Rural Innovation Research Group
Progress Report
June 2010–August 2011
Anne Crawford and Ruth Nettle
Table of Contents

Introduction and Background to the Rural Innovation Research Group Progress Report ..................2

About RIRG Now ..................................................................................................................................4

Current RIRG Staff, PhD Students and Research Contractors ..........................................................6

Progress Towards Objectives – 12 Months in Review ........................................................................6

1. RIRG Research Objectives ............................................................................................................6

2. RIRG Industry Development (Engagement) Objectives ................................................................13

3. RIRG Capacity Building Objectives (Postgraduate supervision, teaching) ..................................17

New Developments ..........................................................................................................................19

Current and Recently Completed Projects – Summaries .................................................................20

Farms, Rivers and Markets: Farm and Catchment Networks and Innovation Research .................20

Increasing On-farm Returns from New Technology: Incorporating Information Technologies in Farming Systems ................................................................................................................21

Strengthening Small Dairy Communities – What Works and Why? .............................................22

Changing Rooms in the Dairy Industry: Leaving a Legacy from Crises .........................................24

Retention of People in Dairy Farming – What is Working and Why? ..............................................25

Project 3030 .....................................................................................................................................27

The People in Dairy – Insights to Change .......................................................................................29

The Alpine Valleys Dairy Pathways Project: A Case Study of Sustainable Regional Development under Market Governance? ...........................................................................................................30

The Valuing People Project ..............................................................................................................31

The Application of Dairy Farmer Attitudinal Segments (DAFS) for Industry Change – Lessons and Next Steps..........................................................................................................................32

Completed PhDs 2010–2011 ..............................................................................................................33

PhD Student Status ...........................................................................................................................34

Publications 2010–2011 .....................................................................................................................35
Introduction and Background to the Rural Innovation Research Group Progress Report

The Rural Innovation Research Group’s portfolio of research and development projects and activities address different issues and challenges in rural innovation. The research and development activities of the group, conducted within a particular rural industry program or area of resource management, may be of interest or relevance to the challenges or issues people face in other areas. This report therefore provides a broad snapshot of RIRG research and development projects and activities of the last 12 months, areas of progress against RIRG objectives and an outline of new or developing areas.

The report aims to provide people interested in rural innovation and RIRG stakeholders (our clients, funders, project teams, rural professionals and potential clients) with an up-date of our research progress, highlights from the previous 12 months as well as profiling the emerging relevance of our current work for a range of interests. This report is designed to complement our quarterly e-newsletters and Annual Symposium by providing more details about our work program.

The history of RIRG

Formerly known as the Innovation and Change Management group, a social research and development capacity for the challenges of rural innovation and change has been operating since January 2000 at the University of Melbourne. The group began with the appointment of Dr Mark Paine as Principal Research Fellow in what was then the Institute of Land and Food Resources. A combination of research contracts, primarily from Dairy Australia (formerly the Dairy Research and Development Corporation), and an extensive postgraduate program resulted in the growth of the group to six full-time researchers. In August 2008, Dr Ruth Nettle stepped in to lead the group, launching a refined vision and a new name (Rural Innovation Research Group, or RIRG) to represent the task of providing research and development services to enhance rural innovation. The last three years has produced a greater diversity of stakeholders interested in RIRG research and the consolidation of research, as well as teaching and engagement efforts in different industries, communities and resource management contexts. In July 2011, RIRG formulated a new three-year strategic plan to represent the groups direction and future in the University, the desired contribution to rural industries, and issues and challenges in resource management. The renewed vision for RIRG is outlined in this report.

RIRG exists because investors in rural innovation have recognised the need for:

a) growing a knowledge base and research capacity in how to better support the changes desired in rural industries or resource management (e.g. in farm, community and advisory practices; in organisations or structures that support or hinder change);

b) continual improvement and learning amongst the people involved in rural innovation (i.e. regional groups, program managers, farmers, researchers, service providers); and

c) documenting, reviewing and renewing approaches for achieving change.
RIRG’s approaches and methodologies, built from social theories of practice and action, and focused on a practical agenda, represent a unique type of research for rural industries and also for the academy. RIRG’s strategy developed over the last decade has been to contribute to advancing the discipline of rural action-science, growing a research contribution to address the challenges of the practitioner (whether that be a manager of innovation projects or policy, a farmer, an extension or advisory professional or a regional group), whilst also building capacity to sustain this strategy (e.g. undergraduate and postgraduate training, and professional development of rural industry and resource management groups).

What investors have sought from RIRG

Although RIRG’s research partners have invested in RIRG for different reasons, the overarching purpose of the investment has been to:

- Better understand the context and practices involved in agriculture and resource management and the relationship between these and the goals of innovation and improved service delivery (research, development and extension);
- Research ways to move toward learner-centered, demand-driven service delivery;
- Engage a greater proportion of an industry in effective learning activities;
- Investigate ways to be more creative, innovative and effective in the way learning opportunities are created and delivered; and
- Support the professionals who provide services and conduct learning activities to enable them to do their jobs better.

How is the research of RIRG decided?

The University of Melbourne and Dairy Australia currently co-invest in the leadership and management of RIRG to develop new research areas, oversee research provision, contribute to dairy industry development and grow research capacity through postgraduate research supervision and teaching. RIRG therefore partly represents a strategic investment by Dairy Australia to continue to understand and improve industry innovation processes. Research priorities are determined by industry needs with research questions most often co-developed through partnerships with industry program teams. Specific research projects are developed and resourced separately, with investors including the University of Melbourne (internal research grants/scholarships), Dairy Australia, the Geoffrey Gardiner Foundation, the Department of Primary Industries Victoria (DPIV), the National Water Commission, and the Cotton Research and Development Corporation. The broader RIRG team consists of researchers and postgraduate students involved in specific projects. An advisory group offers input and advice on the direction of the overall research plan.

Overall, the mix of RIRG activity in terms of staff time allocation and total investment is approximately divided across: Research provision (70 %), Industry development and support (15 %), and Building research capacity and teaching (15 %).
About RIRG Now

The Rural Innovation Research Group vision

Effective action for managing change for rural industries, resources and communities.

The Rural Innovation Research Group core business

Generating new knowledge on effective actions for managing change through innovative research, development and practice.

The figure below represents the dimensions of innovation considered by RIRG (innovation involves and requires effective research, development and practice) and the contribution of RIRG in managing change in innovation (our way of acting).

- **Our Research** provides knowledge and builds and applies relevant theories for improving action.
- **Our Development** efforts build capacity to improve action amongst ourselves and those we work with.
- **Our Practice** contributes to improving innovation situations.

The Rural Innovation Research Group objectives (2011—2014)

- RIRG continues to build a reputation for high quality, useful research.
- The RIRG ‘way of acting’ is recognised and valued as a model of collaboration and innovation within the University and amongst key investors and partners outside the University.
- RIRG grows a contribution to teaching, particularly at postgraduate level, as a way to build awareness and capacity in action science and rural innovation and change nationally.
- RIRG builds a more sustainable funding model.
- RIRG builds a critical mass of staff, students and collaborators and moves towards recognition as a Centre within the University.
The Rural Innovation Research Group research plan (2011–2014)

The central areas of RIRG research contribution are toward:

1. Improving transitions in farming systems
2. Improving knowledge utilisation
3. Improving extension and change management
4. Improving resource management.

Research questions, developed with different rural industries or resource-use contexts, are directed toward the following issues:

- **Improving Transitions in Farming Systems**
  - farm decision making
  - workforce development (entry, exit and retention)
  - business management and risk

- **Improving Knowledge Utilisation and Practice**
  - knowledge and learning systems
  - social implications of technological developments
  - communities of practice
  - collaboration and collective action
  - multidisciplinary approaches

- **Improving Extension and Change Management**
  - advisory capacity and public-private sector roles
  - extension design and delivery
  - capacity building
  - sustainable change

- **Improving Processes in Resource Management**
  - resilience
  - adaptation
  - community development

The Rural Innovation Research Group teaching plan (2011–2014)

**Objective**: To grow a contribution to teaching within the University, particularly at postgraduate level, as a way to build awareness and capacity in action science and rural innovation, and change both within the University and amongst rural professionals nationally and internationally.

