project Objectives

- ◆ Analyse options for dairy farms to maintain and increase profit, net worth and manage risk under:
 - Fluctuating milk price and real increases in input costs
 - Climate change projections and related policy changes
 - Increasing land values, which impact on the expansion of dairy businesses.
- ◆ Disseminate information generated from the project to inform influential farmers, service providers and policy groups of options to optimise profit and manage risk.



Project Results

Evaluating development options for a dairy farm in south-west Victoria

This study was conducted to examine the potential economic performance of a south-west Victorian dairy farm business over a 10 year period if: 1) the system remained unchanged and 2) changes were implemented that would enable the business to remain profitable. It was expected that this farm needed to change to remain viable.

A set of criteria developed by the industry steering committee was used to select the case study farm.

The farm selected had a total area of 571 ha; 233 ha of milking area owned by the farmer, with the remainder leased and used to run young and dry stock, and to produce hay and silage for the milking herd. The farmer paid less than commercial lease rates for the non-milking area. The milking herd was made up of 570 cows. Stocking rate was 2.4 cows/ha on the milking area. Cows were fed 1.5 t DM of concentrate supplements per year. Pasture consumption was estimated to be 5.8 t DM/ha on the milking area and 3.9 t DM/ha on the non-milking area.

Five possible futures or 'scenarios' were discussed and developed. Assumptions aligned with each of the scenarios were also defined and fitted into the model.

The development options (scenarios) analysed were :

- **Scenario 1:** run the base farm system with commercial lease rates and typical prices
- **Scenario 2:** 'optimise' the base farm through improved pasture production and utilisation
- **Scenario 3:** increase the area grazed by the milking herd by converting 60 ha of non-milking leased area to milking area and reducing stocking rate to 1.9 cows/ha
- **Scenario 4:** increase cow numbers (800) and milking area whilst maintaining stocking rate at 1.9 cows/ha
- **Scenario 5:** reduce the size of the enterprise

The results showed that the farm needed to change to remain profitable. There was no single 'best' option that maximised all economic indicators, and the choice of system depends on the goals of the farmer. A short summary of the results is being developed and will be available in November.

Further information contact:

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Communication activities

Since August 2009, the project has reached over 890 dairy farmers, service providers and other industry stakeholders across the state.

Snap shots of recent events include:

- ◆ Christie Ho gave a presentation to DPI senior staff in June 2010 on the potential impacts of sustainable diversion limits in the Murray Darling Basin Plan on dairy farms in northern Victoria.
- ◆ Christie presented a summary of project achievements and gave an outline of future activities to the Dairy Australia Board in July 2010.
- ◆ Will Dalton and Christie Ho contributed to a presentation to industry service providers on DPI's work plan to assess the impact of the sustainable diversion limits in the Murray Darling Basin Plan. The presentation was held in Shepparton in August 2010.
- ◆ Katherine Tarrant presented results of the economic analysis of Automatic Milking Systems to two farmer discussion groups at Korumburra and Yarram.
- ◆ Janna Heard presented an overview of the project to industry service providers in the south-west region in September 2010.

Project activities

- ◆ Analysis of 'alternative futures' for the case study farm in south-west Victoria has been completed.
- ◆ Case study farms have been selected in:
 - ➔ The Macalister Irrigation District, to analyse the impact of changed water availability and price on the profitability and production decisions of irrigated dairy farms in the region.
 - ➔ Gippsland, to investigate the costs of production of different calving patterns, and the impact of milk pricing structures on farm profit and production decisions.



- ➔ Northern Victoria, to investigate possible on-farm changes that could be made under increased water availability. Scenarios relating to sustainable diversion limits may also be investigated.
- ➔ Tasmania (partial analysis of a case study farm) to analyse the biophysical and economic impact of changes in rainfall and temperature as predicted under climate change.
- ◆ Preliminary analysis has been conducted to determine if a relationship exists between milk production decline and heat stress. Milk production was based on an experiment conducted at DPI Kyabram during the 2007/08 summer. A cost:benefit analysis of mitigating against heat stress on milk production will be investigated.
- ◆ Stakeholder planning workshops have been held in each of the three regions to determine research priorities beyond 30th June 2011. The priorities identified will form the basis of discussions with investors for the possibility of future project work.



Upcoming events

- ◆ The project team will hold a service provider/adviser workshop in Warrnambool on the 1st of December 2010. The workshop will use findings from the south-west case study farm to discuss risk and drivers of farm profit. The implications for other dairy businesses will also be examined.
- ◆ Three farmer workshops will be held in early 2011 across southwest Victoria, following on from the service provider workshop.
- ◆ Results from the analysis of the south-west case study farm will be published in a series of newspaper articles in the south-west dairy media in late 2010/early 2011.

New staff

Michele Ryan has joined the project team. She is based at DPI Warrnambool and will provide extension expertise into project activities in south-west Victoria including the regional steering committee meetings.

Papers/Publications

Armstrong DP, Tarrant KA, Ho CKM, Malcolm LR, Wales WJ (2010) Evaluating development options for a rain-fed dairy farm in Gippsland. *Animal Production Science* **50**, 363-370.

Leddin CM, Heard JW, Malcolm LR, Tarrant KA, Ho CKM, Wales WJ (2011) Evaluating options to increase profitability on a dairy farm in southwest Victoria, Australia. Paper submitted to the International Farm Management Association Congress, Christchurch New Zealand.

Feasibility of automatic cluster removers in the dairy—do they pay? Published in the WestVic Dairy News September 2010 edition.



Staff profile

Yvette Williams Research Scientist— Farming Systems



Yvette joined the project team in May after returning to DPI from maternity leave. She is based at Tatura and her task is to set up a new case study farm in the north.

Yvette has a Bachelor of Science and Bachelor of Agricultural Science with honours from the University of Melbourne. From 1998 to 2003 she undertook her PhD studies at the Kyabram Dairy Centre investigating grazing behaviour and rumen function of cows strip-grazing highly digestible pastures.

Since then she has worked for CSIRO in Perth, providing ruminant nutrition expertise to a project attempting to develop a vaccine for sheep that would increase wool growth by reducing rumen protozoa. She has also worked for Dexcel/DairyNZ in New Zealand, managing the research undertaken at their Taranaki Research Station. She returned to Australia in 2008 and started again at DPI Kyabram, managing the calf feeding trials at Rutherglen that formed the basis of the Feed Conversion Efficiency Project.

Yvette is looking forward to learning new skills in this project as well as working with such a diverse and knowledgeable team.

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