

Building a robust capability framework to face the fast-growing challenges of the New Zealand dairy industry

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Abstract. The New Zealand dairy industry is facing a period of significant change as it pursues productivity targets while responding to pressure from local and international communities relating to environmental stewardship, animal welfare, health and safety and employment regulations. These changes introduce greater complexity at farm, catchment and industry levels. Demand for specialist advice increases with change. Support involves identifying and integrating the right management changes into farm systems accounting for impacts on environment, finances, people, risk and management preferences unique to each farm. The dairy industry is anticipating the capability gaps and agricultural services required to support farmers over the next decade. Needs will constantly change and the industry will require a more coordinated approach at a sector level. This paper discusses a new programme that addresses these issues by building a robust capability framework for rural professionals. Potential application to Australian agricultural services is also briefly addressed.

Keywords: certification, accreditation, training, consultant, rural professional, farm systems, tools, capability

Introduction

The New Zealand dairy industry is facing a period of significant change as it pursues profitability targets; responds to pressure from local and international communities relating to environmental stewardship, animal welfare, health and safety and employment regulations; and manages substantial price volatility being exposed to the world market. These changes introduce greater complexity at farm, catchment and industry levels.

New Zealand agricultural industry services (especially extension services) have evolved with little or no support from government since the mid-1980s. As such, the majority of services are funded by farmers either through levies or directly to private providers. Some funding is provided by government (especially for research and development) via initiatives such as the Ministry of Primary Industries (MPI) Primary Growth Partnerships (PGP), but the capability, especially for the dairy industry, is provided by the levy-funded industry body (DairyNZ) and private rural professionals. Key rural professionals include DairyNZ Consulting Officers, private consultants (firms and individuals), vets, seed and fertiliser company representatives, banks, accountants, irrigation and effluent design engineers, regional councils and milk companies.

In the face of significant industry challenges the New Zealand dairy industry has identified a need for farmers to increase their use of private rural professionals. Generalists (farm systems consultants) and specialists (e.g. people management consultants) need a coordinated approach to capability development at a sector level. As part of the Dairy Industry PGP, DairyNZ is addressing these needs through targeted capability development involving certification schemes, training, tools and partnerships.

Australia has been facing a decline in state government resources for extension over the past 3-5 years. This is resulting in a reliance on private rural professionals similar to New Zealand. Reliance on the private sector comes with challenges such as effectively targeting and structuring capability development towards industry needs; having confidence in the consistency and quality of service delivery; ensuring that public good issues such as environmental management and emergency response can still be addressed; and articulating the role and value of private rural professionals to farmers such that they are prepared to pay for their services.

This paper describes the New Zealand dairy industry approach to private sector capability development to meet the current challenges. We briefly address how the lessons could be applied in the Australian context given the decline in government extension services.

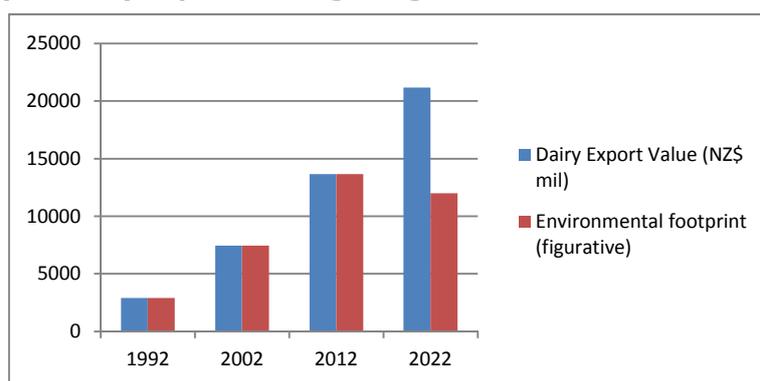
The burning platform – industry growth targets and constraints

The New Zealand Dairy Industry Strategy is focussed on being competitive and responsible (DairyNZ, 2013). The Strategy has ambitious growth targets, aiming to achieve 55% increase in export earnings from efficiency gains on farm and value add by 2020 – moving from NZ\$12.6 billion in 2012 to NZ\$19.5 billion in 2020. At a farm level, the industry is targeting a

NZ\$65/ha/year increase in profit from increased efficiency – up from NZ\$50/ha/year achieved in the last decade.

