Communication sources within the ram sheep purchase network

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This research has been commissioned by the Perendale Sheep Society of New Zealand, which represents a collection of Perendale breeders who wish to improve the competitive position of their breed.

Abstract

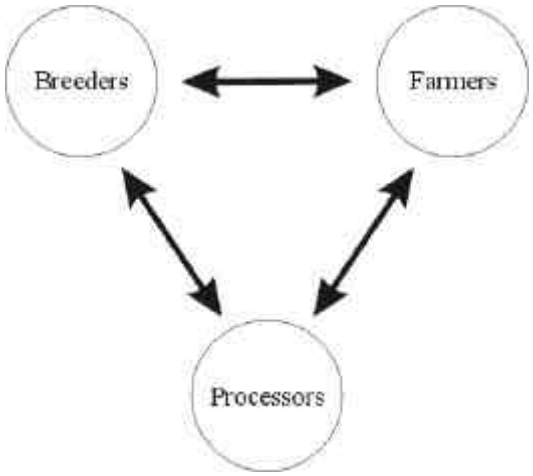
Within the ram sheep purchase network, personal and industry source of communication are considered the most important. The concept of triads appears to be a simple and operational one but the level of connectivity between organisations makes it difficult to break down the network of relationships that exists between these organisations into this simplistic form of network, a net.

Introduction

To reverse the decline in profitability of sheep farming, sheep breeders need to comprehend the purchasing behaviour in this network, breeders need to understand the information sources used in the purchase of a ram, and the implications of a triadic net for the purchase of rams.

In this industry breeders transact directly with farmers, who in turn transact directly with to end-users such as meat, wool and leather processors. Thus, for breeders to understand purchasing behaviour in this context, they need to comprehend the activities of both farmers and processors. The proposed net of breeders, farmers and processors is illustrated in Figure 1 below.

Figure 1: The Proposed Agricultural Net



In the following section, the literature on industry networks and triads will be discussed, and the literature on communication sources within industrial marketing and networks will be discussed. Finally, the limited literature on

agriculture marketing and communication will also be discussed in relation to the research question.

Literature Review

This review will analyse a large volume of research that seeks to explain various aspects of networks and triadic nets in particular. It will also identify the information sources and communication media within industrial an industrial purchasing situation. Therefore, the literature on networks and triadic nets will be reviewed followed by communication and information sources within industrial purchasing. The final section of this review will evaluate the literature on information sources and usage in agricultural markets.

Although also difficult to define, networks can be thought of as a collection of relationships that influence each other (Larson, 1992 and Havila and Sandstrom, 1993). A triad is three actors combined by a minimum of two exchange relationships comprising a small part of a network, otherwise known as a net (Easton and Lundgren, 1992 and Tahtinen and Halinen-Kaila, 1997). The difficulty operationalising networks suggests much would be gained by focusing on a 'net' of particularly important relationships (Backhaus and Buschken, 1997; Axelsson and Easton, 1992). Therefore, network theory should focus on a discrete set of direct relationships of importance to the operation of the business (Axelsson and Easton, 1992). Several studies have taken a similar approach to identify the patterns of influence in a triadic net, although none have taken an agricultural perspective (Havila and Sandstrom, 1993; Phillips, Liu and Costello, 1998; Ritter, 1999).

Industrial purchasers increase communication with their informal network under conditions of increased risk and uncertainty (Bunn and Liu, 1996; Henthorne, LaTour and Williams, 1993). Additionally, researchers have suggested the influence of industrial networks can depend on individual, organisational or situational differences (Money, 2000; Ronchetto, Hutt and Reingen, 1989).

External sources of information such as suppliers' salespeople and literature on the item to be purchased were found to be important (Luffman, 1974; Parasuraman, 1981; Moriarty and Spekman, 1984; Jackson et. al., 1987; Brossard, 1998). Outside consultants, members of the organisation and other non-commercial personal sources are also important (Bunn and Clopton, 1993 and Bunn and Liu, 1996). Industrial advertising is not being used effectively because of a 'lack of imagination' by industrial advertisers (Gilliland and Johnston, 1997). As purchase risk and decision uncertainty increase personal sources of information and industrial purchasers consulted more sources of information for high than low-risk decisions (Moriarty and Spekman, 1984 and Henthorne et. al., 1993).

It has been suggested that information source usage by small organisations will differ to that used by large businesses (Moriarty and Spekman, 1984). The most popular type of referral source for word-of-mouth communications is the 'business insider', and the next most important referral source is channel members/business contacts, followed by other service providers (e.g. banks) and personal contacts (Money, 2000). Consequently, the applicability of most of the literature on small rural-based enterprises is unknown.

Field days (trade shows), agents, other farmers and personal records in an agricultural context were found to be important sources of information for farmers (McLeay, Martin and Zwart, 1996 and Martin and McLeay, 1998). However, these studies did not focus on the implications that an agricultural network has for the information sources preferred. This is perhaps consistent with Bunn and Clopton (1993) who illustrated strategic differences between companies will encourage these organisations to use different combinations of information sources in their industrial purchasing decisions.