**Plan**:

- Coordinate subjects: Innovation Change and Knowledge Transfer (breadth – undergraduate subject); Human Resource Management (part of Master of Agribusiness)

• Explore the option to build a Graduate Certificate: Rural Innovation and Change
• Write a book based on RIRG research and practice to accompany teaching.

Current RIRG Staff, PhD Students and Research Contractors

Progress Towards Objectives – 12 Months in Review

The profile of RIRG activities and progress over the past 12 months is presented against RIRG objectives in the domains of Research, Industry Development (Engagement) and Capacity Building (Research supervision and teaching). Specific details of each research project are provided in the current projects section on page 20.

1. RIRG Research Objectives

• Generate knowledge of learning and change that significantly informs rural RD&E projects.
• Develop new methodologies to support rural innovation.
• **Advance the discipline of rural action science through an international reputable social research database and publication profile.**

**Outcomes envisaged in the pursuit of these objectives**

• Higher impact industry change projects and programs.

• Higher quality, internationally recognised research.

**Table 1: An overview of current and completed research projects in 2010–2011 (details on page 20)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Principal Researchers</th>
<th>Brief description and contribution to RIRG objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing Rooms in the dairy industry</td>
<td>Sonya Love Warwick Waters&lt;br&gt;Dr Ruth Nettle</td>
<td><strong>Completed:</strong> This research, completed in June 2011, provides new knowledge about resilience thinking for dairy industry crisis response at a local level. DPIV and rural industry project managers are now considering the application of the findings in the development of their crisis response capacity. A final report is available and a paper has been submitted to the Extension Farming Systems Journal for peer review.</td>
</tr>
</tbody>
</table>
| Project 3030 – Module 8: Adaptation of technologies to achieve high productivity from dairy farming systems | Dr Ruth Nettle<br>Barbara King<br>Anne Crawford<br>Dr Callum Eastwood (and previously Dr Michael O’Kane) | **Completed:** This research, completed in February 2011, concludes the social research conducted as part of Project 3030 over the last 4 years. The research has developed clear recommendations for industry in the management of innovations particularly:  
• Addressing traps in establishing the target audiences for research;  
• The role of commercial farms in research;  
• Social network analysis as a tool for program teams;  
• Understanding and working with farmer risk perceptions of new technologies;  
• The role of social networks that are both used and generated in innovation projects;  
• Establishing knowledge co-development processes in multidisciplinary teams;  
• Developing strategies for delivery and engaging advisers; and  
• The importance of strategic and stable governance in RD&E projects.  
A final report is available and journal and conference papers have been developed from the research. |
<table>
<thead>
<tr>
<th>Title</th>
<th>Principal Researchers</th>
<th>Brief description and contribution to RIRG objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 3030 – Impact evaluation</td>
<td>Dr Ruth Nettle Anne Crawford Barbara King Dr Callum Eastwood</td>
<td><strong>Completed</strong>: At the request of the Gardiner Foundation, additional information about the impact of Project 3030 on farm and advisory practice was gathered. Using an on-line survey of farmers, advisers and researchers in the Project 3030 network, this study found that Project 3030 had influenced over 900 farmers to apply Project 3030 information to their situation directly and also through advisory services aligned to the project. The project was highly valued by agronomist advisers and had greater reported impact amongst farmers in NE Victoria than in Western Victoria and Gippsland. A final report is available.</td>
</tr>
<tr>
<td>Growing dairying in the Murray Irrigation region: Understanding dairy farm workforce needs and challenges</td>
<td>Dr Ruth Nettle Dr Callum Eastwood</td>
<td><strong>Completed</strong>: This project, conducted for Murray Dairy on behalf of the People in Dairy program, surveyed and interviewed dairy farmers and current and former employees in the region about dairy farm workforce needs and the nature of the workforce challenges being faced. This information was used to help identify priority workforce issues for the region (e.g. attracting and retaining senior managers) and in identifying possible options for addressing the issues. Report for Murray Dairy</td>
</tr>
<tr>
<td>Retention of People in Dairyfarming – what works and why?</td>
<td>Dr Ruth Nettle</td>
<td><strong>Completed</strong>: This research, completed in August 2011, provides new knowledge on the practices of dairy employers that contribute to retaining dairy farm employees and providing career pathways. Case studies of employer best-practice and the employee experience of employers who value retention are provided, along with regional plans for improving dairy farm employee retention in Victoria. This research is being used to develop the retention strategy of industry and the case studies will be used to increase the profile of the importance of retention amongst farmers. A journal paper from this work is under development.</td>
</tr>
<tr>
<td>The employee’s perceptions of retention practices on Australian dairy farms</td>
<td>Augusto Semmelroth Dr Ruth Nettle Dr Rebecca Ford</td>
<td><strong>Completed</strong>: This Masters-level research project tested a psychological contact framework in explaining employee turnover on dairy farms. A survey of 32 dairy farm employees was conducted and significant correlations found between the psychological contract factors and intention to stay with an existing employer. The research findings formed part of the analysis of the Retention of People in Dairyfarming project.</td>
</tr>
<tr>
<td>Title</td>
<td>Principal Researchers</td>
<td>Brief description and contribution to RIRG objectives</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>PhD: Collaboration in Action: sharing knowledge in Project 3030</strong></td>
<td>Barbara King</td>
<td><strong>Near completion:</strong> This PhD research conducted within Project 3030 (a dairy industry feedbase RD&amp;E project) describes and analyses the emergence of changed dairy farm feedbase practice and the contribution of a network-model of RD&amp;E to innovation. The thesis is expected to be submitted for examination in November 2011.</td>
</tr>
<tr>
<td><strong>Automatic Milking Systems Integration Project</strong></td>
<td>Dr Callum Eastwood</td>
<td><strong>Near completion:</strong> This research was part of a DPIV project which investigated and piloted a capacity building approach for support to farmers using Automatic Milking Systems. Research involved trialing a methodology to measure the impact of uncertainty in innovation systems using the case study of Automated Milking Systems. Using an online survey of international AMS experts and exploring the extent to which uncertainty amongst farmers regarding the performance of AMS related to its uptake in different countries.</td>
</tr>
<tr>
<td><strong>Farms, Rivers and Markets: farm and catchment networks and innovation research</strong></td>
<td>Dr Margaret Ayre, Dr Ruth Nettle, Sonya Love</td>
<td><strong>Near completion:</strong> The ‘Farms, Rivers and Markets’ project is a large interdisciplinary research project of the University of Melbourne that aims to create opportunities to ‘do more with less water’. RIRG’s involvement includes research into the co-development and integration of knowledge in supporting ‘doing more with less water’. Developing and delivering a community engagement strategy to assist integrating knowledge from diverse disciplines and communities was also involved. Findings from this research will be used by research investors and providers to enhance interdisciplinary research processes and community engagement in research. Journal and conference papers are under development.</td>
</tr>
<tr>
<td><strong>Valuing People</strong></td>
<td>Dr Ruth Nettle, Dr Rebecca Ford</td>
<td><strong>Current:</strong> This research applies theories of the psychological contract in employment relations to quantify the contribution of people management to dairy farm business success. This research aims to identify people management practices that most strongly contribute to successful dairy farming. A journal paper is under development from the pilot phase of this research.</td>
</tr>
<tr>
<td><strong>Use of dairy farm attitudinal segmentation in extension program delivery</strong></td>
<td>Dr Ruth Nettle, Warwick Waters, Sean Kenny</td>
<td><strong>Current:</strong> This research builds from the segmentation of Australian dairy farmers (DAFS) (Waters, et al. 2008, 2010) to consider the use of</td>
</tr>
<tr>
<td>Title</td>
<td>Principal Researchers</td>
<td>Brief description and contribution to RIRG objectives</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Strengthening Small Dairy Communities</td>
<td>Anne Crawford</td>
<td><strong>Current:</strong> Investing in the people and communities that make up the dairy industry is critical to the sustainability of dairy farming in Victoria. This research is evaluating the impact of the Gardiner Foundation’s Strengthening Small Dairy Communities pilot project in the Lower Tarwin Valley, South Gippsland. This research will examine the impact of the pilot project on rural community capacity building, and identify the key attributes of success to inform the development and implementation process in further small dairy communities.</td>
</tr>
<tr>
<td>Insights to Change – The People in Dairy</td>
<td>Anne Crawford</td>
<td><strong>Current:</strong> Effective farm working relationships underpin the dairy farm sector’s ability to attract, retain and develop people (including farm family members). This research project aims to understand the nature of change on dairy farms in relation to people management, and the role that advisers have had in supporting these changes. Research findings will be used to highlight the experiences of farmers dealing with people issues, and guide further work into helping support the learning process of farmers.</td>
</tr>
<tr>
<td>Increasing on-farm returns from new technology: Incorporating information technologies in farming systems</td>
<td>Dr Callum Eastwood</td>
<td><strong>Current:</strong> The Dairy Australia funded research program, to finish in December 2012, reviews the uptake and use of ICT on Australian dairy farms. It uses AMS, in-shed dairy technology and pasture management technology as case studies to investigate the roles of technology in dairy and options for facing the challenges that new technologies present. Analysis is aimed at providing recommendations for ICT support arrangements regarding contribution of industry good vs private good arrangements in technology management. Actions in 2010–2011 include writing a review of precision dairy in Australia, undertaking a survey and case studies of AMSs internationally, interviews with technology providers in the precision dairy space, and preliminary design of co-development of learning support processes with researchers, technology retailers and farmers.</td>
</tr>
<tr>
<td>Title</td>
<td>Principal Researchers</td>
<td>Brief description and contribution to RIRG objectives</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The Alpine Valleys dairy renewal project</td>
<td>Michael Santhanam-Martin</td>
<td>Current: This PhD project will examine the Alpine Valleys project as a case study of collective action for sustainable regional development.</td>
</tr>
</tbody>
</table>

