

Deer farmers' attitudes to fencing waterways

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Abstract

Researchers in the AgResearch deer programme are using social research to understand the level of environmental awareness amongst farmers. Our aim in this research was to understand the issues surrounding waterway fencing amongst farmers in Otago and Southland. Both quantitative and qualitative data were collected as part of this project. Our findings indicate that the level of environmental awareness amongst farmers was influenced by their specific farm context. Many farmers were defensive when explaining their reasons for or against waterway fencing. Those farmers who did fence off waterways did so for practical reasons. Many believed it was impossible to fence off their waterways. Our findings suggest that the imperatives for fencing have to be balanced with the practicalities. These practicalities tended to centre on the number of streams that would be required to be fenced and the nature of the stream. Many farmers believed they were doing the 'best they could' and therefore did not feel they needed to adopt new environmental practices.

Keywords: environmental awareness, waterway fencing, deer farming

Introduction

Our aim in this research was to understand the level of environmental awareness deer farmers had with regard to sustainable farming practices, in order to provide a platform for future adoption of land care techniques. Deer farming is coming under increasing pressure from local regulatory authorities to protect waterways. Thus, it is important to understand farmers' views on the issue. To assess environmental awareness this project focussed on waterway fencing and examined the factors influencing farmers' decisions on this issue. In addition, ideas for changing farmer behaviour, based on the identified factors, were documented. The information gathered and the conclusions drawn allowed us to assess the level of environmental awareness amongst deer farmers. A scoping project had previously been undertaken to understand the barriers to adoption of improved land care, which explored the factors influencing farmers' decisions on managing deer wallowing, waterway fencing and wintering management practices (Payne unpublished). This provided a foundation for the current project.

Methods

The approach taken draws on the conceptual foundations of consumer behaviour theory (Assael 1998). This theory proposes that consumers use a variety of decision processes when purchasing products. Consumer involvement depends on how important the purchase is to the consumer. High involvement purchases are important to the consumer (Assael 1998). We believe that the adoption of most agricultural innovations represent a form of high involvement purchase for primary producers. The new technology or practice must be integrated into the existing mix of technologies, practices and resources that exist on the farm (Crouch 1981; Kaine & Lees 1994). Given that usage of agricultural innovations is defined by farm contexts, differences in farm contexts will result in different market segments for an innovation. The market for an innovation will be defined by the set of farm contexts for which the innovation generates a net benefit (Kaine & Bewsell 2002; Kaine & Niall 1999).

The use of complex decision making in high involvement purchasing implies that the purchaser develops explicit chains of reasoning to guide their decision making. This is consistent with explanation based decision theory, where the focus is on 'reasoning about the evidence and how it links together' (Cooksey 1996). This suggests that there should be shared and complementary patterns of reasoning among deer farmers and consistency in the decisions they reach in similar circumstances. Hence, to identify the factors influencing deer farmers decisions we followed a convergent interview process (Dick 1998). The interviewer employs laddering techniques to systematically explore the reasoning underlying the decisions and actions of the interviewee (Grunert & Grunert 1995).

We interviewed 30 deer farmers, 15 from the Otago and 15 from Southland. The AgResearch deer team provided us with the names and details of deer farmers in these regions. Care was taken to interview farmers who were operating large and small scale enterprises, and whose properties were located on flat, rolling or steep terrain. The interviews were semi-structured and farmers were asked questions based around two key themes; demographics and waterway fencing. The demographics of their property included the size and terrain, and the number and type of stock they ran (Table 1). Waterway fencing explored the reasons farmers

Table 1 Demographics of deer farmer properties

	Total size of property (ha)	Size of deer block (ha)	Total deer numbers	Total cattle numbers	Total sheep numbers
Average	424	193	1208	75	1045
Maximum	2024	1032	5300	300	5900
Minimum	4	4	64	0	0

had for fencing these areas or not. Pseudonyms have been used where excerpts or descriptions from interviews have been inserted. Due to the small sample number we were unable to quantify segment size. Rather this research identifies the potential market segments. This provides a way to identify potential issues that may arise when implementing regulations and helps identify future research areas within this topic. Both qualitative and quantitative data were gathered during each interview.

