

## Responding to the challenge of getting significant change on-farm at pace

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**Abstract.** Achieving change at pace on New Zealand dairy farms is challenging traditional extension aimed at broad reach and trickle down through discussion groups. Level of farmer reach is not the problem. Providing farmer support for change is the issue. This is because many issues are farm system issues that require significant change. Initiatives to use one-on-one support for extension are being trailed. Two recent extension initiatives involving managed and resourced one-on-one farmer support achieved significant change across all participating farms. In one initiative this was an increase of \$570/ha in farm profit in three years compared to a regional benchmark. However, strategic challenges remain. Costs per farm are four times higher to provide managed follow-up. Because of cost, the process is best suited to change that can proceed from smaller cohorts of farmers making significant change. In our context, this is farmers facing forced change.

**Keywords:** Farm-system, one-on-one, support, extension.

### Introduction

This paper is written from the perspective of extension management in an industry-good organisation. The organisational case study is DairyNZ in New Zealand. The purpose of the paper is to describe recent changes to extension at DairyNZ. These changes are designed to enhance the pace of change. Experimentation with approach is also described and lessons and further challenges are discussed.

DairyNZ is a farmer owned organisation, financed by a levy on all dairy farmers. It operates to an industry strategy. DairyNZ's operational scope includes research, development, extension, education and policy. It is supported by communications and marketing functions.

### Historical extension

Extension in the New Zealand dairy industry has a history of more than 40 years. It is based on consulting officers (COs) who each service about 330 farms. In the early days the extension service was concerned with farmer adoption of artificial breeding and then grazing management practices. It was tightly connected to systems science that defined best management practice.

The *modus operandi* was strongly district-based discussion groups. It relied on convincing early adopters and through them fostering the trickle-down effect to other farmers when they saw changes applied on-farm in their district and through consistent messages. Through its evolution, discussion groups came to concentrate more on solving seasonal problems, although still focused towards pasture management and feeding.

In those early years dairy farming systems were more homogeneous than today. Pasture dominated and there were few inputs other than phosphate fertiliser. Conserved pasture was the main supplement. Farming policies were about matching feed demand of cows to seasonal pasture supply.

### New challenges

As with all change programmes the significant generic challenge for extension is gaining the strength of motivation and commitment by individuals (farmers) to change. In a historical context this occurred to some extent by allowing change to take its time. The time factor included allowance for generational change.

### Competitive and responsible

Today, significant and sustained changes in practices are needed urgently to further advance the competitiveness of New Zealand dairy farming and to farm responsibly. At the forefront is managing the environmental footprint, particularly nitrogen, while improving farm profitability to hedge against interest cost rises and the cost of inflation. Better managing the environmental footprint is the most compelling reason galvanising farmers to change given the threat of impending regulation.

### Farm system design and diversity

The significant change needed is often rooted in the farm system itself. It can require change to farm systems or optimisation of existing systems. A thorough assessment of the situation for an

individual farm is essential as changes to the farm system may mean risk, for example, from investing in more infrastructures resulting in increased debt.

Regional expansion to New Zealand's South Island has also brought new challenges and diversity to farming systems. Wintering in the South Island requires new solutions. The Canterbury region involves irrigation. The protection of some soils during wet weather has also led to infrastructure solutions such as standoff facilities. This diversity coupled with the rate and significance of change required is challenging traditional extension practices aimed at broad reach through district based discussion groups and known best-management practice.

### ***Individual farmer need***

The historical approach to everyday extension work has been to run discussion groups on a local farmer's property, draw out issues of common concern and address these with input from the group. The target is eight meetings per year in a district. This approach serves us well where an issue affects most farmers in the group, their farming systems are similar and the issues are within a COs technical domain. In this case, the group supports meeting a common need.

In response to the greater individual need of farmers with different farming systems and a desire to increase the rate of significant change the approach has changed. A discussion group format is still at the core but the emphasis is on the host farmers' opportunities and issues. Other participant farmers are 'co-opted' to input to an action plan for the host farmer. Through this, the participant farmers share their experiences with the host and learn more themselves from others' experiences. Farmer feedback has been that the variety of issues covered by the group makes it more interesting.

Before a discussion group, the CO arranges a two to three hour visit with the host farmers. This is a one-on-one visit, where the CO conducts an assessment process on the farm business. It addresses farmer objectives, financial and physical performance of the farm and risk, in particular environmental risk and debt. Issues and opportunities surfaced are flagged for group discussion and the group day is planned. The CO will offer practical suggestions and help with issues not appropriate for group discussion. These will often include sign posting to another professional who can help.

