

## Agricultural extension: a review and case study in the Tasmanian dairy farming sector

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### ABSTRACT

Agricultural extension aims to improve farmers' capability, capacity and adaptability so as to farm in a sustainable and profitable way in a world of constant change and ongoing challenges. Extension is adult education achieved through the organised exposure of adults voluntarily to the thoughts, ideas, concepts and practices both of their peers as well as of professionals with relevant knowledge and experience. Government funding of extension has been steadily reduced and funding for extension is increasingly sourced from farmer levies and other private funding agencies. Funders, including the public sector, have become more insistent that funded extension programs need to demonstrate their effectiveness, measured largely as on-farm practice change. The Pasture Plu\$ project was a three-year extension project (2005 – 2008) aimed at improving Tasmanian dairy farmers' business skills over a range of farm management areas. An evaluation of the project concluded that significant potential for practice change had been achieved. This paper explores the efficacy of the Pasture Plu\$ project from an educational perspective and argues that in terms of adult learning principles, the project content and delivery has equipped farmers with practical information enabling them to make practice changes to ensure ongoing viability and profitability for their farm businesses.

**Keywords:** education; adult learning; agricultural extension.

### INTRODUCTION

#### A definition of agricultural extension

Agricultural extension is the function of providing need- and demand-based knowledge in agronomic techniques and skills to rural communities in a systematic, participatory manner, with the objective of improving their production, income and (by implication) quality of life (Haug, 1999).

The farming community is complex and farmers are more than vessels waiting to be filled and topped up with the latest research findings. Vanclay (2004) suggested that the "farming community is not homogeneous" (p. 213), and argued that those who are directly involved in extension education programs need to grasp the importance of social issues as well as the social nature of farming. The traditional belief that extension is a top down process, where scientific findings find their way through extension down to adoption of change in management practice by farmers, fails to understand why this adoption is not implemented because the social dimension is overlooked or ignored (Vanclay & Lawrence, 1994). Another factor that exposes the failure of a top down process driven by research, development and extension is the suggestion by Morse *et al.*, (2006) that farmers need to have more control over the information that they need or want, so that any extension programme is demand-driven.

Taking into account the complexity involved in the process of knowledge dissemination to change in farm practice, the authors of this paper suggest that it might be better to define extension as the

facilitated exposure of farmers to relevant farmer-driven information that will equip them to be in a more informed position to consider making changes to their farm business practice. Extension should not be the unilateral channel for dissemination of information from research to the farmer but should take the role of capacity building through education and developing knowledge partnerships with farmers.

#### Agricultural extension in the Tasmanian dairy industry – recent developments

As has happened worldwide, government support for extension services in Tasmania from a funding perspective has declined in recent times and the numbers of extension staff serving the dairy industry has dropped. Unfortunately, the considerable role that extension has played in the increase in productivity over time has not been quantified or analysed rigorously, and this might well be a contributing factor in extension no longer being offered as a core funded perennial service to farmers. Most of the current extension activity is project funded from farmer levies and other private funding agencies and funders have become more insistent that funded extension programs need to demonstrate their effectiveness and this effectiveness is largely measured as on-farm practice change during the lifetime of the project. This can put extension practitioners under undue pressure to justify their existence.

#### Extension as education

Taking the argument that extension is an educative process, the success of extension can be measured by its success as an education activity.

Agricultural extension is aimed at adults who are involved in the business of farming. As such it is a form of adult education and the key principles of adult education will form the framework in which extension activity operates. The challenge of creating effective learning moments for a group of farmers is significant. Two key adult learning principles and challenges that, amongst others, apply to the adult farming community as a learning community, are discussed below.

First, there is no stereotypic 'generic' adult learner (Long, 2004). A range of individual nuances potentially impact on adults' learning experiences such as gender and age, sociological and psychological issues, prior learning level and experiences (not necessarily good) and even physiological limitations and learning difficulties. In addition factors such as literacy and numeracy skills, attitudes and beliefs of the adult learners, their state of mind and body, life experience, role in the farming business, relationship to others in a group and, for many education theorists, even personality (Long, 2004; Gonczi, 2004), can affect participation in extension activities and the extent of any learning outcomes. Extension programs and activities need to cater for the challenges that this variation presents.

Second, motivation is a key element in participation in adult learning activities. Modern extension needs to engage adults as willing participants in a non-prescriptive environment. Gonczi (2004) suggested that adult learning should be linked to the environment in which the learning takes place and the workplace provides much of the motivational environment to adult learners.

