Whole farm assurance programmes as a means to achieving best management practice dairy farming: A case study of the Synlait Milk Ltd Lead With Pride™ programme

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Abstract

Farm assurance schemes that facilitate best management practices may be viewed as a means by which the dairy industry is able to maintain a social license to operate and facilitate productive and sustainable farming systems. The Synlait Milk Limited Lead With Pride™ (LWP) programme seeks to demonstrate industry leadership by recognising and financially rewarding suppliers who achieve dairy farming best practice. A qualitative study was conducted to understand the adoption motivations and benefits amongst farmers and to determine the financial value returned to suppliers. Thirteen semi-structured interviews were conducted with certified and non-certified suppliers to understand their perceptions and motivations. Three of the participant farms provided data to conduct an analysis of the costs and returns associated with the programme to assess its impact on profitability. The findings indicate that adoption of LWP practice allowed for increased profitability, predominately attributable to changes within animal health and welfare and environmental practices. The qualitative research identified perceived relative advantage, compatibility and complexity as the dominant factors influencing supplier’s behaviour regarding adoption. Respondents gave weight to premium offerings, industry developments and importance of support from extension services, in achieving certification. Findings from the research provide evidence that adoption of whole farm assurance scheme within intensive farming operations can drive profitability, provide farm practice advantages and ensure sustainability within our primary industries.

Keywords

farm assurance scheme, dairy, financial

Introduction

Whilst New Zealand’s dairy sector growth has driven economic returns, it has been reliant upon increases in production and subsequent changes to farming practices, primarily intensification, to meet market demand and maximise returns. Globally, concerns extend to the treatment of animals, environmental impacts of production, food safety concerns, and social implications of production methods which affect the utility or wellbeing of third parties, such as the public (Olynk and Ortega 2013). Farm assurance schemes (FAS) are a means by which the concerns of biophysical effects of dairy intensification may be addressed. FAS encompass the principles of quality assurance and apply them at the farm level through programmes which operate throughout the entire supply chain (Manning et al. 2006). FAS are initiatives that “provide primary production standards for food safety and other characteristics that are of relevant importance to consumers” (Lewis et al. 2008 p.
Best management practices (BMPs) commonly underpin FAS and have been developed in recognition of the complex challenges of land management and water resources for addressing sustainable intensification of agriculture (Shiferaw et al. 2009). BMPs are incorporated within the standards for which certification may be audited against (Wood et al. 1998).

Insight in to the motivations and perceived risks of farmers is required in the design of FAS to tailor and bundle incentives for maximum effectiveness and efficiency (Greiner et al. 2009). For socially motivated farmers, recognition by their peers and the community can be an equally powerful adoption incentive (Greiner et al. 2009). A sense pride in their production practices and a desire to achieve high levels of production are influencing factors for adoption (Jay 2007). Adoption of practices through FAS may also be influenced by financial factors, farm characteristics, demographic factors and psychological factors (Serra et al. 2004; Menozzi 2015; Small et al. 2016). Offering financial incentives for farms adhering to BMPs may also assist in uptake of FAS (Blackman and Rivera 2010).

**Method**

The research undertook a case study of Synlait Milks Lead With Pride™ (LWP) programme. Case studies are considered useful for preliminary and exploratory research (Rowley 2002). LWP seeks to demonstrate industry leadership by recognising and financially rewarding suppliers who achieve dairy farming best practice. The whole FAS follows a four-pillar approach, focusing on environment, animal health and welfare (AHW), milk quality (MQ) and social responsibility (SR). The programme is an independently audited ISO/IEC 17065 accredited programme and for achieving certification suppliers are rewarded with a $0.06/kgMS premium.

**FAS Adoption**

Thirteen farms (10 certified and 3 non-certified) were selected to participate in semi-structured interviews to understand their perceptions and motivations. Participants were selected using theoretical sampling (Eisenhardt 1989) upon their extremes of involvement within the programme, with an even split of those exhibiting high and low levels of engagement. The theoretical model of adoption behavior was adapted from Reimer et al. (2012) and utilised to inform this study (Fig. 1). It incorporates the diffusion of innovation theory (Rogers 1995) within the influence upon perceived practice characteristics and beliefs on behavioural change. It provides a useful framework for guiding the factors that influence the behaviour of FAS adoption and incorporates factors that highlight programme advantages and disadvantages.
Fig. 1 LWP adoption framework (Reimer et al. 2012, p. 119)

Interviews conducted in August 2017, were transcribed, coded and interpreted using inductive analysis methods to help identify themes among the research participants (Turner 2010). Thematic analysis was utilised to distinguish patterns that occurred throughout the data (Schreier 2012). Qualitative content analysis determined the significance of a given theme, which gave recognition to both the key themes expressed by interview participants and the frequency they were mentioned, both by an individual and the interview population (Schreier 2012). The content analysis adopted a mixed inductive and deductive approach. Deductive categories were constructed from the Reimer et al. (2012) model to allow categorisation of concepts.

Financial evaluation

Requirements were first classified as either mandatory, quantifiable or non-quantifiable. Mandatory requirements were those required of suppliers regardless of participation in LWP and were excluded from the financial evaluation. Quantifiable requirements were those which were quantifiable and had an associated measurable parameter as a direct result of a programme requirement. These were the focus of the financial evaluation. Non-quantifiable requirements were those which had no associated measurable parameter and weren’t included within the financial evaluation. Wossink and Osmond (2002) model was utilised to perform the financial analysis. This model adopts the net present value method to assess the net profitability of BMP. Prices were calculated for quantifiable requirements with the cost of a practice subtracted from the increases in revenue. The change in return added to the LWP premium of $0.06/kgMS provided a net addition to the annual profitability of the farm. Where possible, records from three participant farms were obtained to ensure actual data of the measurable parameters accurately reflected the economic effect of LWP. Where farms had no records of quantifiable requirements, industry data and scientific literature was utilised. The 2016/2017 season milk price of $6.30\(^{A}\) was used for any milk production related calculations. Major capital expenditure was excluded, including requirements to change

\(^{A}\) $6.30 was the average 2016/2017 season payout. This included a base payout rate of $6.16 and an additional average incentive and premium of $0.14.
irrigation or changes to effluent systems. Suppliers recognised that these investments were required due to compliance or operational.