A host-farmer follow-up occurs after the discussion group ensuring action plan steps are understood and to obtain commitment to action. Progress on actions is also reviewed briefly at the next discussion group meeting.

How then does this approach get change at pace and scale?

### ***The 20/60/20 rule and working together***

The 20/60/20 rule relates to willingness and ability of farmers to change. It is borne out through numerous change programmes and initiatives led by our partners and ourselves. Simply, 20% of the farming population are highly competent and embrace change on any topic reasonably readily. They have the ability to figure how to implement an idea or a change using their own innovation and resourcefulness; including enlisting advisers.

Sixty percent of the population take more time and need more support to embrace and implement change. This group needs the support and often discipline of an adviser to implement change, but with that they will be successful.

The final 20% often struggle. The same farmers and farms usually appear in this group and need significant support, no matter the issue. Important examples are managing through drought, support with effluent management, not managing debt, staff management and being most at risk where meeting standards of animal husbandry are concerned.

Given the 20/60/20 rule, the co-operation of many organisations and stakeholders working together is needed to achieve change at pace and scale across the industry. This is important to reinforce consistent messages and to motivate and provide accurate support for farmers. One organisation cannot achieve the change on its own. This means that the extension service cannot operate in isolation from the many private providers of one-on-one advice to farmers. The formation of effective partnerships with other Rural Professionals (RPs) is a key plank in DairyNZ's approach to bring about on-farm change.

### ***Rural partners***

Partnering with other RPs is critical for two reasons. Firstly, there are only 39 DairyNZ extension field staff. By our calculation, there are probably another 1,200 RPs who provide one-on-one advice and services to farmers daily. Access to this sort of coverage is a critical element in extending our reach and support to farmers if we can align with this RP resource.

Secondly, DairyNZ 'face-to-face' contact is largely confined to working with farmers in group situations, once again to maximise coverage, but also so as not to interfere with the commercial market. However, adoption of a new technology or practice by 80% requires more than being made aware of the opportunity, being given some pointers and then figuring out how to implement. One-on-one advice and support is a critical element to adoption for most; hence the need for effective industry-private partnerships.

### ***Making interplay happen***

To link extension to RP support to get change at pace and scale needs to be managed. DairyNZ finds that it cannot be left to "the market" or "trickle down" if pace and scale are critical; even for enforced change. This is behind our desire for more formal processes to link extension to rural professionals. Often the actions plans from discussion groups developed by the COs at farmer groups will include the host farmer engaging additional professional support in the form of an adviser. Through this, the CO brokers farmers to RP services, with farmers knowing what they want of the rural professional.

There are significant challenges in this for our traditional extension approach, and some lessons are emerging. The further we go the further we realise we need to go if it is to be successful. A number of factors come into it. These include: Is the farmer well enough prepared for a referral?; Are there sufficiently well enough developed relationships between extension staff and the RP to enact the referral?; Have we developed relationship management and referral skills in our extension staff (COs)?; and What is the extension resource cost per farm?

### **Progress and learning**

#### ***Farmer engagement***

Following our new process, farmer involvement in discussion groups is increasing. Climatic and economic events influence involvement in a particular year and involvement increases in times of adversity. However, Table 1 shows the general increase in farmer involvement over the last four years.

**Table 1. Farmer engagement in DairyNZ discussion groups**

<b>Year end 31 May</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Number of groups	211	286	288	326
Number of farms	3,946	5,150	4,602	5,802
Percentage of all farms	34	44	40	50

On average between 10 and 11 farms are represented at each discussion group event and between 15 and 17 people attend. The additional people are due to multiple attendees from one farm. On average, each individual attends 60% of their discussion group's events a year. We aim to increase this statistic. We are not sure how much of it relates to the more individualised approach we take with each host farm and some picking and choosing between which host farm events they attend.

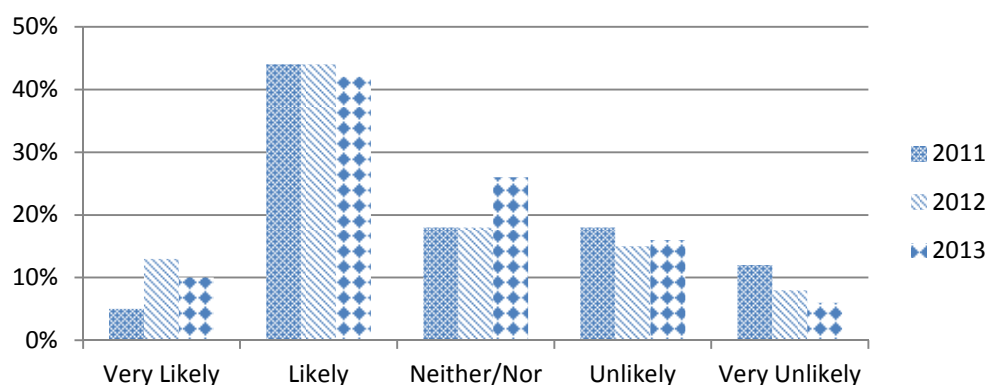
Positive features that are mentioned by farmers about the farm assessment approach include that "it is more interesting" with different real issues emerging between farms across the group that they get to discuss. Many farmers also appreciate the clarity of an action plan summary. The percentage of group events for which a formal action plan is drawn up has increased to 70% in three years. The previous year it was 58%. Over the three years, 1,961 individual farms (17% of all farms) have produced an action plan as a result of a farm assessment group process.