**Research highlights**

- **Margaret Ayre and Ruth Nettle** (with Michael Santhanam-Martin, Sean Kenny, Brent Collett and Christian Clark) have supported integration and co-development activities as part of the Farms, Rivers and Markets (National Water Commission) project which is developing new knowledge for catchment management. Key interactions in 2010–2011 have included: whole-of-project workshops (30+researchers) to progress integrative research in FRM; workshops with extension practitioners and service provider professionals to explore the implications for farming and river operations practice from FRM research; and a workshop with the project Steering Committee to explore priority outputs from FRM in considering diverse stakeholders. Further, two focus groups with catchment stakeholders were conducted. These further explored the practice and policy implications of FRM research at two scales: a local catchment scale; and the Southern Murray-Darling Basin scale. RIRG research into the processes of doing integration and co-development for ‘doing more with less water’ will contain recommendations for research institutions, research funders and stakeholders on the value of integrated research for supporting change in catchment management.

- As part of research for the AMS integration project, **Callum Eastwood** trialled a methodology to measure the impact of uncertainty in innovation systems. An online survey of international AMS experts was conducted to explore the extent to which uncertainty amongst farmers related to the uptake of AMS technology in different countries. This survey found common patterns in the development of advisory services to support farmers manage uncertainty in AMS.

- In collaboration with DairyNZ, **Callum Eastwood** piloted a workshop process to understand the reliance of farmers on ‘experiential or intuitive’ cues in farm management compared with the use of cues from data generated from their farm system through on-farm technology (e.g. milk collection and analysis, feeding systems data, etc). The use of information in several key decision making areas on dairy farms needs was tested in order to assess the perceived value and use of information technology on-farm. Results from the pilot showed a wide range of responses that were difficult to analyse and interpret, suggesting significant adaptation of the approach is needed to improve the utility of the method for industry.

- **Michael Santhanam-Martin** commenced his PhD with RIRG in 2011. His research will be conducted alongside the Alpine Valleys Dairy Pathways project – a collaborative project involving dairy farmers, the dairy industry and other stakeholders that is aiming to increase dairy production through supporting innovative pathways into dairy business ownership.
Michael’s research will use an action research approach to examine the project as a case study of collective action for sustainable regional development.

- **Barbara King** contributed to the production of Project 3030 ‘fact sheets’ that will be used to provide information to practitioners on key findings from social research in the project. Topics include: 1. A farmer checklist: making better forage decisions that suit my style of farming; 2. How do farmers make forage decisions? Lessons from project 3030 for advisers and researchers; 3. How to plan and facilitate a forage practice group to achieve practice change: Lessons from Project 3030; 4. How to work one-on-one to support forage management practice change: lessons from Project 3030; 5. Understanding how social networks influence the use of knowledge and information: lessons from Project 3030; 6. How to establish and support a partner farm in R&D. Barbara has continued to work with other project teams to understand the influence of social networks on project reach in different contexts (e.g. DairyNZ; Dairy Australia’s feedbase development team).

- **Ruth Nettle, Anne Crawford and Barbara King** presented their research, People in Dairy and Project 3030, to the International Farming Systems Association European Conference in Vienna, Austria in July 2010. Three peer-reviewed conference papers were generated from this work.

- As part of the research project ‘Retention of people in dairy farming – what works and why?’ **Ruth Nettle** presented findings to regional dairy groups across Victoria. Over 30 people were engaged in these workshops including employers, employees, training and industry representative groups and advisers, and other service providers. Participants were directly engaged in developing plans to improve retention in their regions over the next three years. It is envisaged that these plans will form the basis of significant initiatives to enhance retention in industry. A presentation of the research was also made to the People Development Council within Dairy Australia and will be used to contribute to better workforce planning and action at an industry scale. Further, parts of the research were used in the dairy industry submission to the Victorian parliamentary inquiry into farm workforce capacity and also the Rural Innovation Research Group submission to that inquiry.

- **Callum Eastwood** presented research from the Pastures from Space project at the trans-Tasman Dairy Science symposium in Christchurch, New Zealand in August 2010.

- **Anne Crawford** attended the Australasian Evaluation Society annual conference in Wellington, New Zealand in August 2010.

- **Barbara King** presented her PhD research in a Social Network Analysis forum in Italy in July 2010.

- **Margaret Ayre** presented a poster-paper on her work in Farms, Rives and Markets at the National Climate Change in Primary Industries conference (CRISSPI) in Melbourne in February 2010.

- **Callum Eastwood** presented a synthesis of his research in the area of data-use and learning on-farm at a Department of Primary Industry Dairy Science forum in March 2011.
• **Margaret Ayre** presented her Farms, Rives and Markets research at the DPI Research Reporting Day at Tatura in July 2011.

• **Ruth Nettle and Anne Crawford** were involved in developing research areas for the Cotton Catchment Communities and Beef CRC extension-bids. Although unsuccessful, potential future collaborations in research were formed.

• **Callum Eastwood** presented his research in AMD integration at the Precision Agriculture Conference in Prague in July 2011.

A complete list of research publications are provided at the end of this report.

2. RIRG Industry Development (Engagement) Objectives

• *Improve systematic learning in rural RD&E project teams.*

• *Benefit RD&E project leadership and management (from RIRG involvement).*

• *Foster innovation strategies of rural industries that better account for people and learning systems.*

• *Increase the impact of Rural professionals (from use of RIRG research).*

Outcomes envisaged in the pursuit of these objectives

• Better evaluation of rural industry projects and programs.

• Continuous improvement of industry projects and programs.

• Increased project/program manager capacity.

• Increased advisory capacity.

• Improved innovation strategy of rural industry.

Quality evaluation of research and extension projects continues to be an ongoing need for the rural sector. RIRG has provided evaluation services to a diversity of projects in the dairy industry over the past 12 months to support project design/logics, understand how activities are working to support farmers and advisers, and representing the changes emerging from industry interventions.

