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MARKETING APPROACH CRITICAL TO THE DIFFUSION OF REMOTELY SENSED PASTURE MANAGEMENT TECHNOLOGIES

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SUMMARY

The successful commercialisation of innovations such as remotely sensed feed-on-offer (FOO) and pasture growth rate (PGR) technologies (Henry et al, 2002, this volume) requires an understanding of the characteristics market into which the technology is being transferred. The commercialisation of FOO-PGR technologies in the wool production sector requires a marketing approach to identify those producers most likely to adopt these technologies, how they may use them on farm and how the message about these technologies may be diffused effectively.

Keywords: feed-on-offer, pasture growth rate, remote sensing

INTRODUCTION

Accurate assessment of feed-on-offer and pasture growth rates in strategic feed budgeting has the potential to enable producers to increase pasture utilisation and productivity (Michael 1997). Further, there are wool quality (Oldham *et al*. 2002) benefits to encourage producers to 'budget' feed supply and manage their pastures strategically.

A range of training and extension programs has been developed to overcome the lack of confidence in pasture management techniques constraining producers. A recent survey of producers who had attended the PROGRAZE pasture management training program found that only 45% of attendees were using skills gained on the program in the management of their enterprise (MLA, 2000). Despite high levels of support, the slow adoption of pasture management techniques may be attributed to lack of producer confidence in quantifying feed available and lack of time available to assess pastures across the whole farm (Sneddon *et al*. 2000).

Remotely sensed feed-on-offer and pasture growth rate technologies described by Henry *et al* (2002) were developed to help develop the opportunities available for increased feed utilisation and the time and confidence issues constraining the adoption of manual pasture management techniques.

In 2000, producer groups in south-west Western Australia were interviewed to determine the feasibility of delivering remotely sensed pasture management technologies to producers as a commercial service. This concept testing stage of the market research identified six features critical to the adoption of the technology by producers. The minimum requirements of the producers interviewed were, 1) pasture growth rate delivered weekly and feed-on-offer monthly, 2) data available within a three day turnaround, 3) adjustment of pasture data for quality and botanical composition, 4) historic, current and predictive data at the enterprise level, 5) automated feed budgeting tools, and 6) data available in both map and text form. Any failure of the technology developers to achieve these minimum requirements was considered to limit the value of the technology to end-users. The minimum features of the technology determined in initial market concept testing provided a feedback to technology developers regarding the attributes of the technology and supported the development of a prototype system and recommended that this system be tested extensively in the field to develop a cohesive marketing strategy for the technology.

This paper describes the market research assessing the delivery and application of the prototype remotely sensed pasture management technologies, which was delivered through the WoolPro, 'Measure as you Grow' project to participants (Oldham *et al*. 2002).

MATERIALS AND METHODS

Market research for the remotely sensed pasture management technologies was undertaken in two stages: 1) preliminary focus group interviews and a producer survey, and 2) multiple exploratory case studies.

Stage one

Focus group interviews were undertaken with five producer groups in south-west WA participating in the field trial of remotely sensed pasture management technologies through the WoolPro 'Measure as you Grow' project. Focus group interview methodology was selected as a useful means of exploring issues in a group environment that would be less accessible in a one-on-one interview. These interviews were undertaken to explore factors influencing the adoption of remotely sensed pasture growth rate and feed-on-offer technologies. Focus group interviews were conducted with five groups of wool producers in Badgingarra, Walebing, Arthur River, Brookton and Kojonup. These interviews were structured around a common discussion schedule, which focused upon 6 key areas: 1) Relative advantage of feed-on-offer and pasture growth rate (FOO-PGR) technologies over traditional methods, 2) Potential barriers to adoption of these technologies, 3) Technology design and delivery, 4) Potential customers of these technologies, 5) Minimum performance requirements and, 6) Additional or supplementary data requirements.

Stage one of this study also involved a quantitative survey of the focus group participants and a random sample population of SW WA farmers. The survey was designed to provide background data on the WA farming community and to further explore enterprise level factors that may influence the adoption of remotely sensed FOO-PGR technologies as identified in the focus group interviews. The survey measured farmer demographics, use of technology and the influence of farmer networks on enterprise management. The survey employed a mix of measurement tools including rating scales and open-ended questions.

Stage two

Stage two of the research study was undertaken using an exploratory, multiple case study design. The units of analysis of these case studies were four wool producers from southwest WA selected from the WoolPro 'Measure as you Grow' project. Case study design was employed to provide a rich picture of the internal and external environment of the wool enterprise into which remotely sensed FOO-PGR technologies may be adopted as it is an appropriate strategy for answering research questions which ask how or why and which do not require control over the events (Robson 1993).

RESULTS

Stage one

The focus groups' attitude towards adoption of remotely sensed FOO-PGR technologies was driven by a combination of macro- and micro-level farming issues, as well as the attractiveness of the innovation itself. Proving the relative advantage of innovations such as FOO-PGR over traditional management practices is paramount to the adoption of these innovations. In the case of FOO-PGR, producers perceived advantage to lie in the accuracy of the data, the ability to substitute a time-consuming on-farm endeavour, and the ability to manage remotely. The relative advantage of using these data could be realised by driving enterprise costs down and increasing output value. For producers to adopt the technology however, these advantages would have to be proven in terms of dollar value.

Although agronomic support was desirable, producers preferred FOO-PGR data to be delivered directly to the farm office rather than via a third party. Direct delivery may not be appropriate for farmers without training in the use of pasture estimation and feed budgeting techniques. However the groups could not agree on whether a producer without this knowledge would be a potential customer. Further discussion was raised as to whether remotely sensed FOO-PGR would actually act as a substitute for the high level of grazing management knowledge diffused through programs like PROGRAZE and WoolPro.