Results

Overview

In our interviews we discovered that the terrain and the nature of the waterway indicated the practicality of fencing, and thus information on farmers’ propensity to fence. Many farmers described waterways on their farm which ran the entire year, others had waterways that ran only at certain times of the year, or had a mixture of both (Fig.1). Only one farmer interviewed, who was located in Southland, had no waterways running through his property. There are many interrelated variables to evaluate when considering waterway fencing including the terrain, and the type of waterway that is present such as permanent versus temporary or meandering versus direct. The terrain of a property can also impact on the practicality of fencing off waterways (Table 2). Many of the farmers interviewed felt it was neither practical nor possible to fence off every waterway on their property due to the terrain. Some

farmers indicated that if they were forced to fence off every waterway, they would have to retire paddocks from deer altogether as it would be too expensive and render the paddocks unproductive. Kevin (Southland) believed he would have to leave his farm if he had to fence all waterways. He argued it was not very practical because of the meandering nature of the waterways and the cost involved. One farmer viewed the deer as doing little damage from having access to the creek and in fact viewed their ability to clean the waterways of aquatic weeds as very valuable. In Table 3 the length of fencing already undertaken by farmers and the distance which still needs to be completed are shown. Many farmers, such as Paul (Otago), budgeted each year towards waterway fencing. He explained that over the “last 4 years [he had] spent \$10 000 per year fencing off waterways”.

Segments

Based on consumer behaviour theory deer farmers were classified into segments based on why they did or did not fence off waterways on their property. The segments are outlined in Figure 2. Segment one consisted of farmers who saw fencing off their waterways as a priority because of the need to control stock movement. Part of this control was ensuring that the stock did not have access to dangerous terrain. Alan (Otago) was an example of farmers in this segment with two waterways running through the property (rolling terrain) which are 90%

Figure 1 Type and number of waterways on deer farms (total farms = 30).

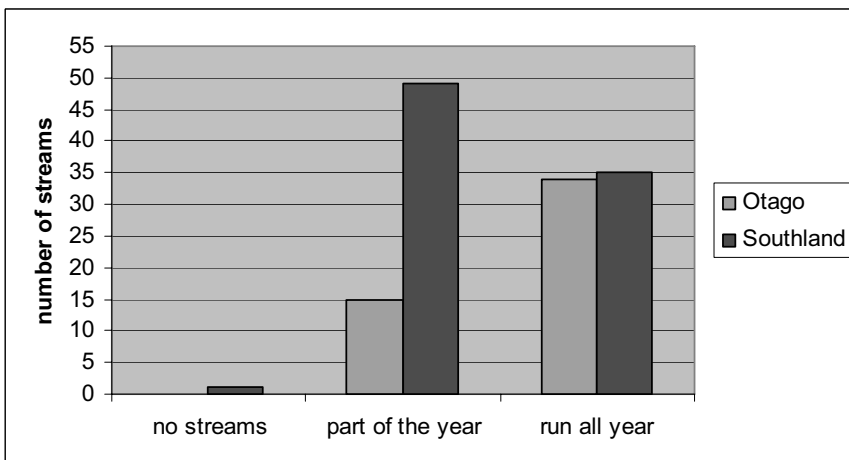


Table 2 Number (and percentage) of farmers interviewed with different types of terrain on the property.

Type of terrain	Flat	Rolling	Steep	Combination
Number of farms (n=30)	8 (27%)	10 (33%)	6 (20%)	6 (20%)

Table 3 Length (m) of waterway fenced per region.

	Total	Mean per farm	Total still to fence	Average still to fence per farm
Otago	20100	1340	12300	820
Southland	50500	3367	27800	1853
Total	70600		40100	

fenced. The motivation for fencing off the waterways was to reduce fawn losses and make sure the stags were safe as they are high value animals.

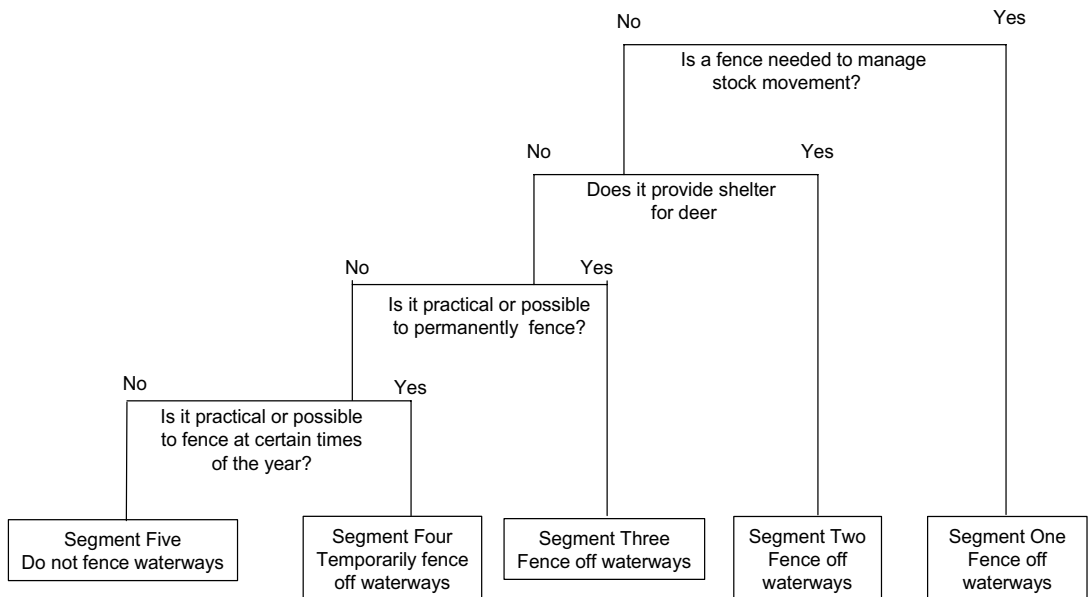
Segment two included farmers who fenced off waterways in order to provide shelter for their deer. These farmers did not necessarily feel that a fence was essential for controlling stock movement. They wanted to provide appropriate shelter for their deer. An example of a farmer from this segment was Tony (Otago) who had four waterways through the deer block (rolling to steep terrain). His main motivation for fencing off the waterways was to protect the trees which were planted within the riparian strip to provide shelter for the deer.

