

# PROCESSORS AND FARMERS - WORKING TOGETHER TO IMPROVE OUTCOMES

Sub theme: Knowledge and Information

Victoria Westbrooke and Glen Greer

Lincoln University, Lincoln 7647, New Zealand

## **Abstract:**

*The productivity of New Zealand's sheep and beef farmers has increased over the past decade. However, on-farm productivity needs to lift further for New Zealand's red meat to continue to be competitive in world markets. The Extension Design Project investigated how farmers and processing companies could work together to lift on-farm outcome, by identifying issues and providing support for on-farm practice change.*

*This analysis draws on farmer survey data, semi-structured interviews with coordinators and rural professionals and project documentation. By the end of the second year 75 farmers were participating with the majority (87%) reporting on-farm practice change as a result of the interventions.*

*Critical success factors were threefold. First, farmers' input in identifying issues to address and developing management strategies. Second, processing company coordinators through their interaction with farmers and creation of an open atmosphere in their peer-working group. Third, access to high quality experts; project funded equipment and expertise and the ability to examine issues in a supportive group environment.*

*The coordinators were a vital link between the farmers and processor, but faced a challenge in that they were juggling the project role with their existing job, they also required support due to their lack of extension experience.*

**Keywords:** *extension, sheep, beef, farmers, processing companies*

## **Introduction**

The productivity of New Zealand's sheep and beef sector has lifted over the past decade. For example, average ewe lambing percentage has lifted from 119% in 2004-05 to 127% in 2014-15 and average lamb weight has lifted from 17.5kg to 18.1kg live weight over the same period (Beef and Lamb New Zealand, 2016). Productivity, however, needs to continue to increase if New Zealand is to compete in the international market place with sheep meat and beef (Morris, 2013)

The Red Meat Profit Partnership (RMPP) is a collaborative program set up to “support farmers in the adoption of best practice behind the farm gate and between the farm and processor” (Ministry for Primary Industries, 2015). The RMPP partners are six meat-processing companies, two banks, the farmer owned industry organisation and the New Zealand government via the Ministry for Primary Industries. One project within the RMPP involved the meat-processing partners in an Extension Design Project. The aim of this project is to develop a scalable national extension network that will increase the rate and speed of adoption of knowledge and technology by red meat farmers in New Zealand (Fitzgerald, 2014). This work is novel as it involves processing companies and their field staff who are not usually involved in agricultural extension.

The objective of this paper is to describe, then analyse the strengths and challenges, of the Extension Design Project. The information will assist those working with personnel on the edge of extension. This paper reports on the first two years of the three-year project.

## **Description of the extension program**

### ***Processing company coordinators***

Each processing company assigned one of their staff to work as a coordinator in the project. For all but one of the staff members, the project work was in addition to their existing role with the company, which ranged from livestock buyer to technical support.

The coordinators came together with the extension design manager, a specialist extension professional, project manager, a farmer representative and an evaluator to form a working group (PWG). The PWG was responsible for providing a forum to provide support, encouragement, to share ideas and undertake relevant training. The group met over the first six months prior to farmers being recruited to the project, and then continued to meet on a bi-monthly basis. Potential farmers were identified by the company livestock

buyers then visited individually by the coordinator. The processing companies were looking to build stronger professional relationships with their suppliers, thus coordinators were looking for farmers who, apart from supplying livestock, did not currently have a strong relationship with their company. This approach resulted in a relatively broad cross section of farmers participating in the project, i.e. farmers who would be considered good, along with farmers who had opportunities to improve farm performance.

### ***Opportunities and issues addressed through the project***

In the next stage, opportunities and issues to be addressed were identified. The range of opportunities and issues addressed by farmers were diverse. Some farmers focused on a single issue to be addressed, while other farmers identified an issue to be addressed in the short term with the expectation that others would arise as the project proceeded. For some farmers the opportunity was taken to review their whole farming system, while others chose a much narrower focus.

The next step was developing a management strategy or plan with the participant. In some situations, farmers could clearly articulate the issue so the focus was on developing and implementing a realistic farm plan. In other areas, assisting farmers to articulate an issue was challenging, especially as the coordinators had little experience in extension themselves.

### ***Farmers participating as individuals or through groups***

Initially, the aim for each company was to have a specified number of farmers participating either on an individual basis or as part of a group. As the project evolved this aim was relaxed enabling farmers to participate in a way that best suited the farmer and the processing company. Two of the companies ran two groups each, plus had farmers participating as individuals. Two other companies had farmers participating as individuals, but coming together on an annual basis for networking and updates on the project.

It became apparent over the first year of the project that it would be more efficient for the two smaller companies to contract facilitators to work with farmers in a group format. Facilitators, experienced farm consultants, were contracted towards the end of the second year.