At the same time, the dairy industry is facing significant environmental constraints resulting from the National Policy Statement on Freshwater Management (Ministry for the Environment 2014), especially in relation to nutrient management. In most catchments, regional councils are currently enforcing the development of Farm Environment Plans which target best practice environmental management and maintain current levels of nutrient loss. Beyond 2020, the aim in several catchments is to reduce the environmental footprint from current levels. This tension between growth and environmental footprint is expressed in Figure 1. Nutrient loss targets are in most cases set by a modelled (Overseer) output on each farm which is directly influenced by production inputs e.g. cows/ha (urine and faecal excretion), effluent management and infrastructure, feed and fertiliser. So, increasing profitability, or even staying profitable while meeting environmental targets requires significant improvements in production efficiency.

Figure 1. Dairy industry export earnings targets and relative environmental footprint



In addition, the industry is highly exposed to the world market, resulting in price volatility. The 2012 benchmark was achieved at a price of NZ\$8.10/kg MS, while the 2015-16 outlook is currently below NZ\$4.00/kg MS. Additionally, input costs are continuing to increase. Therefore, at the farm level, resilience and production efficiency are critical for achieving growth targets.

As well as environmental management, communities (and industry) are placing increased pressure on farmers to improve animal welfare, people management and health and safety practices. These issues add further complexity to the task of farm management.

Achieving efficiency gains, resilience and compliance requires:

- New technology to create efficiency gains and environmental mitigation strategies.
- Greater skill on farm to manage more complex systems and technology change.
- Rural professionals providing advice in specialist disciplines.
- Rural professionals capable of using a whole of systems and business approach to identify risks and opportunities, integrate specialist advice, and support implementation.
- Industry programmes and infrastructure providing a coordinated approach to capability development and implementation.

The required rate of change to address the challenges described above is unprecedented. Failing to respond fast enough, and with quality results, risks the loss of faith by consumers, public, regulators and markets. The gap in both the number and capability of rural professionals is one of the biggest hurdles to be overcome. This is discussed below.

Servicing farmers in the New Zealand Dairy Industry – the current state of play

The key difference between services provided in the New Zealand dairy industry as compared to Australia is that there is no government extension service. DairyNZ as the levy-funded industry body plays a much bigger role, maintaining its own capability across research, development and extension. Here we describe the services and capability within DairyNZ and key private rural professionals as these provide the core resource base for a capability framework.

DairyNZ Developers and Consulting Officers

DairyNZ employs a Development Team of 41 staff responsible for developing relevant tools, information and training, and leading change initiatives targeted at farmers and rural professionals across all dairy system components. Disciplines include business and economics

(including a large benchmarking programme, DairyBase), people management, productivity, animal evaluation, sustainability, and animal welfare.

A network of 43 DairyNZ Consulting Officers (COs) (including eight regional leaders) run more than 300 discussion groups attended by 6000 farmers (60% of the industry) across the country annually (Sankey 2015). These groups focus on a Whole Farm Assessment (WFA) approach, discussing benchmarks and focus areas on a different farm for each activity. The COs also coordinate specialist group activities, supported by Developers, relating to topics such as on-farm career progression, business management, environmental management and people management. Structured training is provided to COs by the Development team to ensure that they are capable across all disciplines, and are delivering consistent messages. In general, COs do not work one-on-one with farmers, and so have formal processes for referring to a network of specialists or farm systems consultants for tailored advice and support for implementation.

Farm systems consultants

An estimated 150 dairy farm systems consultants are represented by 10 key firms, plus smaller firms and individuals across New Zealand. Firms range in size from 3-35 consultants and each consultant services between 15 and 40 farmers with 6-10 farm visits per year. Based on these figures, around 4000 farm businesses currently use a farm consultant associated with a larger firm, representing around 35% of the industry. The DairyNZ Customer Relationship Management database holds approximately 300 rural professionals listed as farm consultants, so the total number of farmers using consultants may be up to 60%. Survey data from Nuthall and Old (2014) is consistent with this, estimating that on average dairy farmers spent \$4,237/year on decision help, with expenditure increasing relative to asset size and profit.

There is very little data available relating to the value of using farm consultants. However, the DairyPush project (McCall 2014) reported a \$570/ha increase in profitability (\$60,000/farm) as a result of changes made over three years. DairyPush combined a discussion group using benchmarking with a focus farm approach and one-on-one consultancy follow-up for each farmer in the group over a three year period. A key finding was that only a small proportion of farmers were prepared to pay the full cost of the consultancy service, citing that they did not learn anything new; they just implemented what they should be doing anyway. Investing in the capability and increasing the use of farm consultants therefore requires that their role and value is clearly articulated.