The third segment consisted of deer farmers who felt it was practical and possible to permanently fence off the waterways on their property and were motivated to do so for a number of reasons. They did not mention the

need to manage stock movement or provide deer with shelter as a reason for fencing. Kevin (Otago) was an example of a farmer from this segment. There was only one waterway which ran throughout the entire year another which ran for half the year. He has fenced off his waterways and one of the benefits was that his deer were free of mud.

Segment four consisted of deer farmers who temporarily fenced off their waterways at certain times of the year. These farmers did not feel that waterway fencing was needed to manage stock or provide deer with shelter and they did not believe they needed to permanently fence the waterway. Often they felt it was impractical to fence the waterway permanently. An example of a farmer from this segment was Eric (Otago) who has one waterway running through the property (rolling terrain). The waterway is temporarily fenced off for 3 months of

Figure 2 Typology of segments for waterway fencing.



the year when the deer are wintered in a block of trees which is near the waterway. Eric believed it would be difficult to fence off the waterway permanently due to the base of solid rock and the nature of the creek.

Farmers in Segment five did not fence off their waterways. Waterway fencing was not a farm priority for this segment. These farmers believed that it was not practical or possible to fence off their waterways either permanently or only at certain times of the year. These farmers did not have any particular issues controlling stock movement and had no need to provide shelter via the riparian strip. Paul (Southland) was an example from this segment. His property (rolling to steep terrain) had eight creeks running through it. When he brought the property the waterways were not fenced off. He has not fenced off the waterways as he believed it is impractical to do so due to the terrain and the associated expense.

Discussion

Farmers who gave waterway fencing priority on their farm had good reasons for doing so. These reasons centred on managing stock to, for example, prevent them from accessing dangerous terrain, or providing an appropriate environment for deer, such as fencing and planting riparian strips to provide shelter. Fencing off gullies and waterways meant that farmers with steep properties did not lose valuable stock or have to search for stock in dangerous areas. This suggests that when promoting fencing off waterways, practical issues should dominate.

The reasons for fencing had to be balanced with the practicalities. These practicalities tended to centre on the number of streams that are required to be fenced and the nature of the stream. Some of the streams on farms only ran during certain times of the year. Farmers felt, especially with the current slump in deer prices, it would be financially difficult to fence off these streams. Those farmers who temporarily fenced off their waterways, with a single electric wire, did so as they believed it was not possible or practical to permanently fence off. However, they wanted to keep stock out of the waterway and believed this was the best alternative available to them.

Waterway fencing was a sensitive topic, with many farmers arguing that it is impractical to fence off every waterway on their properties especially if they do not flow all year. Generally farmers were aware that they could implement better sustainable practices with regards to waterway fencing. However, many farmers believed it was not always practical or possible due to their specific farm context or the cost involved, especially considering the economic climate of the industry. Many farmers believed they were doing the 'best they could' and therefore did not feel they needed to adopt new

environmental practices.

Recommendations

Waterway fencing is a topical issue for farmers and a greater understanding of the problems associated with it would aid scientists and councils in creating practical solutions. An understanding of when it is not practical to fence due to the terrain or the vast costs involved also needs to be acknowledged by scientists and regulators. An analysis of the costs involved to fence difficult areas needs to be undertaken, along with investigation into innovative solutions. Due to the current venison prices, the cost of fencing waterways could discourage farmers from implementing the recommendations. Thus, to be successful, local councils will either have to provide subsidies or accept that the fencing will need to be done over a longer period of time. Councils also need to provide more clarity in their definition of waterways in legislative documents – for example a permanent waterway or a waterway which may only run for a few months of the year.

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