

SEARCH CRITERIA

Model	Model A: Empowerment Model
Industry	Dairy
Focus/Level	Industry
Outcomes	Building management skills, Building individual confidence
Special Interest Groups	Other

1. PROJECT TITLE:

National Dairy Farming Systems [NDFS]

2. FUNDERS:

Dairy Research and Development Corporation

3. PROVIDERS:

Institute of Land and Food Resources,
University of Melbourne

4. KEY CONTACTS:

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Dr Mark Paine, University of Melbourne, Parkville, Vic, 3010, ph 03 8344 8096

5. INDUSTRY/ISSUE/GEOGRAPHY:

Across Australia there are a number of projects taking a farming systems approach to developing new knowledge and learning to help farmers develop sound farming businesses. Farming systems RD&E is a multidisciplinary approach which employs systems thinking, and when successfully implemented, enables a high level of industry learning and an enhanced capacity to achieve economic, environmental and social outcomes.

Beyond the traditional small-farm (farmlets) approach, other methods include desktop studies, modelling and on-farm demonstrations. The key is to pull these different approaches together to ensure that there is a good fit between each project's basic questions and the tools used to deliver the answers.

With a number of regionally based farming systems projects operating in the dairy industry, a need for a national approach to integrate this work was identified. This led to the appointment of a Farming Systems Extension Leader (Ms Anne Crawford) in February 2001, and the development of the National Dairy Farming Systems project. Project development commenced from the outset of Ms Crawford's appointment. Funding by the Dairy Research and Development Corporation was finalised in April 2002.

6. PROJECT CONTEXT:

The future viability of Australian dairy farming will depend on our ability to develop farming systems that deliver adequate returns on the capital invested, and that also enhance or maintain the status of our natural resources. Various projects across

Australia are dealing with parts of this issue, but no project has explicitly sought to capture and integrate the opportunities by:

- focusing investment on the key issues of national importance to the dairy industry of the future, (such as water use, return on capital invested, and emerging environmental challenges),
- ensuring access to this information by all Australian dairy farmers, and
- providing more effective learning on these issues across Australia.

7. PROJECT NICHE (SPECIFIC OBJECTIVES):

1. Identify and provide new knowledge on key national issues by cross-site integration, through the use of collective expertise and innovative farming systems tools.
2. Test new learning resources, and use existing resources more effectively, to improve productivity and environmental outcomes through advances in the design and evaluation of learning processes that operate in farmlet projects.
3. Test a new framework for guiding investment in farming systems RD&E by real-time comparison of empirical, modelling and systems research approaches.

8. PHILOSOPHY/APPROACH:

The group facilitation/empowerment model is the best fit here – seeking to increase the capacity of farming systems research and development in the Australian dairy industry. We are working with researchers and extensionists involved in farming systems projects nationally, and also have the involvement of several key farmers contributing to aspects of project development.

It is worth noting that farmers are the ultimate beneficiaries, not the primary clients, of the national farming systems project. All national support to farmers operates through the local extension teams, including private providers. This avoids duplication and minimises the risk of confusion from multiple, potentially conflicting messages.

9. RESOURCES, MANAGEMENT AND STAFFING STRUCTURES:

Project staff include Ms Anne Crawford (100%), Dr Mark Paine (10%) and Dr Roger Barlow, DRDC (10%). Anne Crawford has a role as the farming systems extension leader, and is effectively the project manager for this project. Mark Paine and Roger Barlow provide guidance in their respective areas of expertise. Anne's position is funded through DRDC via the Regional Development Programmes, whilst the project itself is directly funded through DRDC. Total budget for both the position and the project totals approximately \$160K per annum.