An overview of industry development and engagement activities are provided in Table 2.

**Table 2: An overview of RIRG industry development and engagement activities 2010–2011**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description/contribution</th>
<th>Principal RIRG researcher involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Moving Forward RD&amp;E strategy</td>
<td>In the areas of People, Farm Business Management, Animal Performance and Feedbase, RIRG presented findings and contributed to the setting of priority areas</td>
<td>Barbara King, Anne Crawford, Callum Eastwood, Margaret Ayre, Ruth Nettle</td>
</tr>
<tr>
<td>Activity</td>
<td>Description/contribution</td>
<td>Principal RIRG researcher involved</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
</tbody>
</table>
| Production of synthesis papers for the DMF steering committee          | 1. Development-led innovation – A new model for operationalising RD&E (in collaboration with Pauline Brightling and Anne Hope).  
<p>|                                                                       | 2. Client-centred RD&amp;E: A process and some tools for understanding the changing client to improve RD&amp;E services (in collaboration with Warwick Waters). | Ruth Nettle                                 |
| Contribution to Project 3030 steering group meetings                   | Increase knowledge and understanding of the role of RIRG research and its application in Project 3030. | Barbara King, Ruth Nettle                   |
| Contribution to The People in Dairy core group meetings and evaluation | Enhance TPiD strategy, delivery and evaluation.                                            | Anne Crawford, Ruth Nettle                  |
| plans (including In2Dairy)                                             |                                                                                           |                                             |
| Production of the People Report for Dairy Australia and the industry   | Develop the data protocol for the Workplace Research Centre to follow (ABS and Census data collection) and contribute to the design and overall content of the report in conjunction with The People in Dairy. | Ruth Nettle                                 |
| Alpine Valleys Dairy Pathways Project                                  | Participation in project development and governance, development of research agenda.      | Michael Santhanam-Martin, Ruth Nettle       |
| Farms, Rivers and Markets workshop at Dookie with professionals in     | Designed, facilitated and evaluated the workshop as a mechanism for co-development.        | Margaret Ayre, Ruth Nettle, Michael Martin, |
| supporting on-farm change in water management and two focus groups    |                                                                                           | Sean Kenny, Brent Collett                   |
| with FRM interest groups: at Dookie Campus and the University of       |                                                                                           |                                             |
| Melbourne, Parkville                                                   |                                                                                           |                                             |
| Attendance at the 2nd Sustaining Regional Communities conference       | Exploring different approaches to industry and community development.                      | Anne Crawford                               |
| in Narrabri, NSW.                                                      |                                                                                           |                                             |
| Co-organiser of Pastures from Space trans-Tasman workshop (August     | Collaboration between DairyNZ and Dairy Australia.                                         | Callum Eastwood, Anne Crawford              |
| 2010)                                                                 |                                                                                           |                                             |
| NZ Pastures from Space review (September 2010)                        | On two-person review panel for NZ Pastures from Space project mid-project review.          | Callum Eastwood                            |</p>
<table>
<thead>
<tr>
<th>Activity</th>
<th>Description/contribution</th>
<th>Principal RIRG researcher involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input into DairyFutures CRC planning (July-Dec 2010)</td>
<td>Design of Program 3 research program for CRC board.</td>
<td>Callum Eastwood, Ruth Nettle</td>
</tr>
<tr>
<td>Member of the DPI AMS integration project development group (2010-11)</td>
<td>Member of development team to guide project, input into design and analysis of program, attendance at workshops, data capture and analysis, evaluation.</td>
<td>Callum Eastwood</td>
</tr>
<tr>
<td>Coordinated the People in Dairy Adviser Forums</td>
<td>Twice held during 2010–2011, these forums are important for maintaining current capacity in on-farm advisory skills around people management.</td>
<td>Anne Crawford</td>
</tr>
<tr>
<td>Close collaboration with DairyNZ around precision dairy (2011)</td>
<td>Aid design of precision dairy workshop sessions, undertaking interviews of precision dairy farmers.</td>
<td>Callum Eastwood</td>
</tr>
<tr>
<td>Instigated discussion of collaborative workshop between Dairy Australia and DairyNZ on precision dairy farming (2011)</td>
<td>Circulation of discussion document and liaising with DairyNZ to develop up three-stage workshop proposal.</td>
<td>Callum Eastwood</td>
</tr>
<tr>
<td>Dairy Australia/DairyNZ MoU discussions (September 2011)</td>
<td>Providing expert advice on potential areas for collaboration under the MoU.</td>
<td>Ruth Nettle, Callum Eastwood</td>
</tr>
<tr>
<td>People Development Council, Dairy Australia and Department of Industry and Regional Development</td>
<td>Formal presentation relating to People in Dairy program and Retention of People in Dairyfarming research, and how this could apply to influencing regional workforce development strategy.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>Attend project management meetings of the In2Dairy program (Western Victoria) (2010–2011)</td>
<td>Support to the evaluation of the In2Dairy project.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>Dairy Australia Board – investing in industry change management (August 2011)</td>
<td>Formal presentation on lessons from RIRG research.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>Gardiner Foundation Dairy Communities Advisory Council (March 2011)</td>
<td>Presentation to the Council on the evaluation approach for the Strengthening Small Dairy Communities pilot project.</td>
<td>Anne Crawford</td>
</tr>
<tr>
<td>Dairy Regional Development program workshop – investing in industry change management (August 2011)</td>
<td>Formal presentation on lessons from RIRG research.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>Dairy SA advisor breakfast – engaging farmers in industry change programs (October 2010)</td>
<td>Interactive presentation on RIRG research into farmer engagement.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>DPIV workshop – applying dairy farmer attitudinal segmentation to your project (October 2010)</td>
<td>Interactive workshop with DPIV extension staff applying DAFS results to projects.</td>
<td>Ruth Nettle</td>
</tr>
<tr>
<td>Activity</td>
<td>Description/contribution</td>
<td>Principal RIRG researcher involved</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Attend Feedbase Development team meetings (ongoing)</td>
<td>Presentations and input into feedbase development team strategy.</td>
<td>Ruth Nettle, Barbara King</td>
</tr>
<tr>
<td>Attend Sustaining Small Dairy Communities Management Group meetings (monthly)</td>
<td>Enhance evaluation strategy delivery and contribute to project design/delivery.</td>
<td>Anne Crawford</td>
</tr>
<tr>
<td>The People in Dairy Large Herds business retreat</td>
<td>Involvement in the organisation and evaluation of these workshops for The People in Dairy.</td>
<td>Anne Crawford</td>
</tr>
</tbody>
</table>

**Research highlights**

- **The RIRG Annual Symposium** was held in early August 2011, attracting over 70 participants, including 6 from interstate/New Zealand and 26 from rural Victoria. The symposium is a key opportunity to share RIRG’s research and development findings with a wider audience working in rural innovation. Associate Professor John Fitzgerald, Acting CEO, Vic Health, provided the keynote address on innovation and change from a Vic Health perspective. The audience included dairy industry investors, DPIV and extension staff from across Australia, university researchers and different rural industries.

  In feedback sheets the majority of participants rated the event as 6/7 (on a scale of 1-7) with respect to the value from attending the day. Most reported that the symposium had triggered a lot of new ideas to apply to their work. Reported benefits include critical lessons with implications for future project initiatives, stimulating thoughts about relationships/networking/collaboration, and the opportunity to network with people about issues of common concern (such as collaboration or evaluating change).

- **RIRG researchers have provided leadership in innovation strategy in the last 12 months through involvement in the dairy industry response to the federal government initiative to improve the effectiveness of RD&E.** Contributing expertise in the areas of people, farm business management, feedbase and animal performance (technology use in dairy systems), RIRG has been strongly involved in the development of industry strategies. In addition, **Ruth Nettle** has contributed synthesis reports for the Dairy Moving Forward Steering Committee as part of Module 3 including a report on Development-led Innovation and Client-centred RD&E. Ruth was also asked to present key messages on innovation and change to the Dairy Australia Board and at a meeting of all dairy industry regional groups.