Specialists

Examples of specialist services include soil and fertiliser advice, effluent system design and assessment, farm people management and body condition scoring.

Effluent design engineers and nutrient management advisers operate under commercial arrangements through fertiliser or engineering companies. Historically, there have been enough to service the market, although a significant lack of consistency and quality of service delivery has resulted in pressure placed on the dairy industry by regional councils to ensure farmers are achieving environmental compliance standards.

Farm people management consultants make up only a small proportion of rural professionals, and the demand from farmers is relatively small compared to the scope for improvement in people management on most farms, with staff turnover rates at 41% (DairyNZ 2013b).

Body Condition Scoring is conducted by vets and farm consultants as part of their regular work. The industry recognised the large degree of inconsistency between scorers and the corresponding potential to significantly lift reproductive performance and profit if this was addressed.

The Primary Growth Partnership (PGP) Train the Trainer Initiative

The PGP Train the Trainer Initiative aims to address sector capability via certification schemes and training. This is being achieved by:

- Tools and processes for rural professionals using a whole farm systems approach to identify issues and opportunities and plan for change.
- Industry standards for rural professional capability in targeted disciplines via certification schemes.
- Increased capability of rural professionals in targeted disciplines through training.
- Communication and engagement to drive rural professional participation and the use of certified professionals by farmers.
- Co-development with universities and professional bodies to increase relevance, capability and consistency of R&D outputs and messages.

- Partnerships and enabling strategies to sustain change beyond industry support.
- Evaluation of impact at farmer, firm and industry levels.

The industry has identified eight disciplines requiring certification, in addition to training provided through the InCalf programme for reproductive management. A balanced score card analysis was conducted to determine the minimum number of rural professionals required in each discipline to achieve the industry strategy objectives. This is represented in Table 1. In some disciplines (e.g. Nutrient Management Advisers), there is a large base of people operating in the field requiring training and certification; while in others (e.g. People Management), only a small number of advisers exist and more need to enter the field.

Table 1. Balanced Score Card analysis

Capability	Required	Current status
*NZIPIM Certified Farm Systems Consultants (2015)	117	0
NZPIM Certified/Trained Advanced Farm Systems Consultants (2016)	58	0
Assure Quality Certified Body Condition Scorers (vets and consultants) (2013)	312	265
NZIPIM Certified People Management Consultants (2014)	72	5
Fertiliser Association Certified Nutrient Management Advisers (2013)	175	88
QCONZ Certified Dairy Effluent Warrant of Fitness Assessors (2014)	70	16
Irrigation NZ Accredited Dairy Effluent System Designers (2013)	50	21
DairyNZ Trained InCalf advisers (vets and consultants) (?)	388	388

*Based only on fulfilling requirements for development of farm environment plans for regional councils

The development of each certification scheme (represented in Figure 2) has been led by DairyNZ in partnership with a representative professional body which continues to lead the implementation and ongoing management of the schemes. Each scheme has its own governance, renewal procedure and timeframe, conflict management process, competency assessment and publicly available website. A detailed example of how this works for the Farm Systems certification is described below.

Figure 2. Certification schemes servicing the New Zealand dairy industry



Farm systems certification

In the context of the Industry Strategy, Dairy Farm Systems consultants play a key role in supporting farmers with a whole of farm systems approach to identify issues, risks and opportunities on farm; identify and analyse options in line with farm business goals; refer to appropriate specialists; facilitate planning for change; and provide ongoing support for implementation.

Key industry initiatives requiring services from Farm Systems Consultants include DairyBase, a farm benchmarking programme producing financial data on over 2500 farms annually; and the development of Sustainable Milk Plans (Farm Environment Plans) as part of regional council consenting processes. The Balanced Score Card analysis indicated that a minimum of 117 Certified Dairy Farm Systems Consultants would be required to meet the demands of the DairyNZ Sustainable Milk Plans initiative alone. A further 58 farm systems consultants would require higher level skills (advanced modelling, strategic management, investment analysis and risk assessment) to assist farmers with systems change analysis in response to imposed nutrient loss limits. To meet this need, an Advanced Farm Systems Certification and/or a requirement for specific post graduate training is proposed.