Long (2004), argues for a common strand in the variety of motives, namely that of the need for a solution to a perceived 'problem'. Adults come to a point where they recognise that they don't know the answer to a particular line of inquiry, or are not sure that what they currently understand is sufficient to solve their problem. This 'doubt' drives them to find a solution. Experience in extension suggests that there is truth to this assertion. If farmers are 'problem' oriented, then the challenge for extension is to identify these 'problem' areas and to make available the best learning environment for farmers to find solutions.

#### **Extensionists as educators**

Educational practitioners have noted that many 'teachers' in adult education have the technical expertise required to deliver content but lack preparation in the art and science of teaching (Galbraith, 2004). In particular, extensionists often have little formal exposure to teaching methods and practice. Irani *et al.*, (2003) found in a survey of sixty United States county extensionists that whilst

the majority regarded themselves as effective adult educators, there was also the recognition that they had a "substantial need for training in adult education" (p. 164).

#### **Pasture Plu\$: a case study in extension**

##### *The Pasture Plu\$ project*

Recently, much of the Tasmanian extension activity has been on a project basis and in 2006 the Pasture Plu\$ project was implemented. This three-year extension project (2005 – 2008) aimed at improving Tasmanian dairy farmers' business skills over a range of farm management areas. Its focus was a number of short workshops that covered pasture management, soils and fertilisers, animal nutrition, water-use efficiency, and business management. The pasture management program was coupled with a coaching component to reinforce learning outcomes. In addition a monthly newsletter was made available to every dairy business to disseminate information which could reinforce the learning given in the program as well as other relevant information.

#### **Evaluating the impact of the Pasture Plu\$ project**

The overarching long term aim of the project was 'to encourage dairy farmers to take on a business culture' and between 30 and 40 farmers attended each of the workshops on offer. Whilst on-farm practice change is an obvious measure of the effectiveness of any extension activity, it should be immediately obvious that to measure on-farm practice change over a short time frame is not reflective of the effectiveness of extension. From what has been discussed above about the complexity of the farming community and the many factors influencing educational outcomes in adult education environments, it cannot be automatically assumed that extension activity will result in immediate practice change. It should go without saying that the desire and expectation of extensionists is practice change; extension professionals committed to their message are not satisfied with anything less. However, the time to respond and the extent of response is varied. The timely implementation of a recommended practice may not occur because of the host of reasons presented above. Therefore, it is proposed that the outcome of an effective extension program is that farmers are better equipped to make practice changes if and when other barriers to adoption have been overcome, rather than that immediate changes to practice occur. It is further argued that, in the short-term, an assessment of the extent to which extension activities meet the criteria for effective learning experiences provides a

valuable assessment of the effectiveness of the extension program.

#### **Educational effectiveness of the workshops – an internal assessment**

One difficulty with informal adult education is the objective measurement of how well participants have increased their learning as a result of the course or workshop undertaken. There are often no objective assessments and so other more subjective evaluation methods are required to gauge the effectiveness of the educational aspects of extension activities. However, it is argued that a well-designed, farmer-driven and well-delivered program will increase the likelihood that farmers will acquire new information and be equipped to make later practice change(s) where and when appropriate and motivated to do so. The internal assessment below considers the structure and implementation of the program from an education effectiveness point of view.

#### **Willing participation as a reflection of motivation**

The workshops were offered to the dairy farming community for voluntary participation. The assumption can be made that those farmers who gave up their valuable time to attend the workshops did so to gain a better understanding of what the workshops were designed to give. It is argued that there is a high likelihood that motivated participants will implement practice change following participation in extension.

#### **Farmer involvement in activities**

Farmers need to be involved in extension programs as co-contributors. The workshops were designed to be practical and relevant to farmers. Farmers were encouraged to contribute and practical exercises were designed to reinforce learning outcomes.

#### **Catering for farmer diversity**

One of the strengths of those who delivered the content was familiarity with the farming community. This allowed the presenters to target their delivery accordingly. The empathy factor is important and the ability to gauge the level at which to pitch delivery caters to some extent for the diversity among the participants. There was a good degree of creativity in the presentations and interest levels were maintained throughout the two days.

#### **Relevancy of the content**

Both the course manuals and delivered content were aimed at what farmers practically need to improve the efficiency of their farming businesses.

#### **Expertise of the presenters**

The majority of the presenters were well known to the dairy farming community. Farmers are more likely to respond to and engage with presenters who

they regard as knowledgeable in their relevant fields and presenters were chosen who were known to have both experience and expertise.