- **Ruth Nettle** has engaged with project and regional groups to support their planning in workforce development, and engaging the diversity of farmers in change programs.

- **Callum Eastwood** was invited to be on the two-person review panel for the New Zealand Pastures from Space program which provided an opportunity to use lessons learnt through previous Pastures from Space research in Australia. Callum has also initiated a collaborative
process between Dairy Australia and DairyNZ, been involved in the development team of the DPIV AMS integration project, and is involved in collaborative research with DairyNZ.

- **Anne Crawford** and **Ruth Nettle** have worked with *The People in Dairy* to develop and implement the evaluation strategy and contribute to regional action plans. Evaluation extends across the capacity development of advisors through the Diploma in Human Resources, short courses for farmers and industry, and the use of online resources. Anne has also had an active role in The People in Dairy, liaising with regional dairy producers and coordinating the twice-annual Adviser Forum and Large Herds Business Retreats.

- **Ruth Nettle** has presented content on workforce planning and action systems, and the role of advisers as part of the content of the Human Resource Management Diploma, People in Dairy.

### 3. RIRG Capacity Building Objectives (Postgraduate supervision, teaching)

- **Advance the discipline of rural action science**
- **Increase the impact of Rural professionals**

**Outcomes envisaged in the pursuit of these objectives**

- **National and International recognition.**
- **Long-term capacity to enhance innovation.**

As an active group within The University of Melbourne, RIRG has welcomed and valued the opportunity to contribute to the teaching of undergraduate and postgraduate students. Combining a social research perspective with innovation studies and farming systems knowledge allows RIRG to make a unique contribution to the Melbourne School of Land and Environment and also contributes to growing the next generation of researchers and advisers.

- RIRG has made a significant contribution to the teaching outcomes of Melbourne School of Land and Environment. In late June 2011, the subject *Innovation, Change and Knowledge Transfer* was delivered to 28 third-year students. Presented in an intensive one-week block mode, RIRG seeks to engage students with the theory and practice of community engagement for practice change, with a focus on the rural industries.

- For the first time, RIRG delivered the online subject *Human Resource Management* as part of the Masters of Agribusiness. 18 students from Australia and elsewhere (Hong Kong, Chile) participated.

- RIRG group members have also contributed to the delivery of *Social Research Methods* to 40 undergraduate and postgraduate students.

- As well as the current PhD students (refer pages 6 and 33), RIRG has supervised two Masters level student projects in the last 12 months.
• RIRG researchers have also been invited to review journal articles and examine PhDs. International journals of animal bioscience and agricultural systems, as well as Australian-based journals in extension farming systems and precision farming have been reviewed.

• RIRG was involved in supporting the design and delivery of a Department of Primary Industries workshop series aimed at piloting a process for building capacity amongst advisors around AMS.

• RIRG has provided leadership in the design of the community engagement strategy for the Farms, Rivers and Markets project, as part of the development phase. The Farms, Rivers and Markets project is an interdisciplinary research project that aims to create opportunities to ‘do more with less water’, generating new water management options that will expand the system design possibilities for farmers and water managers.

• Margaret Ayre gave a lecture on Supporting Integration and Co-development: the Farms, Rivers and Markets Project’ in the Office of Environmental Programs (UoM) subject Transdisciplinary Teaching and Learning.

• Margaret Ayre graduated in 2010 as an Inaugural Fellow of the Peter Cullen Trust which is aimed at developing leadership in water resource management.

• Anne Crawford is enrolled in the Masters of Evaluation at the University of Melbourne.
New Developments

1. Rural workforce development

RIRG was successful in receiving a three-year Cotton Research and Development Corporation research grant to conduct research into cotton workforce development for sustained competitive advantage. The project forms part of the cotton sector’s human capacity strategy by establishing a research-based process to:

   a) collect and interpret regionally specific data and information about how cotton workforce development happens and what is currently working well or could be improved. This includes building an information system on the diversity of job and skill profiles of farm and off-farm businesses through the supply chain in a rapidly changing production environment; the way people are attracted, retained and developed in the sector; the demand for people and skills; regional labour market analysis; and the different roles and contributions of stakeholders like employers, training organisations, employment organisations and government in the cotton workforce system;

   b) engage key stakeholders, including those outside the sector, in understanding the workforce development system to identify potential partnerships for local action; and

   c) develop a regionally relevant framework in two or three regions to mobilise and support networks of employers and relevant stakeholders in planning to improve their workforce development.

The legacy of this project will be an effective workforce development process for the cotton industry as well as shared lessons with dairy industry initiatives. A PhD project is also planned to complement this research initiative and sit across both cotton and dairy projects.

2. Applying social network analysis in extension

New opportunities are emerging to explore the application of Social Network Analysis to real-time extension and delivery situations. RIRG is working with Dairy Australia’s feedbase development team to develop a research plan. As part of this work, liaison with Dairy New Zealand and its work in this area is envisaged.

3. Supporting regional adaptation and transformation

In extending research into the application of resilience thinking in rural industries and resource management contexts, RIRG is working with Dairy Australia and DPIV in the area of tools and support mechanisms to aid regional recovery from drought, and water policy changes and advisory roles in supporting transformation in farm businesses as a result of climate change. These areas may also form the basis of an ARC Linkage Grant application.
4. Farm and advisory decision making in pasture and forage seed selection decisions

In applying research methods in examining farm decision-making, advisory support and institutional arrangements concerning the animal genetic supply chain, RIRG is developing research to explore the context for farm decision making in the pasture and forage seed selection domain in order to understand influence points in aligning new product developments with farm and society expectations.

Current and Recently Completed Projects – Summaries

Farms, Rivers and Markets: Farm and Catchment Networks and Innovation Research

Project overview

The Farms, Rivers and Markets (FRM) project is a large interdisciplinary research project that aims to create opportunities to ‘do more with less water’. The relevance and applicability of FRM research to farms, water managers and policy in this and other catchments is dependent not only on the biophysical, economic and technical feasibility of new options in farm systems, water markets and river management, but on the learning and management challenges for individual farm businesses and stakeholders in adapting their practices to suit changes in the environment and markets. However, most biophysical research projects fail to account for and consider the implications for practice (i.e. what people need to do differently to ensure the research has practical application). The FRM project addresses this gap by conducting research into the community engagement and practice dimensions of FRM research. It involves identifying the key social dimensions to the application of FRM research that will enable the interpretation of FRM research for practice and policy, and offer other catchments a ground-truthed methodology for integrating catchment research and practice.

Outcomes targeted

Designing and managing a catchment stakeholder engagement process that connects the FRM project team with stakeholders at key points in the knowledge development process to identify feasible options and improve the applicability of FRM research (in conjunction with the FRM project management team). Identification of: the key social influences on changes in farming and water management systems in the catchment; disconnects between research and practice; and, documenting and evaluating the innovation process for the benefit of other catchments.

Outputs

- An innovative framework for community engagement in catchment management.
- An understanding of the benefits of, and recommendations to support interdisciplinary research and co-development.
- Recommendations to support change in farming practice and catchment management.
Principal investigator Dr Margaret Ayre, Dr Ruth Nettle and Sonya Love

Funding This project is an initiative of Uniwater and funded by the National Water Commission, the Victorian Water Trust, The Dookie Farms 2000 Trust (Tallis Trust) and the University of Melbourne.

Timeframe This project is finishing at the end of 2011.

Contact Dr Margaret Ayre, T: 9035 4711, E:mayre@unimelb.edu.au

Increasing On-farm Returns from New Technology: Incorporating Information Technologies in Farming Systems

Project overview
This research program will use the three case studies to inform the research themes. The themes revolve around reviewing uptake and use of ICT on Australian dairy farms using AMS, Dairy ICT and pasture management technology as case studies. Analysis is aimed at providing recommendations for ICT support arrangements regarding the contribution of industry good vs private good arrangements in technology management. This research has included the sub-project, ‘Automatic Milking Systems Integration’, working in conjunction with DPIV and research collaboration with Dairy NZ.