The whole of farm systems approach requires consultants to work in a different way than what they are used to, and with a broader set of skills, especially relating to whole farm assessment, financial analysis and environmental management. These are key areas of focus for Farm Systems Certification and corresponding training.

Collaborative development and resulting uptake of Dairy Farm Systems Certification

DairyNZ has worked in partnership with the New Zealand Institute of Primary Industries Management (NZIPIM) to develop and implement the Farm Systems Certification Scheme. NZIPIM is the peak body representing rural professionals. It aims to build capacity and capability of its members through communication, networking and partnerships with industry and education providers. Building the strength and membership within NZIPIM such that it is capable of leading the certification schemes has been a key focus for the PGP initiative.

Senior and junior consultants representing eight firms have had input into the development of tools, training and assessments, ensuring they are kept relevant to the profession. These consultants played a key role in defining the role and capability of a farm systems consultant in a way that it can be clearly articulated to farmers and organisations.

Agri One, a collaboration between Lincoln and Massey Universities, is involved with co-development and delivery of training. This three-way development partnership between DairyNZ developers, consultants and academics across disciplines is critical for achieving efficiency in the development of resources, capability development, and long-term consistency in delivery of messages to farmers, rural professionals and students.

The partnerships with consultants have also been critical for establishing the value proposition and resulting buy-in from key firms who are now paving the way for participation, providing an incentive for other consultants to get involved. The scheme was launched in May 2015 with collaborating consultants indicating they had high confidence in the certification process, and that it would add value to their firm. They indicated that 65 consultants (of 90) from their firms would become certified. Key motivations for being certified were: incorporating as part of firm standards; risk of not being recognised professionally; promoting excellence and professionalism in the industry; providing self and clients with confidence/certainty; securing project work; identifying strengths and weaknesses in capability; and undertaking targeted training.

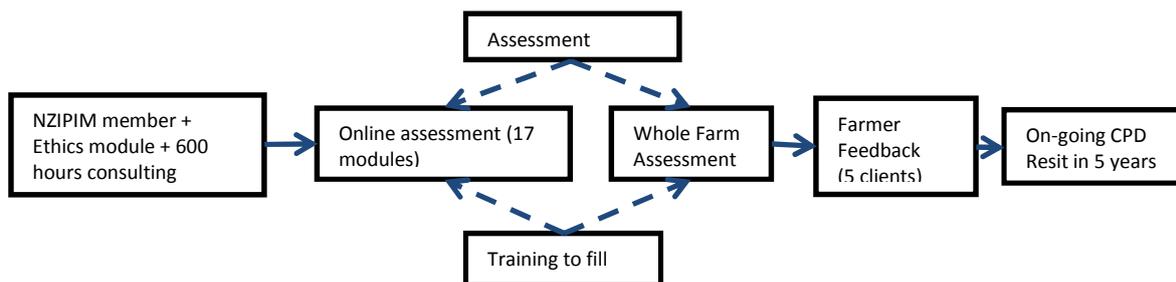
Three firms also report that the scheme is providing structure for capability development. These firms are identifying individuals in their firms to become certified in specialist disciplines such as people management, nutrient management and effluent Warrant of Fitness Assessment so that they can operate a team approach within the firm. They also indicate that they are starting to refer to certified professionals from outside their firms where there are gaps in their own capability.

The assessment process

The process for becoming an NZIPIM Certified Farm Systems Consultant (Figure 3) involves completing: an online Ethics module; 600 hours consulting practice/year; an online assessment of skills and knowledge; a Whole Farm Assessment process and report; farmer feedback from five clients; and ongoing continuous professional development (CPD) in line with NZIPIM membership CPD requirements.

Assessment Criteria (available on the NZIPIM website) provides detail about the skills and knowledge that need to be demonstrated across nine competency areas. Key reference documents and tools align with each competency, providing credibility to the assessment.

Candidates are not required to complete training as part of their assessment, although training is being developed and delivered in line with key competency areas if a consultant needs to address gaps in their capability. The modules are delivered by consultants, academics and DairyNZ developers and include Farm Financial Management, Environmental Management (development of farm environment plans), Sustainable Nutrient Management, Dairy Production Systems, InCalf (reproductive management), Farm People Management, Consultant Skills and Whole Farm Assessment. Time is the biggest constraint for rural professionals undertaking training, and so a blended online/face-to-face approach provides flexibility to work around busy schedules. University credits are aligned to each module at the Graduate level.