#### ***Farmer change***

The context for our discussion group work in the last three years has been to improve profit. In reality we have needed to focus on getting strong farmer engagement with discussion groups as a solid platform for all of our change initiatives. Consequently, the farm assessment process has been about solving the range of farmers' business issues and problems more generally than just profit. For example, 30% of topics and nearly 10% of actions in 2012 related to improving employee relations and reducing environmental risk.

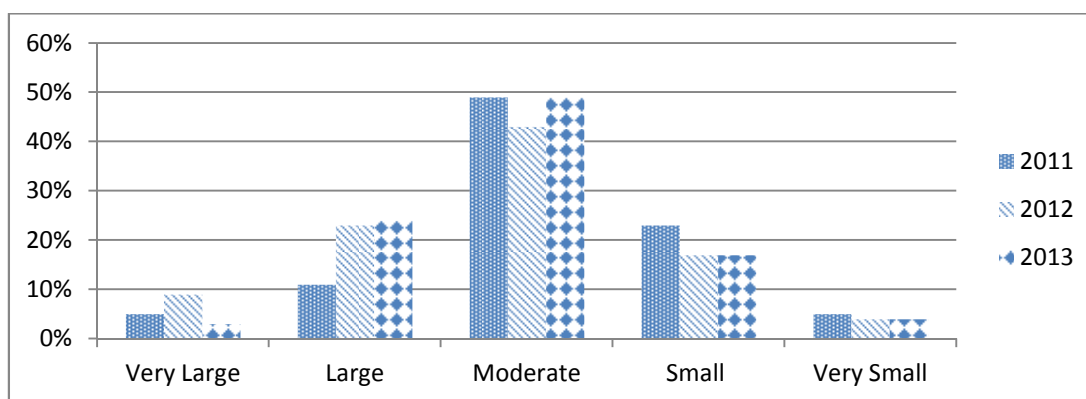
It is not difficult to see specific change made by farmers who host a discussion group. Two thirds of host farmers make some form of change soon afterwards. Fifty percent report that they are likely to make further change (Figure 1).

**Figure 1. Likelihood of making further changes to farming operation in the future as a result of hosting a discussion group**



The impact of the change on their farm operation is not necessarily large in most situations, though there are obvious exceptions. This is something we observe and something that farmers also report (Figure 2).

**Figure 2. Impact of these changes on the way operation runs**



Case study narratives show profits made in the succeeding year by some farmers as a result of change initiated by farm assessment and discussion group. Of 34 case studies in 2013 this averaged \$33,000 per farm. This is a top end result.

To evaluate the average effect we ultimately want to see results coming through industry databases such as DairyBase, a financial benchmarking product. A limited sample analysis through DairyBase, albeit with some issues in the analysis, points to a lower average return from the intervention after two years.

While change is occurring as a result of our extension process and we know that change takes time to bed in, the question remains regarding the sufficiency of both our pre-referral preparation of farmers and RP one-on-one follow-up involvement to guide more fundamental change at a greater pace on each individual farm. We made 300 referrals to RP last year. There is much more to learn and more experience to gain. A key challenge is how to achieve sufficient relationship with RP and farmer for significant change in a cost effective manner.

### Significant change - changing the attack

In 2007, an alternative approach to extension for on-farm change was piloted. The project codenamed DairyPush was driven by a motivated coalition of farmers from 58 farms in the same general locality with a goal of increasing farm profit against a DairyBase benchmark. At the heart of the concept was one focus farm that was the focal point for group extension. The group followed the focus farm through a cycle of farm assessment, planning changes, implementation of changes and finally review (plan, do, and review). To that extension process, each individual farm was assigned a farm adviser who mimicked the process with the participant farmers on their own farm between extension events. The project ran through three full seasons

following the start-up year. The evaluation described below was conducted by Neels Botha of AgResearch.