This research aims to:

1. Review the uptake and use of ICT on Australian dairy farms using AMS, Dairy ICT and pasture management technology as case studies.

2. Understand and analyse the implementation challenge for dairy farms in respect to ICT (financial, ease of management, time saving etc) when using ICT to enhance farm management.

3. Evaluate alternative support mechanisms to enhance the benefits to dairy farms.

4. Analyse and recommend ICT support arrangements regarding the contribution of industry good vs private good arrangements in technology management for the industry.

Outcomes targeted

- Gain a greater understanding of the most effective pathways for supporting successful dairy farm ICT investment.

- Provide guidance regarding future investment strategies for developing and supporting the use of objective data in grazing management.

Outputs


- Scoping paper on positioning industry investment around high challenge technologies, particularly focusing on the balance between public and private roles, and the construction of development-led projects in practice.
• Review paper: ‘Precision Dairy Farming in Australia’.

• The overall project output will be a framework and recommendations to position industry support of high challenge technologies in Australian dairy farming.

Progress and findings
This project has been running for one year. Some key progress to date includes:

• AMS capability development activities by the DEC have examined a potential model for future use. Early evaluation of the program has found a high level of engagement by the advisors in the group, who benefited from the contextualising nature of on-farm visits.

• The initial scan of international AMS use shows a significant number of AMS units in use globally but some key markets (UK, Ireland, US) where AMS did not take off as rapidly as in other countries. A survey will soon be distributed internationally to determine key factors behind the different levels of use, with the view to providing guidance over possible Australian trajectories.

• Review of use of ‘information and communication technologies’ in Australian dairy systems.

• Designing a pilot project: Co-developing learning support for precision dairy technologies (including interviews with technology retailers, assessing retailer learning approaches).

• Collaboration activity with DairyNZ and Massey University around precision dairy farming and co-design of a workshop process to investigate collaboration opportunities between Australia and New Zealand.

Principal investigator Dr Callum Eastwood

Funding Dairy Australia

Timeframe July 2010–December 2012

Contact Callum Eastwood, T: 8344 8352, E: callumre@unimelb.edu.au

Strengthening Small Dairy Communities – What Works and Why?

Project overview
The Gardiner Foundation has initiated a community development program, which will be piloted in South Gippsland in 2011–2013. This project will evaluate the impact of the pilot project on rural community capacity building and identify the key attributes of success to inform the development and implementation process in further small dairy communities.

The objectives of this project are:

1. Clearly define the outcomes sought by the Gardiner Foundation from the South Gippsland pilot project.

2. Evaluate the impact of the pilot project against these outcomes.
3. Identify the key lessons for further development and delivery of the Strengthening Small Dairy Communities initiative.

4. Assess the effectiveness of the capacity building approach for several case study communities within the Lower Tarwin Valley.

5. Document the impact on the local dairy industry.

This project will provide:

- Clear recommendations for replication of community strengthening projects.
- Identification of required conditions for further investment for the Gardiner Foundation.

**Background**

Investing in the people and communities that make up the dairy industry is critical to the sustainability of dairy farming in Victoria. The Gardiner Foundation is committed to strengthening dairy communities by supporting the development of ongoing capability and skills within these communities. With the recent launch of the ‘Strengthening Small Dairy Communities’ (SSDC) program, the Gardiner Foundation seeks to partner with local governments and the dairy industry to work with and within small clusters of dairying communities in each Victorian dairying region.

The objective of the SSDC program is to increase the ongoing capability of communities to direct and support their own advancement, attract and retain investment, and thus directly contribute to the growth and resilience of the communities and their local dairy industry. Specifically, it is proposed that the program will enhance the capability of communities to:

1) Identify issues, needs, priorities and opportunities
2) Identify and link in to relevant networks and resources
3) Mobilise project teams
4) Win competitive grants
5) Manage projects successfully, to deliver impact at community level.

The Gardiner Foundation has identified South Gippsland, specifically the Lower Tarwin Valley Catchment, as the location for the pilot project, partnering with the South Gippsland Shire Council to develop and implement a community development initiative. This provides the need (and opportunity) to evaluate the impact on the community and understand the attributes of effective community strengthening. Capturing ‘the lessons’ from South Gippsland will then inform delivery elsewhere.

The evaluation of the pilot project in the South Gippsland Shire has recently commenced. A literature review has been completed and research is underway.

**Principal investigator**     Anne Crawford

**Funding**     The Geoffrey Gardiner Foundation

**Timeframe**     January 2011–June 2013

**Contact**     Anne Crawford, T: 0438 240 229, E: acra@unimelb.edu.au
Changing Rooms in the Dairy Industry: Leaving a Legacy from Crises

Project overview

In dealing with industry crises, there is an ongoing tension between the need to protect and develop the current industry configuration (recognising existing investment and opportunities for wealth generation), and the need for transformation and change in a changing environment.

The challenges for dairy communities and the dairy industry are to:

- systematically consider and build the resilience of the industry in the long term;
- recognise the resilience implications of current industry trajectories and retain (or develop) the capacity to reorganise when necessary; and
- respond to crises in a way that is consistent with long-term resilience.

The Changing Rooms project was established to investigate the question: ‘How can resilience be built in the dairy community in order to reduce the impact of crises experienced, and to improve the industry responds during a crisis?’.

The approach

Drawing on resilience and attitudinal segmentation theories, a framework for preparing and responding to crisis for longer term resilience was created. The framework encourages extension providers to explore the diversity of responses to a crisis (commonly influenced by attitudes and beliefs toward the situation and business context), and suggests options for moving towards longer-term resilience. This framework was tested and further developed through conducting a role-play scenario with a dairy industry regional extension committee trialing the use of the framework in a mock crisis situation. Interviews with farmers and extension officers about their experience of industry crisis were also conducted.

Findings

The role-play approach highlighted the prevalence of pre-determined routines that can lock extension teams and industry reference groups into ‘standard’ crisis response activities with a focus on information delivery. The introduction of resilience thinking and understanding and working with a diversity of responses to crisis, although not immediately effective in the mock-crisis situation, did demonstrate the need to embed alternative approaches at a pre-crisis planning stage or in improved post-crisis learning events. Resilience thinking offers a theoretical framework for thinking about the connection (and tension) between crisis management and system resilience. Targeting resilience-building activities and crisis response when there is an increasingly diverse population of farmers and farm management practices and a changing service sector presents challenges. The key principles for pre-crisis planning, crisis response and post-crisis learning are:

1. Understanding and working with the diversity of people and systems, recognising that the crisis will be experienced differently across different farm systems and different parts of the dairy community.
2. Making explicit decisions about where and how to implement change (in which systems, at what scales) to best respond to the crisis.


The framework developed from this project and the lessons from the use of role-play techniques would be applicable to a wide range of extension teams and contexts.

**Outputs**

- A resilience framework for crisis response

**Outcomes**

- Based on the experience of the project, some changes have occurred in the way the local industry group involved is organising itself to respond to issues.
- A number of different groups in DPIV involved in a workshop to consider the application of the project to their industries and regions wish to establish formalised post-crisis de-briefing as a routine practice to inform crisis response planning.
- Continued development of the resilience framework for crisis response is envisaged in participation with crisis response teams.

**Investigators**

Sonya Love, Warwick Waters, Carolyn Dunn, Dr Ruth Nettle

**Funding**

Department of Primary Industry (Farm Services Victoria)

**Timeframe**

January 2010–March 2011

**Contact**

Ruth Nettle, T: 03 8344 4581, E: ranettle@unimelb.edu.au

---

**Retention of People in Dairy Farming – What is Working and Why?**

**Project overview**

Retaining people in dairy farming has received limited attention from research, particularly the link between the on-farm practices that support retention and the between-farm support mechanisms that provide career pathways in regions or in the industry. This research explored the processes involved in aligning on-farm retention practices with employee needs and regional initiatives (including the value farmers placed on retaining people in their farm business and employees experience of efforts to retain them).