Although the studies that have been completed in this area are useful for understanding which information sources are used by farmers (McLeay et. al., 1996), there seem to be fundamental gaps in the existing body of knowledge. In particular, no research attempts to understand the workings of the network in which farmers interact. This is an area that the current study will attempt to address.

Research Methodology

A pluralistic methodology, with qualitative in-depth interviews to identify the information sources of processors and a quantitative survey to distil this information from farmers, was used. Combining these methodologies harnesses the strengths of both positivist and phenomenological approaches (Easterby-Smith, Thorpe and Lowe, 1991). Semi-structured interviews were conducted with meat, wool and leather processors to identify their information sources and the relative importance of the information sources to these organisations. As there are only a small number of companies holding a rich amount of information on this topic, face-to-face interviews were an efficient way of identifying constructs of importance to processors when faced with this selection decision. The respondents were chosen from each of the three major sheep processing industries, and from companies of varying size, and those responsible for the purchasing of sheep (or sheep products).

Self-completion surveys mailed to farmers were used in the second stage of the research. However, 32 surveys were also administered in person at an agricultural show. The surveys administered in person also allowed for a deeper understanding of why particular responses were given. The 300 farmers were

divided into two samples of 150, randomly selected from two databases. The first database, supplied by the Perendale Sheep Society, represented current Perendale farmers, whereas the second database supplied by WoolPro represented farmers not using Perendale stock. As such, although randomly selected, the sample was non-probabilistic as the sample contained a deliberately disproportionate number of Perendale farmers (47% instead of 7% nationwide - The New Zealand Wool Board, 2001), allowing a comparison between Perendale users and non-users.

In industrial research, sample sizes of several thousand are often used to combat frequent low response rates, (e.g. Bunn and Liu, 1996: 12%; Henthorne, et al, 1993: 25%; Parasuraman, 1981: 27%). However, the only study remotely similar to the current research received a useable response rate of 72% (McLeay, et. al., 1996), suggesting that a much smaller sample would be satisfactory. Thus, although a sample of 300 is relatively small in an industrial research context, it was decided this sample size would be ample, given the responses required for the data analysis procedures to be used.

Results and Discussion

In this section the interviews with the sheep processors will be discussed first, followed by survey of farmers. Meat companies often have regional buyers who purchased stock directly from the farmer, enacting the policies of the senior management team. These buyers are also responsible for communicating market trends directly to farmers and breeders. Meat companies also use a range of other media, including newsletters, trade shows, the industry press, word-of-mouth and price schedules in the newspapers. Several companies also reported a desire to use email to communicate to farmers. The same media were also used to communicate with breeders.

Leather companies often find it difficult to communicate directly with farmers, because of the dominant role played by the meat companies. They often belong to industry pressure groups that publish articles (in the industry press or newspapers) and undertake research or liase with the meat companies to communicate indirectly with farmers and breeders. Consequentially, communication by leather companies are less direct than that observed in the other processing industries. Wool processing companies often use trade literature, rural servicing companies and merchants to communicate directly to farmers and breeders. Although several companies use buyers to purchase directly from farmers in a similar way to the meat companies, many stated they did not have the resources to directly communicate to farmers in this way. These companies often look for external organisations (such as breeders) that can communicate their messages indirectly to a range of farmers.

It appears the three different groups of processors communicate differently with farmers and breeders. Meat companies communicate both directly and indirectly whilst leather companies and wool processors predominantly communicate indirectly. The other conclusion that can be drawn is that this net is not a triadic unit, as defined by Tahtinen and Halinen-Kaila, (1997). The concept of triads appears to be a simple and operational one but the level of connectivity between organisations makes it difficult to break down the network of relationships that exists between these organisations into this simplistic form of network.

Table 1 suggests breeders and word-of-mouth are of high relative importance to farmers making a ram purchase decision. With the exception of industry guides, impersonal sources of information such as mass media advertising seem to be relatively unimportant. Farmers considered themselves to be relatively autonomous decision-makers, which explains the relatively low rating of each information source. This makes communicating with farmers more difficult, increasing the importance of the information sources that did exhibit a strong rating. To identify the underlying importance of these information sources, a factor analysis has been used to identify four distinct types of information.

