

# MODELLING DAIRY FARMING SYSTEMS

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*Providing robust analysis of the impact of potential changes on the profitability of dairy farm systems*

## PROJECT RESULTS

### AUTOMATIC FLOOD IRRIGATION FOR DAIRY FARMS IN NORTHERN VICTORIA

Interest in automatic flood irrigation is strong, given the labour and lifestyle benefits it can provide. The labour involved in flood irrigation can be significant and it is often not possible to schedule irrigating at a convenient time of the day. There may also be water savings by automating flood irrigation in some situations. Automatic flood irrigation is defined as bay outlets and channel structures being opened and closed automatically. Approximately 11% of dairy farms in the Central Goulburn area reported having some form of automatic irrigation in an irrigation farm survey in 2006. Various systems are available in northern Victoria, with a number of developments/improvements occurring in recent years.

An economic analysis of three automated flood irrigation systems for a northern Victorian dairy farm situation was conducted. The pneumatic, timer and SCADA systems were investigated.

The analysis indicated that automatic irrigation can be a profitable labour saving investment in many cases, but was very sensitive to the amount and value of the labour saved.

The pneumatic and timer systems appeared to be very good investments regardless of the area they were installed to service. The SCADA system was a good investment when more than 50 ha was serviced by the installation of the system.

The labour efficiency of the previous system also had an important effect. Larger bay sizes and fewer bay outlets enabled the capital cost of automatic irrigation to be substantially decreased. However, this reduced the economic advantage of automatic irrigation systems as the labour savings were less substantial.

Irrigation water savings are unlikely to have a significant effect on the economics of automatic irrigation, particularly if water price is under \$100/ML.

### COMMUNICATION ACTIVITIES

- ◆ Due to demand, the 'Once a Day Milking' analysis was updated to reflect the recent decrease in milk price. This information was released to over 280 participants at several Murray Dairy service provider update days.
- ◆ The 'Once a Day Milking' technical bulletin and a copy of the full report were also available at the CowTime 'shed shakeups'. Over 260 participants from northern Victoria, Gippsland and the south west attended the 'shed shakeup' days.



### PROJECT OBJECTIVES

- ◆ **Analyse** the impacts of climate and seasonal variability and labour saving technologies on the profitability of dairy farming systems in Victoria.
- ◆ **Create** strong extension and research links.
- ◆ **Develop** capability in systems analyses.
- ◆ **Examine** the needs of other dairy regions or industries.

### FURTHER INFORMATION:

Bill Wales  
 Future Farming Systems Research Division  
 Department of Primary Industries  
 120 Cooma Rd  
 Kyabram, VIC 3620  
 Phone: 03 5852 0517  
 E-mail: bill.wales@dpi.vic.gov.au

## COMMUNICATION ACTIVITIES

- ◆ Dan Armstrong presented results from the Gippsland case study farm to discussion groups at Maffra and Yarra Valley in April.
- ◆ Technical bulletins on 'Sub-Surface Drip Irrigation in Pasture Production', 'Automatic Irrigation' and 'Once a Day Milking' have been finalised and are available on the Murray Dairy web site at <http://www.murraydairy.com.au/>. The bulletins have been developed for farmers and service providers and offer more detail on analyses carried out.
- ◆ The bulletins were made available at the Stanhope field days, and were distributed at the Smart Water and Irrigation Program run in March and April.
- ◆ A further two articles on development options for the Gippsland case study farm have been published in the "How Now Gippy Cow" newsletter. The articles appeared in the April and May editions and were titled 'Should I buy more land that I can milk off?' and 'Should I buy an out block?'.



## PROJECT ACTIVITIES

- ◆ The tenth steering committee meeting for the Northern Irrigation region was held on 29th February 2009 at DPI Kyabram. A full project proposal for the next phase of the northern region module has been developed and submitted to funders (DPI, Dairy Australia and Murray Dairy).
- ◆ The second meeting of the sub committee for the On Farm Connections analysis (FoodBowl Modernisation project) was held on 26th March to discuss and clarify some of the assumptions to be used in the partial budgets. Will Dalton is working on a discussion paper using a case study syndicate to highlight some of the operational issues that are likely to be faced by groups of irrigators connecting to the backbone.



- ◆ The fourth steering committee meeting for Gippsland was held on 19th March at DPI Ellinbank. The risk analysis of the different development options for the case study farm and communication activities were discussed.
- ◆ Dan Armstrong and Katherine Tarrant gave a presentation to the Gippsland DPI extension officers in late January, the south-west Vic steering group in February, and a DPI Ellinbank internal seminar in March. Feedback was positive, and the presentations stimulated good discussion.
- ◆ The second Steering Committee meeting for the south west region of Victoria was held on 5th March 2009 at DemoDairy, Terang. An overview of the case-study farm was presented.
- ◆ A third steering committee meeting was held on 22nd of April, which involved a tour of the case study farm. The steering group identified the first round of development options to be analysed.

## STAFF PROFILE

### Melanie Porker Farming Systems Researcher

- ◆ Melanie joined the team in February through the DPI Graduate Program. She is currently based at Kyabram and has been working closely with Janna Heard on assessing the profitability of growing lucerne under subsurface drip irrigation.
- ◆ Melanie will rotate through the major dairy regions of Victoria over the next two years and will be working closely with Bill Wales, Dan Armstrong and Janna Heard. She will also spend some time with the DPI policy group in Melbourne.
- ◆ Melanie graduated from La Trobe University, Bundoora with a Bachelor of Biological Science and this is her first position with DPI. Mel looks forward to working with the other members of the team to develop her knowledge and skills through her role in various dairy projects.