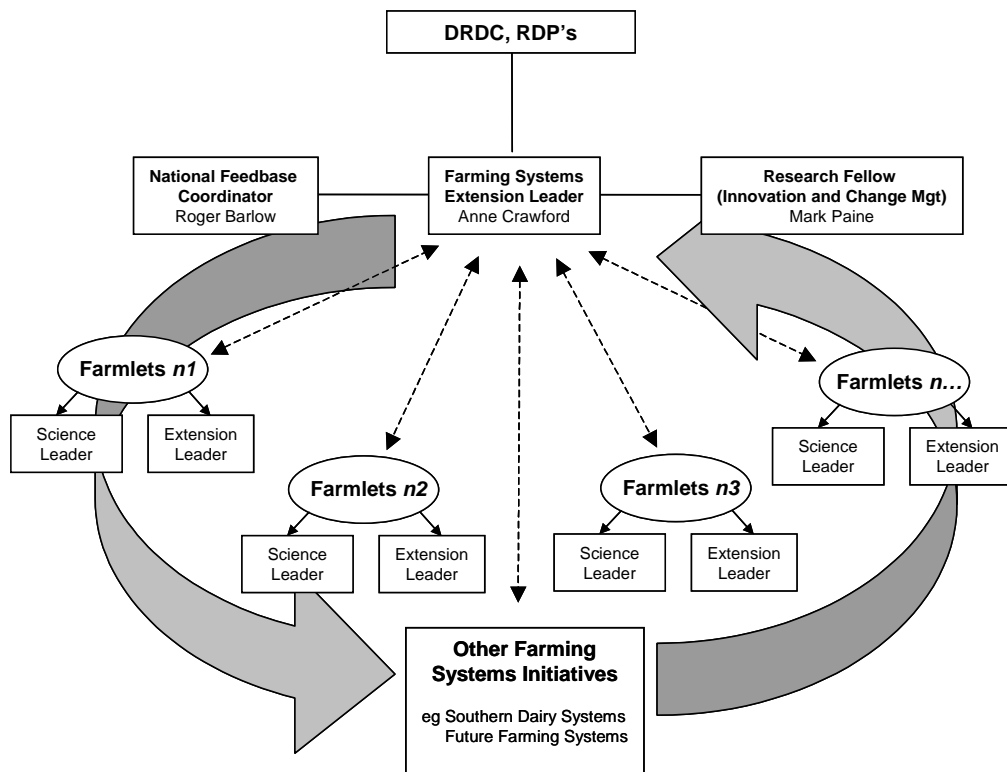
10. PROCESS/METHODS USED:

To achieve these objectives, there are three main areas of activity, or sub-projects. These are under the combined stewardship of Dr Mark Paine and Dr Roger Barlow as project co-supervisors, with the support of Ms Anne Crawford, the Farming Systems Extension Leader.

a. Coordination of RD&E Focus across National Issues: The essential elements for making this happen are considered to be; agreement on the key issues and targets, shared data sets, common protocols, models that embrace the current pasture,

cropping and supplementary feeding systems and coordinated learning among the stakeholders. Fundamental to achieving the objectives of this project will be the need to link outcomes from farming systems RD&E with farmer needs using a business decision making perspective that is based on robust economic analysis. To this end this sub-project is established to get these enabling elements in place and working, and to deliver coordination of effort across the research sites in each state. This sub-project is lead by Anne Crawford.

b. Coordination of Learning: Broad scope exists to maximise the farmer learning opportunities from farming systems research. Currently, each farmlet study has an individual communication strategy in place, however there are increased benefits to be derived from an overall strategy to nationally link the farmlet studies, and ensure that learning outcomes are relevant to farmers across the country. This will involve contributions from each farmlet research and extension team in conjunction with the Farming Systems Extension Leader, and will complement both existing local farmlet communication strategies and regional extension programmes. Where possible, innovative learning technologies will be utilised to maximise adoption by farmers. This sub-project is led by Mark Paine.



c. Framework Development: A collaborative sub-project will be undertaken by Australian and NZ (AgResearch) research and extension officers to deliver, test and promote a framework for use in the conduct of farming systems projects. This work will be led by Roger Barlow in conjunction with Gavin Sheath (AgResearch, NZ), and Dave Clark (Dexcel, NZ).

This figure is diagrammatic of the project role working to integrate and support existing farming systems projects in the dairy industry. It should not be viewed as a hierarchical approach [top down] - rather, a continuum between our project and the existing and developing regional farming systems projects.

11. IMPACTS TO DATE (AND EVALUATION APPROACHES USED):

To date there has been little formal evaluation of the national dairy farming systems project, although a formal project review will be occurring in the forthcoming months. The project is also a case study for Jane Weatherley's PhD [University of Tasmania] which should provide some insight of the project's effectiveness, strengths and weaknesses.