### ***Extension activities***

Given the diverse range of issues being addressed it was not possible, nor desirable, to specify the extension activities that the coordinators should use. Rather, the activities evolved to suit the coordinators, farmers and issues being addressed. It was not the specific activities *per se* that were important, but what they provided. This included external oversight, ideas from group members and visiting experts, motivation and encouragement, and accountability i.e. host farmers reported back to the next group meeting. Whilst new knowledge and skills were provided, the key aspect was validating and adapting knowledge so that it could be successfully implemented in farmers' systems in their particular environments and objectives.

### ***Project funding and evaluation***

The coordinators time and expenses were funded via the project. While farmers' time was not funded, costs such as individual time with consultants was covered by the project. Consultants and experts/speakers' were paid for their time at commercial rates.

Evaluation data was gathered and analysed from the working group meetings by the evaluator, recording narratives bi-annually (Dart and Davies, 2003), from analysing quarterly coordinator reports and conducting an annual survey. The annual survey consisted of a structured interview with farmers and a semi-structured interview with working group members and professionals associated with the project.

### **Results: Outcomes of the project**

At the end of the baseline year, 56 farmers were involved in the project, with 43 included in the evaluation. By the end of the second year the number of participants had increased to 75, with 58 involved in the evaluation. Of the 75 participants, 33 farmers were involved through groups that met on a regular basis and 42 as individuals who met infrequently as a group. Over the eighteen months of the project there were 31 group meetings, both regular and infrequent, and one two-day tour.

### ***Opportunities and issues addressed through the project***

The opportunity to understand more about, and be able to, improve meat-eating quality was listed by the greatest number of farmers (44%). As this issue was pre-determined by

a processing company this was not unsurprising. The second most reported opportunity was improving feed management/supply as a result of improvements in pasture management and the evaluation of different forage species in the farm environment. This issue was investigated by 17% of participants. The next choice involved improvements in livestock growth rates and/or the reduction in the length of the finishing period being requested by 14% of participants in the first year.

For some participants' it was difficult to identify an opportunity or issue. For example, one farming family was unsure of what to focus on in the future. In this case the coordinator involved a farm consultant to help the family identify and describe specific future issues so that plans could be made and put into action.

### ***Farmers participating as individuals or through groups***

Whether farmers participated in groups or as individuals depended on the existence of common issues, their geographical location for travelling to group meetings, their interest in working with others, and, finally, the extension method that suited the processing company.

For farmers participating as part of a group, the main difficulty was the need to have a balance between the focus on the individual farmers' opportunities and those of the group as a whole. Working with opportunities and issues on two levels, the challenge for the coordinators in helping the farmers and groups was significantly increased. A successful example, was the group who wanted to investigate 'lamb growth'. An analysis of the number, weight and quality of animals processed was conducted with individual farmers providing feedback on farm performance. The results were then discussed at a group meeting, allowing farmers to share ideas and benefit from their colleagues.

Other examples of groups with a common interest were a young farmer group, a group of representatives from Māori Trusts, a group addressing soils as a first step to increasing forage yields, and a group that investigated ways to make their farming systems more resilient, particularly in times of drought.

### ***Extension activities***

Coordinators working with farmers as individuals used a variety of extension activities.

For example, for farmers researching the eating quality of meat the coordinator organised the collection of animal data to supplement the processing data collected by the company and organised training for farmers in specialised record keeping software

Another coordinator matched support teams with the farmers. This included, for example, a farm consultant if the issue was the future direction of the farm business or related to the farming system. Someone with forage research experience was included if the opportunity was to trial a new forage. With the 'support team' method, the coordinator kept in regular contact with the farmer, but left the support team to be largely self-directed.

Other extension activities, included, guest speakers at meetings or a farm and processing plant tour. Wherever possible, coordinators connected farmers with relevant events in the industry, this included a farm systems modelling workshop and a programme to assist women to understand their farming business. Farmers also completed a Health and Safety plan and a Farm Environment plan, two requirements of participating in the project.

### ***Project evaluation***

Farmers overall satisfaction with the project, on a scale of 1 (not satisfied) to 5 (very highly satisfied) was high with average ratings of 4.4 and 4.0 at the end of the first and second year respectively. Farmers also rated their satisfaction with the support that they had received highly at 4.1 at the end of the second year. Farmers rated the coordinators as a 'highly' useful source of information with ratings, on average, of 4.6 and 4.1 in the first and second years of the project respectively (on a 5-point scale where 1 is 'not useful' to 5 'very highly useful'). Farmers overall satisfaction with the project could have been due in part to the coordinators. When asked to list the skills and attributes a coordinator would need to be successful, the farmers listed those of an experienced farm consultant, with the two most frequently noted attributes being 'communication ability' and 'the ability to analyse farming systems'. Thus farmers' initial expectations of coordinators was high. There was also a high turnover of coordinators at the start of the project, with only one of the initial coordinators still with the project at the end of the first year.