The research involved:

- an analysis of industry data concerning turnover and retention on Australian dairy farms;
• a literature review to establish global best-practice in retention in business and identify effective strategies that have been used in different sectors;

• an analysis of employer practices and employee experiences of retention on nine case-study farms chosen for their reputation for retaining people in their region. Seven of the case studies explored employment-based relationships and two explored leasing and sharefarming arrangements;

• a survey of 31 employees regarding their current experiences in dairy farming and an exploration of the main factors influencing intentions to exit employment; and

• a workshop with three Victorian dairy regional groups to consider the research findings and develop draft plans to support retention in their regions.

Findings

• Turnover is estimated to cost the Australian dairy industry between $60 and $200M annually.

• Dairy farming is not alone when examining the global agricultural retention ‘problem’ considered to be a result of:
  o poor working conditions;
  o lack of career development and promotion opportunities;
  o neglect in occupational health and safety; and
  o the availability of alternative employment.

• Dairy farm employees on the case study farms with a reputation for retaining people were retained because of the comprehensive employment strategies of their employers which included:
  o higher than the average pay rates in industry for their role;
  o flexible work hours;
  o limited weekend hours and very long shifts;
  o training and development opportunities;
  o feedback and appreciation for a job well-done;
  o individual attention to career development and mentoring;
  o an enjoyable work environment with good facilities; and
  o varied work.

• Employers were motivated toward employment strategies that suited their preferred working environment and did not necessarily set retention as the primary goal or purpose of their strategies. Retention was the consequence from putting together the work environment they wanted to work in. Employer strategies were therefore ‘an extension of themselves’.
• A model of retention on dairy farmers was developed from this research whereby retention on
dairy farms is a result of considering people, their capability and development as central to
farm business success, and people-focused employment strategies that are put into practice
on a daily basis. These strategies simultaneously support the farm business goals, skills
development on the farm and future steps for their employees, all of which are also attractive
to the best employees. Industry and service groups contribute to the process by providing
opportunities to consider the importance of people in farm business success, in developing
people-focused employment strategies for individual farms and in the sharing of strategies
with other farmers. There is potential for industry to better recognise and use best-practice
employers for profiling career options and funnelling training options and high potential
employees into good jobs through this network as part of attraction and development efforts.

Output
A final report is available.

Outcomes
• The industry has increased knowledge about dairy farm retention issues from an employer,
  employee and regional group perspective and the cost of turnover to industry.
• The dairy industry has real-world case-studies of retention of people in dairy farming to share
  best-practice examples.
• Dairy regions are better able to support retention of people in their region and improve their
  farm workforce planning and action.

Investigators          Dr Ruth Nettle, Augusto Semmelroth, Aman Ullah, Dr Connie Zheng, Dr
                      Rebecca Ford (University of Melbourne and Deakin University)
Funding                The Gardiner Foundation
Timeframe              June 2010–August 2011
Contact                Ruth Nettle, T: 03 8344 4581, E: ranettle@unimelb.edu.au

Project 3030

Project overview
• Determine the adoption challenges to farm business that use new forage technologies in 3030
  under dryland conditions.
• Identify effective strategies that partner farmers in 3030 use to capture opportunities and
  manage risks that arise from new technologies.
• Describe and understand advisory support network around 3030 forage management
  principles.
• Develop effective 3030 extension tools and strategies.

Outcomes targeted
1. Supporting effective extension – ensuring fit-to-farm.
2. Explaining how partner farms contribute to project outcomes.
3. Explanations for how a large project and its processes work to increase the relevance, speed and reach of project developments.

Outputs
1. Eight milestone reports for investors.
2. Academic publications.

Progress and findings
Social research conducted within Project 3030 (as Module 8) has developed knowledge in:
• the adaptation challenges to farm businesses that use forage production technologies under dryland conditions;
• effective strategies that partner farmers used to capture opportunities and manage risks that arise from using these technologies;
• understanding the advisory support network for 3030 forage management principles; and
• integrating multidisciplinary knowledge to develop Project 3030 principles and messages.

Implications for innovation management and recommendations for the dairy industry
1. Project teams, including those with governance responsibility, have clear and mutual understanding about the change goal they are working towards, who will benefit and the value proposition for the broader industry.
2. A detailed analysis of the role of service providers and the value proposition for different service providers in engaging in industry-good change programs is required.
3. The Partner Farm approach continues to be adapted, improved and its lessons shared to support innovation and benefit industry.
4. Large multidisciplinary projects include Social Network Analysis as a diagnosis tool to support project teams better understand relational influences in knowledge networks.
5. Large multidisciplinary projects include dedicated collaboration leadership and facilitation to guide and monitor knowledge creation and sharing.
6. Communication protocols for RD&E collaboration need to be explicit from the outset of projects and monitored throughout the project life cycle.
7. Research frameworks include consideration of risk and risk perception when addressing on-farm application of innovations.
8. Appropriate conceptual frameworks that provide meaningful social logic to project designs be developed to support and complement project implementation.

9. The early inclusion of suitable interdisciplinary deliberative processes to enhance communication and reflexivity within large multi-disciplinary projects.

10. The Module 8 Project 3030 Advisory Tools package be developed further as an extension training package.

Publications


Investigators


Funding

Dairy Australia and the Gardiner Foundation

Timeframe


Contact

Barbara King, E:b.king3@student.unimelb.edu.au

The People in Dairy – Insights to Change

Project overview

Enhancing ‘people management’ on dairy farms is now a critical challenge for the industry and a key to continued growth. This Dairy Australia program is designed to assist farmers as they improve how they attract, deploy, retain and develop the people they need to achieve the strategic visions of their businesses.

RIRG’s involvement is at several levels: undertaking research for improved understanding of ‘people’ issues in the dairy industry; leading the development and implementation of the program’s evaluation strategy; and identifying future research and development directions.

The Insights to Change project aims to understand the nature of change on dairy farms in relation to people management and the role that advisers have had in supporting these changes. Research findings will be used to highlight the experiences of farmers dealing with people issues, and guide further work into helping support the learning process of farmers.

Industry outcomes

1. Robust indicators for evaluating people-orientated interventions on farm.

2. A more detailed analysis of ‘People’ in the Australian dairy industry.

3. Evaluation of the In2Dairy program to advise stakeholders on what works and why in the local level coordination of workforce planning and action.
The Alpine Valleys Dairy Pathways Project: A Case Study of Sustainable Regional Development under Market Governance?

Project overview

For the last eighteen months a group of interested people representing the dairy industry, local government and local communities have been exploring the issues facing the future of dairy in the Alpine Valleys region of north-east Victoria. The group is now preparing to undertake a major project focused on increasing investment in dairy in the Valleys – the Alpine Valleys Dairy Pathways (AVDP) project. The group believes that increased investment in dairy will strengthen the economic, social and environmental health of the valleys.

RIRG is developing a research agenda linked to the AVDP project, focusing on the project as a case study of collective action for sustainable development. The research questions to be addressed are:

1. How is the sustainability of dairy farming as a component of the Alpine Valleys regional economy changing over time?
   a. What is the nature of the opportunity for expanding dairy production in the Alpine Valleys?
   b. What are the opportunities and challenges around the sustainability of dairy farming?

2. How are the roles and actions of the project players influenced by the current policy and institutional context?
   a. How have their roles and actions changed over time?
   b. How do the current roles and actions influence the sustainability of the development opportunity that is being pursued?

3. How can local collective action in agricultural supply chains contribute to sustainable food systems for Australia and globally?

Outcomes targeted

This research will add to the body of knowledge about how multiple stakeholders in agriculture-based regional economic development can collaborate for sustainable development.

Principal investigators

Michael Santhanam-Martin (PhD candidate), Dr Ruth Nettle, Dr Fiona Miller

Funding

University of Melbourne
The Valuing People Project

Project overview
The aims of this project are to:

- quantify the contribution of people management to dairy farm business success; and
- identify people management practices that most strongly contribute to successful dairy farming.