12. EFFECTIVENESS:

See above.

We have some 48 individuals on our in-house email discussion list, which we would consider to be members of the broader farming systems team within the dairy industry. Whilst not comprehensive of all farming systems researchers and extensionists, they are people have been involved in our project at some point [eg attending the farming systems workshop to develop the Guidelines, or part of the group using DairyMod with their research data].

The following provides an overview from the last Milestone Report which outlines the variety of activities, learning and support to project teams that the NDFS project facilitates. It's provided here to give you an idea of the breadth of the project and diversity of people that we work with.

- The biophysical modelling of farming systems projects has progressed with a recent 2-day workshop in Melbourne. Project teams are now confidently using DairyMod to explore, extrapolate and question their data, and model likely outcomes for changes in treatments.
- The use of modelling within farming systems has been further developed, with the national project team working with the Mutdapilly Farmlets as a case study. This included convening a workshop of the national team, the Mutdapilly project team, John Black (independent project consultant) and Ian Johnson (DairyMod).
- A Product Development Group for the NDFS project has convened, and includes Ron Paynter (GippsDairy), Richard Eckard (University of Melbourne), Bill Fulkerson (University of Sydney) and Warwick Waters (Queensland DPI). At least two further farmer members will be identified.
- Greenhouse gas emissions were calculated for all project farming systems and reported. The use of the Greenhouse Gas Accounting tool demonstrated the need to be able to compare gaseous emissions on a per cow, per litre and per hectare basis, and provided a foundation for discussion about the opportunities to minimise GHG contributions from farming systems.
- The extension strategy for Mutdapilly farmlet was internally reviewed, and a programme and approach developed for the first field day to be held on one of the projects' Companion Farms. The process for this was subsequently evaluated and refined to provide a model for future Companion Farm field days.
- A national perspective was provided to assist DairySA develop a proposal for the comprehensive and efficient delivery of national extension programmes in South Australia. This built upon the Flaxley Extension strategy developed earlier.
- Following the review of the Vasse Milk Farmlets extension strategy earlier in the year, a dedicated senior extension officer was appointed to the project, resulting in strong achievements for the Vasse project team over these past 6 months.

- The development and implementation of an evaluation strategy for Vasse Milk Farmlets was supported, providing a relevant model for use in the evaluation of project awareness for other farming systems projects.
- A variety of communication activities aimed at raising awareness of the project have been undertaken. These include regular feature articles in the Australian Dairyfarmer, updates to the RDP's via E-Chat, an email-based discussion list for the national farming systems team, and development of a website, providing links to Australian dairy farming systems projects. The website will be launched in early 2003.
- Guidelines for Farming Systems Research & Learning were finalised and published. These were based upon the framework that was established as an outcome of a joint Australia / New Zealand workshop, and included case examples of a number of farming systems projects. Copies of the Guidelines have been circulated for use to the broader farming systems team, DRDC, RDP's and other industry bodies.
- A paper based on the use of the Guidelines was presented at the International Farming Systems Conference, Florida, November 2002 by Anne Crawford.

13. PROJECT DOCUMENTATION AVAILABLE:

- 6 Monthly Milestone reports.
- Guidelines for Farming Systems Research and Learning [a publication]
- Protocols for Farmlet Experiments [a publication]
- Also information will soon be available on the website www.farmingsystems.com.au [not yet released].

14. ISSUES:

The biggest challenge, and also opportunity, is that the suite of regional farming systems projects are at different stages of the project life cycle, with some finishing, some in mid-course, and others in development. This is where the NDFS project differs to others with similar approaches [eg MLA's Sustainable Grazing Systems project]. This has added complexity, because there has never been the opportunity to align objectives or approaches across the farming systems projects. However, it has also depth, because it allows projects to build upon the success and learning of other projects.

15.COMMENTS/CONCLUSIONS:

Due to the nature of this project and the variety of project teams that we work with, there has been ongoing adaptation of the project as we have progressed to best meet their needs and ensure further development of the farming systems capacity within the dairy industry.

16.REVIEW METHODS:

This is based upon the personal perspective of the project leader/manager, Anne Crawford.