Figure 3. Process for becoming an NZIPIIM Certified Farm Systems Consultant

The Whole Farm Assessment process

Originally developed for use by DairyNZ Consulting Officers (Sankey 2015), the Whole Farm Assessment process has been adapted for use by private consultants, and is key to providing structure to training, assessment, and ongoing implementation of a whole of systems approach. The consultant or team uses the information gathered to provide a summary of strengths and weaknesses across all farm systems components, and provides recommendations (and associated analysis) for three key areas requiring improvement towards meeting the farm objectives. A specific, measurable, attainable, relevant and time-bound (SMART) action plan is then derived with the farm team in a follow-up meeting and provides the way forward, supported by the consultant (and referred specialists) in the short term.

Consultants who used the Whole Farm Assessment in a pilot programme indicated that the process allowed them to look for risks and opportunities across all farm system components, rather than just those components they are most comfortable discussing. The process also allowed recommendations to be made in the context of the whole farm system consistent with the business objectives of the farm.

The consultants indicated that the full process is too costly (around NZ\$4,000-NZ\$5,000/ farm) to use across every client, even though it has proven value – 38 case study farmers undertaking a Whole Farm Assessment with a DairyNZ Consulting Officer improved profitability on average by more than NZ\$90,000/farm (Sankey 2015). Importantly, consultants indicated that the skills they had gained in establishing goals and identifying risks and opportunities across the whole farm system would be applied outside of the process itself. This is very important when determining the capability required to develop farm environment plans or to use a systems approach for nutrient management.

Key findings from development and implementation of certification schemes

The development process used to build the certification schemes relied on monitoring and evaluation data to adapt and learn from experience. We will now summarise the key findings emerging from this process.

Regulation drives delivery of public and industry good by the private sector

The shift towards environmental regulation in New Zealand is playing a significant role in changing the focus of industry-run programmes and the work of rural professionals. Determining who pays for this change is a work in progress. Compliance costs fall to the farmer in New Zealand (no freeriding). When the scale of change moves from farm to catchment the costs become highly contested between land-users and regulators.

Industry plays a role both in influencing environmental policy, and in ensuring the support is there for farmers to make the required adjustments to their management. This has influenced the focus of the certification programmes, with the Farm Systems, Nutrient Management, Effluent Design and Greenhouse Gas certification all designed to ensure private sector capability to assist farmers to make the required changes and demonstrate good management practices to the wider community.

Certification allows the industry to identify and articulate the role and value of rural professionals

Certification enables the industry to determine its capability requirements to meet the demands of farmers and regulators in the face of change. The process of developing the schemes has also resulted in the ability to clearly articulate the role and capability of rural professionals to farmers, regulators and other referral agents such as banks and accounting firms. While it is too early to determine the impact on farmer demand, there is evidence of the value placed on the

certification schemes by regulators associated with regional councils. The dairy industry is able to demonstrate that its certified professionals have sufficient capability to work with farmers on issues relating to compliance, potentially lessening the auditing burden on farmers.

Certification and tools provide structure for capability development

Defining the capability requirements of rural professionals via assessment criteria across each discipline has been of significant value for providing structure to capability development. This is also relevant at the firm level, where firms are beginning to use the schemes to ensure they have both generalist and specialist skills available. They are using the Dairy Farm Systems assessment criteria, online assessments and Whole Farm Assessment tool to discuss with staff where they need to up-skill.

Co-development is critical for achieving trust, confidence and buy-into the process

In all certification schemes, DairyNZ has co-developed the assessment material and training alongside the users and their representative body. As described for the Farm Systems Certification above, this has been critical for articulating the value and purpose of each certification scheme, keeping the material relevant to the users, and ultimately achieving buy-in and advocacy from the users. Listening to the senior and junior consultants and being prepared to shape and change the purpose, process and content based on their advice has been critical to building trust and advocacy for the programme.

Inclusion of young consultants in development work has been important to gauge the level of skill in the target market. Informal interviews with firms and a workshop conducted after the pilot phase of the project showed that new consultants were also more likely to buy into the use of tools and processes, while the experienced consultants were more inclined to either adapt the processes or not use them at all. A long term view towards industry change is therefore required.

The rate of development, often slow, is not always in line with the rate of change

Consultants are providing services in a highly volatile dairy farming environment in New Zealand. Certification is therefore being introduced into an already active service delivery market. Enhancing these services depends on a capability framework that promotes a targeted approach to identifying necessary skills and provides flexibility in the provision of training to acquire skills. Programmes such as the Sustainable Milk Plans also require capable rural professionals before there is time to provide formal certification and training. Under these circumstances the industry has put interim measures in place, running informal training and supporting the consultants to learn on the job.