#### **Reinforcement of learning**

The pasture management workshops offered participants the opportunity to be part of a small group of farmers in a follow up coaching program that was designed to take farmers through the application of the key pasture management principles delivered in the workshops under the direction and encouragement of a trained coach.

#### **Educational effectiveness of the workshops – confirmation from an external evaluation**

Coutts & Coutts (2008) were contracted to undertake an evaluation of the project. The approach adopted included a random survey of participants and non-participants, phone interviews with informed persons, case studies, analysis of available secondary data and a debrief workshop involving key industry players (p. 3).

Coutts & Coutts (2008) reported that overall the project demonstrated a strong direct impact on at least 20% of the industry and added “value to other initiatives by providing unique relevant training events...” (p. 2). In the survey, participants were asked to rate the value of the workshops. The value encompassed the participants’ perception of their learning uptake and their self assessment of their improvement in understanding best management practices demonstrated at the workshops. The score was out of 10 and Figure 1 illustrates the overall ratings given by participants. These findings suggest that the participants found the workshops in general to be of value and we would argue that this confirms that, as delivery of educational experiences, they were successful.

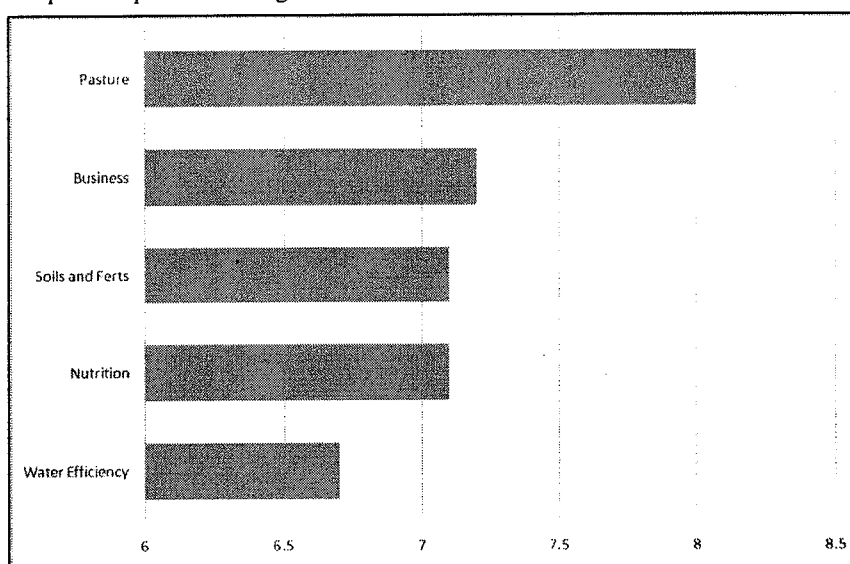
## **DISCUSSION**

The outcome of good extension is that farm practices change for the good. Extension activities are designed to realise that end. However, there are many other factors that impinge upon adoption of practice change as mentioned in the introduction. Furthermore, in the opinion of the authors, deregulated market driven economies present farmers with uncertain financial returns and environmental regulations place additional financial burdens on farmers.

These factors can influence the adoption of change. Whilst it is disappointing when adoption is delayed or is not what was intended, extensionists should be encouraged when they offer quality programs that expose farmers to relevant information. Where the educational content and delivery satisfy key adult learning principles then extension agents can make a reasonable assumption

that farmers have assimilated information that will be an important part of practice change decision-

making at some point in the future.



**FIGURE 1:** Pasture Plu\$ workshops – participants' ratings. Scores out of 10 (after Coutts & Coutts, 2008)

## CONCLUSION

Notwithstanding the constraints placed on the resources available to current extension programs and the requirements to demonstrate practice change, the internal evaluation of the Pasture Plu\$ project from an education perspective indicated that the use of adult learning principles in the delivery of the extension program as well as focussed, practical information that addressed farmer-driven management practice issues, achieved capacity building in participants. This enabled participants to be more informed in their decision making. The conclusions reached by Coutts & Coutts (2008) on the effectiveness of the Pasture Plu\$ project should be seen as a confirmation of the success of the educative processes in the project...Building the capacity and capability of farmers to make informed decisions is a key component of effective extension. Extension methodology needs to be innovative to remain at the cutting edge of farmer adoption and creative assessment methods need to be followed to more realistically gauge extension's efficacy from an education perspective.

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