Research toward these aims may add to the business case for farmers to focus attention on people management. It will help farm advisors and programs such as The People in Dairy to formulate their advice to farmers on this topic. More broadly, people management is recognised as being an area needing more study in small and family businesses (Kidwell & Fish, 2007), and this project should make a new contribution to this literature. The limited number of quantitative studies in the SME literature has meant there have been practical and methodological challenges in designing this research. The pilot phase has provided an opportunity to refine these aspects before committing to a large sample. This report describes the development of a research design and of research tools including questionnaires and recruitment protocols.

Summary of progress to date
The project has reached the stage where the methodology is complete and pilot data collection is ready to commence. Progress has been as follows:

1. A brief literature review led to identification of concepts and a conceptual model for testing using quantitative research methods (the psychological contract in employment).
2. The model was validated in discussion with advisers and experts in dairy farm management and a research design developed.
3. Research tools have been completed including: recruitment protocols, and paper and on-line versions of questionnaires to measure subjective employer and employee understandings of their employment relationships.
4. The above tools have been pre-tested and refined with relevant samples.
5. Red Sky Agricultural has been contracted to collect data according to the protocols.

Outcomes targeted
The dairy industry is better able to articulate the benefits from improved people management in farming and has identified critical practices that contribute to farm performance.

Outputs
The methodology and tools for conducting the research have been developed.
The Application of Dairy Farmer Attitudinal Segments (DAFS) for Industry Change – Lessons and Next Steps

Project overview

This project tests the application of the Dairy Attitudinal Farmer Segments (DAFS) to existing dairy projects (Waters et al., 2009, Nettle et al., 2010). Three case studies (at a project, program and regional level) will be conducted and reviewed. Of specific interest is the value of using DAFS to provide relevant farmer characteristics that will influence the development of targeted messages, work with farmer preferences for information delivery and help understand the diversity of motivations toward change.

A second focus of the project will be to investigate opportunities to improve the efficiency of the DAFS method by testing the use of less attitudinal statements to establish DAFS segments and reviewing the characteristics that are measured. The value of the current attitudes used to develop the segments will be explored as well as seeking additional attitudes that may be useful for strategic planning and extension practice. This work will be completed in consultation with end users and a review of research on farmer world views.

DAFS have already been used in projects to explore the motivation and barriers to adoption of new technology, to quantify potential markets and to target communication strategies. This project seeks to improve the efficiency and effectiveness of the DAFS method in these areas, increasing its usefulness as a tool for the dairy industry.

Outcomes targeted

Dairy industry projects and programs routinely apply DAFS to target and improve project design and delivery.

Outputs

A report outlining the experience of project teams in applying DAFS and a synthesis of the strengths, weakness, usefulness and barriers to applying DAFS to improve the reach and targeting of services to farmers. A guide will be produced for project teams in applying DAFS.

Publications

A summary of the original findings from the DAFS project has been published.

Principal investigators

Dr Ruth Nettle, Warwick Waters, Sean Kenny
Completed PhDs 2010–2011

Brent Collett

Changing rural water management: the social dimensions of regional and farm level irrigation technologies

This research explored the processes involved in the implementation of Total Channel Control technology in the Goulburn and Macalister regions of Victoria and explained how the social dimensions of technologies play their part in innovation for improved water resource management. The thesis outlines:

- The major factors responsible for the evolution of Total Channel Control (TCC) technology
- The responses and intentions of different communities of interest to Total Channel Control
- The implications for design of appropriate interventions to accompany TCC to improve water resource management

The thesis highlighted the need for water policy to engage irrigators as active partners in technology implementation. The thesis was highly commended by examiners in the depth analysis of the introduction of TCC and in contributing to the body of knowledge of the relationship between technology and society and adoption of technology, social learning and the issues associated with the introduction of new irrigation technologies in the context of rural settlement and historical water management.

Caroline Sinclair (nee Dunn)

Making sense of social research in forestry - an exploration of interactions in an interdisciplinary research process

Problems involving natural resource management, particularly competing land uses, are often thought to inherently be social problems. Despite this, social researchers have faced challenges in contributing to these problems. A critical challenge is lack of understanding of social science by natural scientists, policymakers and non-academic research partners, such as industry. The complex nature of these problems requires coordination between these stakeholders with trends toward collaborations which involve a broader range of academic and societal stakeholders as a new ‘mode’ of knowledge production. This thesis conceptualised the processes in which social scientists and others engage to make social research usable. The study used a narrative ethnographic approach studying collaboration between social researchers and foresters in the Cooperative Research Centre Forestry (CRC) Communities Project based in Australia. Natural-social scientific interdisciplinarity was considered to be facilitated by two interactive processes. The first, ‘reframing’ involved participants engaging in
questioning and clarification as well as mutually learning each others’ vocabularies and concepts. The second, ‘stretchy narratives’, referred to participants’ expanding their original narrative to incorporate critical features of others’ narratives. These constituted integrative practice in this interdisciplinary collaboration, adding to previously abstract conceptualization of integration. The lack of obvious ‘disciplinary’ struggle, suggests that in some interdisciplinary collaborations, particularly those with non-academic stakeholders, philosophical differences may be less relevant than social scientists have previously argued. The research suggested that those working in natural-social science collaborations in environment and natural resource management problem settings can make social research usable by adopting a gradual and incremental approach to educating and learning from others; engaging opportunistically in teaching moments.

Anna Witasari

**Community-based forest management in Indonesia**

Dr Witasari explored the links between forest rehabilitation in protected areas and the devolution of Indonesian forestry management in Lampung, Sumatra, Indonesia. The exercise of power, and cultural change, underpin both phenomena. Building on ethnographic research, Dr Witasari analysed how struggles for access and control over resources are manifest in the landscape, and reflect in-migration, power relationships, and changing laws and regulations. A post-colonial conservation ideology underpins complex landscape transformations, requiring ‘negotiation’ between actors over use of forest areas and productive activities.

**PhD Student Status**

<table>
<thead>
<tr>
<th>Student</th>
<th>Topic</th>
<th>Supervision</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Barbara King</strong></td>
<td>Collaboration in action – knowledge sharing in Project 3030</td>
<td>A/Prof Mark Paine A/Prof Ruth Beilin Dr Ruth Nettle Dr Callum Eastwood</td>
<td>Gardiner Foundation/ Dairy Australia</td>
</tr>
<tr>
<td><strong>Michael Santhanam-Martin</strong></td>
<td>The Alpine Valleys Dairy Pathways project: A case study of sustainable regional development under market governance?</td>
<td>Dr Ruth Nettle Dr Fiona Miller</td>
<td>University of Melbourne</td>
</tr>
<tr>
<td><strong>Sonya Love</strong></td>
<td>Catchment management and science organisations</td>
<td>Assoc/Prof Mark Paine Dr Cameron Gourley Dr Alice Melland</td>
<td>Dairy Australia/ Deptartment of Primary Industries Victoria</td>
</tr>
<tr>
<td><strong>Ros Gall</strong></td>
<td>Dairy farmers’ commitment to their dairy company.</td>
<td>Professor Bill Schroder Dr Ruth Nettle</td>
<td>University of Melbourne</td>
</tr>
</tbody>
</table>
Publications 2010–2011

Publishing research outcomes and discussion papers ensures that there is a contribution by RIRG to theory development. Further, publications provide an opportunity for RIRG researchers to gain feedback in the form of peer review, think about new approaches and ideas, and also provides a legacy from our work. Whilst journal papers are the priority, the contribution to conferences has also been significant in the past 12 months. Two book chapters and six journal papers were published in 2010–2011, whilst two journal papers are in press. Ten conference papers were submitted and presented. A further eleven reports were compiled for stakeholders from research efforts. Three PhD theses were published this year.

**Book chapters**


**Refereed journal papers**


**Conference papers and posters**

1. Ayre, M. 2010. ‘Learning to be an Aboriginal Ranger: inductions into a strategic cross-cultural knowledge community’, presentation at the Education and Training Key Forum, Garma Festival of Traditional Cultural, 10th August, Gulkula, Northern Territory.


Reports


Theses (2010-2011)