DairyNZ developers play an important role

DairyNZ developers have undertaken the lion's share of development work for the certification schemes. For the Farm Systems Certification, 24 developers, eight consultants and two academics contributed directly to the Assessment Criteria and Online Assessment resources. An initial attempt was made by the Project Leader to develop these using consultants, and it was clear that it was not possible to achieve the required degree of consistency and integrity. Having an entity like DairyNZ that provides the scale and diversity of skills to build and maintain tools and resources is critical. The majority of consultants are better placed to review and trial the material to ensure its relevance, and workability. Interestingly, while the consultants were initially concerned about a bias towards the views of DairyNZ and use of DairyNZ tools, the pilot participants did not find this to be a problem, and learnt about useful tools through the process. They also gained confidence through their ability to influence further development of tools and other resources.

DairyNZ is able to achieve a high degree of coordination and consistency in resource development since its Developers are in a single organisation. This may differ in the Australian context where developers are scattered across several government departments.

Aligning with industry organisations and education providers makes sense but also risks inefficiency and non-delivery

Although DairyNZ as the leader has attempted to create an element of consistency between programmes, each organisation has their own demands on administrative cost, CPD requirements, and time commitments to undertake the appropriate training and assessments. This can place a burden on those that are targeted for multiple certifications (e.g. Farm Systems, Body Condition Score and Nutrient Management). It is therefore necessary for

DairyNZ to work across the organisations and help to draw efficiencies between programmes. This requirement is made easier as DairyNZ has an investment capability that signals collaborative requirements.

To date, none of the certification schemes have achieved full cost recovery status and so DairyNZ will need to provide ongoing support, particularly for the updating of assessment material and training. However, this also has benefits in maintaining linkages between rural professionals and DairyNZ research, development and extension.

There has been mixed success in delivering training via the universities. The Nutrient Management courses developed in collaboration with DairyNZ and run through Massey University have succeeded in delivering to over 160 advisers in two years, certifying 100 advisers. Collaborative development of training in line with Farm Systems Certification has been much slower to develop and implement due to university concerns with intellectual property, and especially a lack of availability of academics that can commit to development and delivery. This is currently being dealt with through the use of DairyNZ developers and private consultants to develop and deliver the training, with lower reliance on academics.

Conclusions

Dairy farm businesses in New Zealand confront an increasingly complex and volatile operating environment. Rural professionals form part of an integrated response to this situation. Together with technologies and skilled farm teams, the rural professional supports effective planning and farm systems management to address complex issues. Certification schemes that are co-developed with professionals from the field have a high chance of improving the consistency and effectiveness of public and private sector information services.

The success of the certification approach requires a high degree of alignment between policy/regulation, development of technical resources and training, and extension services. The resources, infrastructure and capability provided by DairyNZ have been essential for achieving the required alignment, brokering the space between government policy and private sector information services. Success has also required a degree of organisation within the private sector. In New Zealand, this is provided by member organisations (e.g. NZIPIM), the consulting firms, and commercial fertiliser companies. Our observation is that the States within Australia vary considerably in their readiness to adopt a certification programme along these lines, in terms of policy alignment, private sector organisation, and development and extension capability provided by government or industry. We recommend that consideration is given to how these important structural elements are developed and/or maintained in the context of effective service delivery as state governments change their approach to having greater reliance on the private sector.

References

- DairyNZ 2013a, *Making dairy farming work for everyone*, Available from: <<http://www.dairynz.co.nz/>>, [14/8/2015].
- DairyNZ 2013b, *DairyNZ people benchmark survey report* (internal report, unpublished)
- McCall D 2014, 'Responding to the challenge of getting significant change on-farm at pace', *Rural Extension & Innovation Systems Journal*, vol. 10 no. 1 pp. 22-27
- Ministry for the Environment 2014, *National Policy Statement for Freshwater Management*, Available from: <<http://www.mfe.govt.nz/>>, [14/8/2015].
- Nuthall PL, Old KM 2014, Report on a succession and governance survey of a random stratified sample of NZ farmer, NZAEU, Research Report No. 331, Lincoln University.
- Sankey S 2015, 'Are discussion groups still relevant?', *Rural Extension & Innovation Systems Journal*, [In print]