

# Reaching recommendations – a participatory approach to refining and prioritising future extension delivery in the Tasmanian dairy industry

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## Introduction

A key focus of extension in the Tasmanian dairy industry has been to increase implementation of pasture management practices and subsequent increase in pasture production, through supporting development of farmer knowledge, skills and confidence. Despite this focus, average pasture utilisation on Tasmanian dairy farms is still well below potential (Dairy Australia 2015). Significant variation exists in adoption and adaptation of pasture management practices, and in the extent farmers engage with extension activities (Hall *et al.* 2017), suggesting that changes could be made to extension programs to improve future engagement and adoption.

Adoption and practice change as an outcome of extension is a social process, influenced by personal and social factors (Pannell *et al.* 2006; Wauters and Mathijs 2010). Individual characteristics that impact extension engagement include education, social networks, farm business characteristics, activity type and learning environment (Fulton *et al.* 2003). To be successful in achieving practice change, extension programs require a variety of delivery methods and training options to cater for individual preferences (Kilpatrick 1996). To increase success, a participatory process, including farmers in information research and extension methods and outcomes, is suggested (Pannell *et al.* 2006). Understanding farmers' attitudes, beliefs and social environment through social research is essential for effective design and targeting of extension activities.

## Research aims and methods

This study drew on findings of two preceding studies. Responses (n=162) to a survey sent to all 440 Tasmanian dairy farmers identified past and current pasture management practices, and extent of extension engagement. In-depth interviews with 30 of these farmers, categorised into three sub-groups based on past and current use of pasture measurement tools and extension engagement (Table 1), explored why and how social factors influence pasture measurement tool and practice use, and decisions to engage with extension. Preliminary recommendations for future extension activities were informed by the survey and interviews, and tested using a modified Delphi technique.

**Table 1.** Sub-groups, number of farmers, and their characteristics

Sub-groups	No. farmers interviewed	No. farmers surveyed	Engaged in extension	Been through intensive period of measuring pasture	Use of recommended pasture management practices
Unengaged	8	8	×	×	×
Triallers	12	11	✓	×	×
Adapters	10	8	✓	✓	✓

The Delphi technique is a method designed to obtain consensus of opinions of groups of people, by using a series of typically two to three questionnaires (Dalkey and Helmer 1963). The first round typically consists of an open-ended questionnaire designed to solicit information on a content

area (Hsu and Sandford 2007). Subsequent rounds consist of questionnaires based on responses of the previous round (von Ruschkowski *et al.* 2013). Advantages of this method include the ability to maintain participant anonymity, control feedback, replace the need to meet physically in one location, and reduces bias and influence of responses that can occur in group settings (Dalkey and Helmer 1963).

In this participatory approach, the preceding farmer survey and interviews filled the role of initial questionnaires in a traditional Delphi technique. The final participatory survey, using the Delphi technique, was based on the initial survey and interview data and comprised 15 questions relating to preliminary recommendations about future extension design. Participants were asked to respond on a 5-point Likert scale of 'strongly disagree' to 'strongly agree' with responses indicating level of support for the recommendations. The survey was mailed to the 30 farmers who had participated in the preceding interviews (response rate of 90%). Surveys were coded and responses allocated to sub-groups. Due to the small sample size, 'strongly agree' and 'agree' responses were aggregated, and 'strongly disagree' and 'disagree'. The response 'neither disagree or agree' was 'neutral'. While complete statistical analysis was unable to be conducted due to sample size, analysis of responses was able to produce agree, disagree or neutral trends for each question for each sub-group. These indicate the level of support for associated recommendations.

## Results and discussion

A participatory method based on the Delphi technique effectively prioritised recommendations for future extension activities for three farmer sub-groups (Table 2). Recommendations were generally supported, with most farmers in each sub-group responding 'strongly agree' to associated questions. Weaker 'agree', 'neutral' and 'disagree' responses indicated that some recommendations are of lower priority for future extension. For example, farmer responses suggest that using a guest speaker would be more effective for engaging Triallers than the other sub-groups.

**Table 2.** Recommendations for future extension, survey questions relating to recommendations, and extent of support for recommendations within three farmer sub-groups.

Recommendation	Supported, not supported, neutral
Introduce different levels of pasture management training for farmers who have been through an intensive period of measuring previously, and those who haven't	Unengaged – Supported Triallers – Supported Adapters – Supported
Introduce 'master classes' or activities with an 'advanced pasture management' component for farmers who consider themselves as experienced	Unengaged – Supported Triallers – Supported Adapters – Supported
Requirement for ongoing, on-farm support to understand and apply pasture measurement information, not just providing data	Unengaged – Supported Triallers – Supported Adapters – Supported
Identify and target motivating values for different farmer segments – e.g. for farmers motivated by animal care versus profitability	Unengaged – Supported Triallers – Supported Adapters – Neutral
Introduce a range of extension activities and group types (small groups, one on one)	Unengaged – Supported Triallers – Supported Adapters - Neutral
Introduce a range of activities, some focused on individual farm data and others that reduce this requirement	Unengaged – Neutral Triallers – Neutral Adapters – Not supported
Use an expert guest speaker	Unengaged – Neutral

This study confirmed and prioritised relevant recommendations for future extension approaches for each sub-group. A key recommendation to encourage the Unengaged sub-group to participate in extension is identifying and targeting their motivating values, such as focusing on the benefits of improved pasture management on cow health and performance. Further research to increase our understanding of these values that influence farmer decision making would provide valuable information to guide this extension development.

A key recommendation for Triallers is introducing different levels of pasture management training. The Triallers see themselves as experienced pasture managers, despite not having progressed through an intensive learning process or using recommended pasture management practices (Hall *et al.* in press). As Triallers believe that existing pasture management training is more applicable to younger, or less experienced farmers, designing and marketing 'Master Classes' may encourage them to re-engage in the learning process.

The Adapters are more flexible in regards to extension design, indicated by the general neutral response to questions on activity type and content. They are currently engaged with extension, indicating less focus is required on changing current activities.

## Conclusion

Understanding social factors influencing farmer engagement is essential if future extension activities are to facilitate increased adoption and practice change. A participatory method using survey and interview data to refine final survey questions to farmers enabled greater insight into targeting future extension activities to different farmer sub-groups knowledge, skills and values. The final survey prioritised recommendations for farmer sub-groups, with the method successfully allowing farmers the opportunity to provide equally weighted feedback. Farmer responses provide an evidence-based foundation to inform design of future extension content, marketing and delivery that will attract and engage a wider range of farmers by addressing and catering for farmer preferences, skills and values.

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