The issues that farmers addressed via the project were important to them. On average the farmers rated the issues addressed 4.7 on a 5-point scale where 1 is 'not important' to 5

‘very highly important’. Farmers were closely involved in identifying the opportunity/issue to be addressed with 39% of farmers stating that in the first year of the project that they were solely responsible for identifying the opportunity/issue addressed on their farm. A similar percentage (34%) reported that the coordinator had assisted them. Where the issue was pre-determined (improved eating quality of meat), the company was working with nearly half (44%) of the interviewees, yet only 15% of those interviewed believed that the processor alone was responsible for identifying the issue indicating many of participants felt included in the issue identification.

In the first year of the project, farmers on average rated the management strategies being developed as ‘highly’ (4.4) compatible with their current farming operations and considered the results would be clearly observable (4.1). Farmers rated the ability to trial the management strategies as ‘moderate’ (3.2). In the first year of the project the majority of farmers (79%) reported that they themselves had started to develop plans to address the opportunities that had been identified for their farm. Of these farmers, the majority (70%) of the solutions had been developed by a team involving a combination of the farmer, coordinator, researcher and farm consultant.

At the end of the second year, the majority of farmers (87%), made at least one practice change, which they attributed to the Extension Design Project, with almost half (43%) making more than one practice change. Practice change was not necessarily implementing something ‘new’ on-farm. It could involve accelerating a practice change already occurring, increasing the scale of the change, or providing farmers with greater confidence to make the change. Only 5% of participants reported no practice change.

Farmers reported implementing a diverse range of practice changes in their businesses. The most frequently implemented changes were an increase in the level of monitoring and recording (57% of those who had implemented a change). Examples of the monitoring and recording were livestock weights, for example, recording calf weights via scales and a reader, allowing more frequent measurements, dry matter production and intake and financial transactions. The next most frequently reported practice changes were planting a different forage crop (41%) and improvements in soils management (20%), for example, soil testing the whole farm.

Eighteen months was a short time in which to realise outcomes from changes.

Nevertheless, outcomes were by realised by over half (63%) of the farmers who had reported undertaking a practice change, and also over half (55%) of all the total number of participating farmers. Most of the outcomes reported (69% of farmers reporting a practice change, or 38% of participating farmers) related to an increase in factors directly related to livestock production. Examples include increases in stocking rate, an improvement in animal health, or stock being finished (processed) earlier.

## **Discussion**

The success of the Extension Design Project was demonstrated by farmers' high satisfaction levels, both overall and with the support provided, and by the on-farm practice change and associated outcomes achieved during the first two years of the project.

### ***Critical success factors***

One of the key critical success factors was that the issues addressed were highly important to farmers. A high proportion of farmers were involved in identifying the issues to be addressed via the project and it could be argued that this involvement ensured that the issues were important and valuable to the farmers. The more important an issue is to farmers, or indeed anyone, the more likely they are to engage with the project, be motivated to make plans to address the issue, and then successfully carry out those plan(s) to capture the benefits (Pannell et al., 2006). Farmers also recognised that the issues addressed had to be of value to the processing companies as well as themselves. Thus the critical success factor was this 'mutuality of issue' benefiting both the farmers and processing company.

The characteristics of the management strategies selected were another critical success factor in the project. Important characteristics are its compatibility with the existing farming system, the observability of the results of the innovation, and ability to trial the new management strategy (Pannell et al., 2006). Whilst farmers noted that on average the strategies were only moderately trialable, or able to tested on a small scale, the management strategies developed within the project were highly practical and suitable for adoption on-farm. This was most likely due to the farmers' involvement in their selection and development. This utilised the farmers' knowledge of their farming system and environment to ensure that the strategies were realistic and would fit with their farming system and environment, whilst at the same making use of the skills and

knowledge of specialists where appropriate. Thus underlying the success of the management strategies was the involvement of the farmers in determining strategies that would fit with their farming systems.

The coordinators were another strength of the project, both in terms of their interaction with farmers and their contribution to an open and constructive working group. This allowed ideas to be shared and group members to be supported and encouraged. The coordinators were rated as a highly useful source of information by farmers, despite farmers having high expectations of the coordinators at the start of the project.