Results and Discussion

Behavioral beliefs were the overwhelming influence in the decision to adopt LWP predominately driven by factors of relative advantage, compatibility with farm systems, observability and complexity. Elements of these factors also influenced the normative and control beliefs which are discussed below.

Relative Advantage. Individual’s belief attitudes towards LWP adoption was influenced by the extent they perceived there to be a relative advantage in participating, with more perceived advantages increasing the likelihood of adoption. The main influences upon relative advantage included premium payments, accountability, record keeping and proactiveness to industry changes and compliance. The strong influence of relative advantage in a supplier’s decision to adopt LWP is strengthened by the fact that the other perceived practice characteristics from the model can influence it. For example, complexity may reduce a given innovations relative advantage through increasing the intensity of the effort required, creating a disadvantage and decreasing adoption (Pannell et al. 2006).

Compatibility. The SR pillar of LWP was identified as requiring the most change in practices on farm. The influence of these aspects of farming have largely been overlooked, given the production focused nature of the dairy industry (Clark et al. 2007). This struggle negatively impacted upon supplier’s behavioural beliefs and decision to adopt LWP as they had to alter their farm systems with unfamiliar practices. However compatibility could also positively influence behavioural beliefs, allowing farms to choose to apply new practices that enhanced their operation, helping to improve adoption rates.

Observability. Farmers are interested in the development of strategies for constructing alternative supply chains, which recognise management practices and provide increased value from their commodities (Higgins et al. 2008). Suppliers identified the development of a product linked to LWP, as having the potential to create opportunities allowing market premiums for changes in production practices. Utilising this concept to increase adoption is a difficulty because the production practices of LWP are largely credence attributes, which cannot be detected by the consumer during consumption and are therefore difficult to market (Northen 2001). Suppliers expressed a desire for their practices and willingness to conform to public demands, to be better understood. This suggested that observability influenced suppliers’ normative beliefs, and that adoption could be motivated by the ability of the program to be observed by the public and practice outcomes more widely understood. FAS can assist in improving the public’s perception of farm operations and are a leading solution in alleviating public concerns through more proactive management and stewardship practices (Atari et al. 2009).

Complexity. Suppliers identified that their inclusion within the Standards Committee (who review and consider the development of new standards) was integral to them having a say on direction of the programme and ensuring its requirements remained practical and simplistic behind the farmgate. This impacted upon the control beliefs of suppliers, with those whom had
participated, finding it improved their attitudes relating to adoption as they felt a sense of influence. The involvement of participants in the development process ensures an interaction between the scheme development and the formation of attitudes of those relevant to the scheme (Falconer 2000).

The financial analysis calculated an achievable profit increase. This was obtained through the environmental, AHW and MQ pillars. There were no quantifiable returns in the SR pillar. The study identified a reasonable capital expenditure outset was required to meet certification requirements, however this was easily recoverable through the first year of certification. The financial viability of FAS adoption is important as it has the potential to highlight win-win situations, where production practice benefits can occur simultaneously alongside productivity and economic benefits (Main et al. 2014).

The environmental pillar included the most significant capital cost requirements. Offsetting impacts, meeting BMPs and compliance with regards to environmental factors requires high levels of investment and capital infrastructure (Macdonald 2014). The largest environmental benefit came from savings relating to the GPS precision spreading of fertilisers. A significant economic benefit is expected in this area due to fertiliser inputs being the single largest annual farm expenditure item (Yule and Lawrence 2007). Analysis of Synlait milk data showed reduced grading instances amongst LWP suppliers, which beyond the grade free incentive, was the main benefit of the MQ pillar. Suppliers credited the establishment of systems and procedures in reducing instances of milk grading. Reductions in grading instances requires the application of education, knowledge transfer and motivation to achieve control and improvements (Green et al., 2007 as cited in More 2009). Offering premiums for producing high quality milk has a strong effect on the overall MQ achieved (Nightingale et al. 2008). AHW benefits were mainly attributable to reduced culling from mastitis and achieving heifer liveweight targets. It is widely recognised that culling due to mastitis is a large factor causing economic losses in dairy systems (Huijps et al. 2008). Heifers found to be below target live weights can have extended calving patterns leading in to their first lactation resulting in economic impacts from fewer days in in milk and issues through subsequent matings (Penno 1997; Brownlie et al. 2014). FAS provide frameworks allowing for thorough review and ensures a detailed focus on known factors of BMP to enhance performance and profitability of dairy enterprises.

**Conclusion**

This qualitative study focused on understanding adoption of LWP, indicated that consideration of the advantages from programme participation was the most influential factor upon adoption. This suggests that more focus on the communication of advantages of FAS will assist in driving adoption amongst farmers. A financial evaluation concluded that implementation of FAS can be profitable for farming enterprises with economic advantages particularly in AHW and environmental practices. Considering adoption drivers and communicating economic benefit in the development and delivery of FAS positions them favourably when addressing issues from dairy intensification in New Zealand.
Acknowledgements

This study was funded and supported by the AgriOne Centre for Excellence in Farm Business Management. The authors would like to thank the participating farmers for their collaboration in this study.

Conflicts of Interest

Mark Wren is Lead With Pride™ Manager at Synlait Milk Ltd.

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