Several broad conclusions about the characteristics of the target market for remotely sensed FOO-PGR technologies can be drawn from the survey findings. The responses of the pilot study participants highlighted differences between the two groups. These differences can be used to determine market segmentation variables and communication channels for FOO-PGR technologies.

The main differences between the survey groups were age and education, with lower average age and higher education levels, greater use of consultants, training and computers among the focus groups compared with the random sample group among the focus group participants.

The survey findings also identified a number of potential channels of communication that the developers of remotely sensed FOO-PGR technologies may utilise to diffuse message and media strategies. The findings highlight the opportunity to utilise production oriented training programs, field days, farm journals and the mass media as communication channels for the transfer of remotely sensed FOO-PGR technologies. Opportunities for diffusion of the FOO-PGR technology lie within the producers' task networks. The surveys identified high levels of independent consultant use among both the pilot study and random sample of producers. Since the majority of respondents do not participate in groups, consultants potentially offer a direct route of communication to the producer.

Stage two

Results from the four cases indicated that the more sensitive an enterprise is to both adverse seasonal and market conditions the greater the need for accurate and timely management data across the whole farm. Producers whose enterprises were highly sensitive to external forces were more likely to respond by adopting innovative grazing practices across their whole enterprise to maximise pasture utilisation, whereas producers with opportunities in their pasture system would be slower to adopt these practices.

This study found that producers actively forward plan, yet three out of the four cases based plans upon intuition rather than robust management information. Strong strategic management capabilities are evident among the case study producers but formal planning is rarely undertaken. The lack of formal planning may be a function of a lack of accurate and timely management information, lack of time or lack of formal planning ability.

Producer group participation was found to be a key source of information, learning and influence for the case study producers. This indicates that the developers of remotely sensed FOO-PGR technologies should look to producer groups as a key source of technology championing, ongoing innovation development and means of disseminating message and media strategies. The study also found that relationships along the wool supply chain are poor and that lack of communication between purchasers and suppliers has prevented market demand information regarding wool quality attributes from reaching producers. Poor supply-chain integration is impacting upon the producers desire to grow quality fibre and is likely to impact upon the producers propensity to adopt remotely sensed FOO-PGR as a quality management tool.

DISCUSSION

The findings from this study provide the foundations of a marketing strategy for the remotely sensed FOO-PGR technologies which is concerned with: 1) the characteristics of the target market to whom this technology will be marketed, 2) design of the product, 3) positioning of the technology in the market, 4) mechanisms and channels for distribution and, 5) promotion of the technology to both the target market and the broader industry supply-chain.

1) **Target Market Segmentation** As producers seek to manage external and internal constraints on their enterprise they become, in effect, catalysts for change. The greater the impact of external and internal forces on the enterprise the more likely they are to seek an innovative solution. Producers will either go out of business, change enterprise type or change production activities. Those producers that are motivated to change production activities in response to adverse conditions represent the target market for remotely sensed FOO-PGR technologies. This study indicates that the producer target market are likely to have an enterprise size of over 2000 hectares, employ more than one grazing management practice, undertake enterprise related training, and participate in producer groups. Therefore the dimensions along which to segment the market for FOO-PGR are both resource based, attitudinal and behavioural.
2) **Product Positioning** Producers operating at lower pasture utilisation rates may require greater levels of education and support for them to see the benefits of remotely sensed FOO-PGR technologies. Therefore two market entry strategies may be required for the technology as a risk management tool, and to realise of opportunities within the enterprise pasture system.
3) **Product Design** As the findings suggest, if the producer cannot access FOO-PGR data on their first attempt, they are not likely to try again. Therefore the developers of FOO-PGR have a small window of opportunity through which to attract the potential user. As the successful adoption of FOO-PGR technologies is likely to be contingent upon the ability of producers to access and

utilise these data system developers must work closely with lead-users on all aspects of system development. Positioning FOO-PGR, as a strategic management and planning tool will require the design and trial of both on- and off-line planning support through extension providers. As producers plan feed budgets (formally or informally) in spring, FOO-PGR maps and tables should be bundled together with on-line historical property level performance data and off-line strategic planning support during this planning period. The findings from this research study demonstrated the need for the technology to be configured to allow this data to be highly user-friendly.

4) **Distribution** As highlighted in previous research (Sneddon *et. al*. 2000) the key to diffusion of this technology will be focused education programs that assist the farmer to understand how the technology works and can be applied. However, these are likely to be of limited value if they continue to work via existing wool-focused agronomic extension programs. The critical issue is likely to be the capacity for the technologies to be supported by an education program that embraces 'whole of farm' business development.

5) **Promotion** Producers operate within active networks, which are made up of customers, suppliers, colleagues and employees (Gibb 1996). This study found that producers are highly influenced by independent consultants, advisors from trade suppliers and producer groups. For the case study participants, producer groups provided support, information exchange and an effective learning environment. The key players in the producers task network are likely to influence their attitudes towards innovations such as remotely sensed FOO-PGR technologies therefore it is critical that the developers of these technologies identify lead users and technology champions within these groups to influence other producers. Off-farm task network influencers in the form of agricultural consultants and trade advisors provide the opportunity for the developers of remotely sensed FOO-PGR technologies to diffuse messages about the technology to a broad range of producers. It is critical therefore that the developers of FOO-PGR technologies identify key off-farm influencers and develop relationships with them to support process.

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