Three main aspects of the extension activities encouraged farmers' participation in the project and were, therefore, also success factors. The first of these was access to high quality experts/speakers. Farmers reported that as individuals it was difficult for them to meet and discuss issues with these recognised experts. The second motivator was access to project funded equipment and expertise. The equipment was often weight-scales, with expertise provided in the form of specialised record keeping software and assistance to analyse and use the resulting information. The third aspect of extension activities was examining issues in a group environment that provided support and encouragement to group members.

### ***Challenges***

While coordinators were a strength of the project they also faced challenges. These included balancing the demands of their current job with their new role in the project (Klerkx and Leeuwis, 2009) and developing the skills and knowledge required for that role (Klerkx and Nettle, 2013). Early in the project coordinators reported the role could be a full time position, and needed to be juggled with their other work for the processing company, with the latter often having priority. To manage the work, coordinators employed part-time assistance, contracted farm consultants to facilitate groups, and set up self-managing support teams with farmers. As the coordinators were the critical link between the farmers and the processing companies, a high level of their input was important to the success of the project. The time input required from the coordinators, and the requirement to juggle the role with their existing work, may limit the ability to scale up the project in future.

The coordinators also commented that they were not trained in extension thus some of tasks such as identifying issues with farmers and facilitating groups was challenging for

them. For the project team the task was how to provide the required support in the most efficient way. For example, project-recording systems needed to be quick and easy to complete, flexible to meet the needs of different coordinators, able to collect and share relevant information and also provide some of the requested support and guidance. Key methods of providing the coordinators with support were the working group meetings and the availability of the specialist extension manager, both in the field and on the phone. The main challenge was, however, for the project team to provide sufficient guidance to allow the project to proceed as described by Klerkx and Leeuwis (2008) yet allow the coordinators to experiment and use their own knowledge and experience to adapt to their and their farmers situations.

The high turnover of coordinators, in the first year, was also a difficulty for the project. While this turnover was due to a range of reasons, and not necessarily to do with the project itself, it highlighted the importance of having interested coordinators with the right interpersonal skills involved from the start of the project and also recording systems that allowed for a smooth transition between coordinators. While new coordinators developed an understanding of the project, there was a 'loss of momentum' with their participating farmers.

### **Conclusions**

Coordination along the supply chain, such as meat processing companies working with farmers can be a successful way of achieving practice change on farm. For anyone who wishes to encourage this collaboration the issues or opportunities need to be valuable to both parties and both company and farmer need to be involved in the development of the project and subsequent management strategies involved. In addition, appropriate support needs to be provided to the coordinators and the participants, with access to relevant experts facilitated where required.

### **References**

- Beef and Lamb New Zealand 2016. *Compendium of New Zealand Farm Facts*, Wellington, New Zealand, Beef and Lamb New Zealand Economic Service
- Dart, J. & Davies, R. 2003. A Dialogical, Story-Based Evaluation Tool: The Most Significant Change Technique. *American Journal of Evaluation*, 24, 137-155.
- Fitzgerald, R. 2014. Extension framework report: RMPP Project 2.3. RMPP.

- Klerkx, L. & Leeuwis, C. 2008. Matching demand and supply in the agricultural knowledge infrastructure: Experiences with innovation intermediaries. *Food Policy*, 33, 260-276.
- Klerkx, L. & Leeuwis, C. 2009. Establishment and embedding of innovation brokers at different innovation system levels: Insights from the Dutch agricultural sector. *Technological Forecasting and Social Change*, 76, 849-860.
- Klerkx, L. & Nettle, R. 2013. Achievements and challenges of innovation co-production support initiatives in the Australian and Dutch dairy sectors: A comparative study. *Food Policy*, 40, 74-89.
- Ministry for Primary Industries. 2015. Red Meat Profit Partnership. Available: <https://www.mpi.govt.nz/funding-and-programmes/primary-growth-partnership/> [Accessed September 2015].
- Morris, S., T 2013. Sheep and beef cattle production systems. In: DYMOND, J. R. (ed.) *Ecosystem services in New Zealand - conditions and trends*. Lincoln, New Zealand: Manaaki Whenua Press.
- Pannell, D. J., Marshall, G. R., Barr, N., Curtis, A., Vanclay, F. & Wilkinson, R. 2006. Understanding and promoting adoption of conservation practices by rural landholders. *Australian Journal of Experimental Agriculture*, 46, 1407-1424.

**Acknowledgements:** The authors would like to thank the farmers, coordinators and the project team for participating in the evaluation, and would like to acknowledge UMR Research Ltd for conducting the farmer survey in the second year. The project and the associated evaluation were funded by the Red Meat Profit Partnership. The author would also like to thank Associate Professor Peter Nuthall and Professor Alison Bailey for their comments on the draft version of this paper.