A second approach was piloted in 2012 in an attempt to improve reproductive performance (6-week in-calf rate) of dairy herds by improving cow body condition at calving. With this approach farmers received only one-on-one support via three visits over autumn winter by an RP (farm adviser or vet). The structure of the visits and the solution sets offered were determined by the DairyNZ project leader (Rob Brazendale) and participating RPs were aligned and trained in the approach.

### **DairyPush**

Profit improved across the 58 DairyPush participants by an average of \$570/ha after three full years, i.e. \$60,000 per farm. The participants started significantly below the Waikato farm benchmark and ended up on the benchmark (Figure 3).

**Figure 3. Change in operating profit per hectare on DairyPush farms over four years relative to Waikato benchmark farms**



In this project, farmers made a series of reasonably significant changes, which when combined resulted in major change to their profit. Some of these changes involved avoiding intensification decisions made by other farmers in the Waikato benchmark that would have negatively affected their profit. An interesting feature of the programme is that it took two to three years before significant changes in profit showed up. The cost of the programme was an additional \$3,500/farm/year over and above the \$1,000/farm/year extension cost.

Another feature was unwillingness of farmers to pay for the private consultant, or unwillingness to pay the full amount. One of the reasons offered at the completion of the process was “we didn’t learn anything new”. This has implications for how we pitch extension. If our positioning is about extending new knowledge when most of the gains come from farmers doing things they know they should do, then do we need to reposition it?

### **Reproduction campaign**

Farmer demand to participate in this project was high. The budget was for 250 farms to participate from a catchment of 1,000 farms. Farmer registration ceased when they reached 289. In the end, 248 farms participated through the three consultations.

The target was for all herds to achieve a body condition score of 5 by calving. Starting score was 4.1. The project achieved an average condition score of 4.8. Fifty percent of farms achieved the target.

In the following year, the six week in-calf rate lifted from 65% to 67% for participating farms compared to no change (65%) in non-participating farms. The modelled benefit was \$15/cow or \$4,500 per herd. The cost of this extension approach was \$1,880 per farm; \$1,350 for the one-on-one consults and \$530 project costs.

### **Lessons for significant and rapid change**

Our recent experience suggests that rapid change requires a one-on-one component. The role is to reinforce the change, to support and coach farmers through a plan and to help implement that plan for their farm. This is for all but the leading farmers. Depending on the significance of the change, rapid may mean a three-year timeframe for the change to embed.

The implication for extension when desired change is significant, even if farm practices are well defined, is how to provide the one-on-one support cost effectively and at scale. A link to the private sector, with farmers paying for the one-on-one component of a programme seems like an obvious solution. The role of extension is then to lead a change programme, including the definition and refinement of the practice change and facilitate peer-to-peer learning throughout a campaign.

The issue with a private-industry partnership model is that farmers, like many of us, need to see to believe before investing. Advice can be intangible and success is dependent on the relationship between the adviser and the farmer. Without a farmer having a history and culture of receiving value from advice they paid for, getting started is a barrier. This makes fostering and delivering on this culture an extension challenge.

A related challenge is ensuring that the transfer from an extension campaign to a supporting RP is effective and efficient. Either the RP needs backgrounding in what the extension campaign aims to achieve and so they become a target for extension, or each referral requires the RP to be given a good context. If a farmer has been well prepared in what they want and what they need to achieve and they take charge of the RP relationship, this could be most efficient. However, in many cases I suspect it will be most effective for extension campaigns to include activity to align RPs with the campaign remit.

### **Resourcing**

Providing for a one-on-one component to an extension programme requires resourcing if farmer culture to pay for advice is not established. In our hands this has meant a cost per farm of between two and more than four times our group-based extension cost. This appears to be required for at least two years to get commercial relationships established between farmers and advisers and then it may succeed beyond that for more than 50% of farmers.

Motivating factors for farmers to engage can also be an issue. In the absence of forced change, they may need an inspirational target to sign up to such as a 10% increase in profit. Because of cost, coverage trade-offs; one-on-one support is best suited to change that can proceed from smaller cohorts making significant change over a relatively short timeframe. In our context, this is farmers facing forced change.

### **Conclusions**

The topic of change and motivating and supporting it at an industry level are fascinating. A key lesson is that we need to keep experimenting with different models and evaluating their effectiveness. That is, keep changing the point of attack, to use a sporting analogy.

One-on-one support for farmers can get faster and achieve more effective uptake. The trade-off is coverage if the one-one component, or part of it, needs to be funded from the extension programme. This necessitates viewing the change process as successive cohorts of farmers making significant change and building it that way as opposed to relying on a few early adopters and the trickle down approach. Will such change move through the industry quicker? The jury is still out, but some early evidence suggests it will if sufficient resourcing is available.

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