Table 1: Information Sources Utilised in the Ram Purchase Decision

Information Sources	N	Mean (SD)*	% Ranking in Top Five (N=149)
Other farmers/Word of Mouth	164	5.30 (1.41)	68%
Breeders	164	5.28 (1.62)	70%
Farm Open Days	163	4.64 (1.71)	42%
Industry Guides/Publications	163	4.63 (1.61)	46%
Stock agents/rural servicing firms	164	4.49 (1.61)	44%
Meat and/or Leather Processors (Drafters)	155	4.42 (1.89)	41%
Pamphlets/Newsletters	163	4.28 (1.73)	34%
Wool Processors (Drafters)	157	4.25 (1.75)	33%
Trade Shows/Fairs (Field Days)	160	4.20 (1.82)	34%
Family/Friends	163	4.09 (1.79)	23%
Vets	162	3.98 (2.02)	21%
Mass Media Advertising	163	3.46 (1.87)	23%
Bank Representatives	161	2.20 (1.62)	2%
World Wide Web	158	1.97 (1.49)	3%

*On a 7-point Likert scale where 1=Unimportant, 4=Neutral and 7=Important

Table 2 suggests personal and industry sources of information are of greater relevance to farmers than impersonal or indirect sources. The results supported

the importance of personal information sources, with word-of-mouth and breeders being of particular importance to farmers (Moriarty, 1983; Moriarty and Spekman, 1984; Jackson, Keith and Burdick, 1987; McLeay, Martin and Zwart, 1996; and Brossard, 1998). Additionally, farmers and processors believed industry sources were of moderate importance, with processors also purporting the importance of a range of other information sources.

Table 2: Factor Analysis of Information Source Preferences

Factors	Mean (SD)*	Variance Explained	Eigenvalue	Alpha
Personal Sources	4.84 (1.14)	16.6%	2.1593	.6438
♦ Breeders				
♦ Other farmers/Word of Mouth				
♦ Farm Open Days				
♦ Family/Friends				
Industry Sources	4.36 (1.40)	15.6%	2.0272	.6905
♦ Wool Processors (Drafters)				
♦ Meat and/or Leather Processors (Drafters)				
♦ Recommendations of stock agents/rural servicing firms				
Impersonal Sources	4.09 (1.35)	15.7%	2.0348	.6729
♦ Industry Guides/Publications				
♦ Pamphlets/Newsletters				
♦ TV/Radio/Newspaper Advertising				
Indirect Influencers	2.63 (1.33)	13.8%	1.7897	.6743
♦ World Wide Web				
♦ Vets				
♦ Bank Representatives				
Trade Shows (Field Days)	4.20 (1.82)	-	-	-
Total		**61.6%**		

*On a 7-Point Likert Scale where 1=Unimportant, 4=Neutral and 7=Important

The industrial network of an organisation has also been treated as a source of information (Henthorne, et. al., 1993; Bunn and Clopton, 1993; Bunn and Liu, 1996; Katrichis, 1998; Money, 2000;). Consistent with this existing body of literature, members of a processors industrial network seemed to exhibit

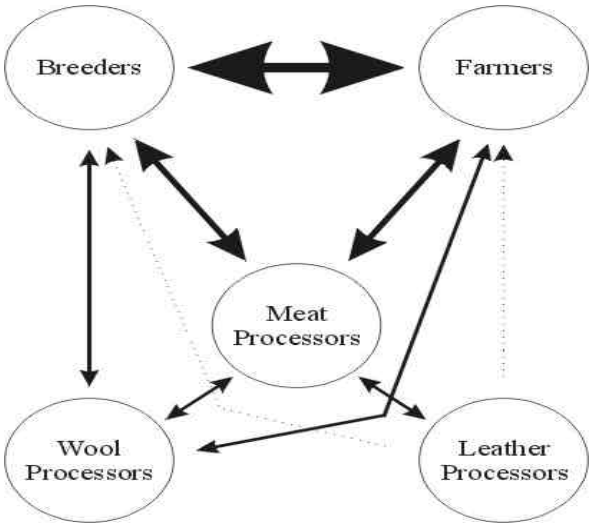
individual differences. Those members with a direct involvement or stake in the decision seemed to have greater influence in the decision. These individuals were usually members of the organisation in positions such as the senior management team.

Farmers favour internal members of their organisation (themselves). External influencers were utilised because of their expert knowledge on the purchase decision, rather than actually being internally involved in the decision. Those external sources were usually boundary-spanning individuals, such as buyers and breeders who were thought to be knowledgeable on this particular purchase. The influence structure differed somewhat between the purchasing behaviour of farmers and processors, as proposed by the literature. Farmers display preferences for personal informal components of the network, whereas processors also believed in the influence of impersonal formal aspects. The corporate orientation of the processors may lead these organisations to use a variety of sources of influence. Alternatively, a lack of monitoring of the effectiveness of information sources may lead processors to choose low cost-per-contact media, rather than the most effective media.

Conclusion

As previously mentioned, the information sources used by individual farmers are likely to vary due to the practices of each respondent. By examining the purchasing of rams from the perspective of both farmers and processors, the patterns of influence within this industrial network can be established. Figure 2 below depicts this agricultural industrial network:

*Figure 2: The Agricultural Industrial Net**



**Line width represents strength of influence*

Breeders appear to hold significant influence in this industrial network. However, this influence refers to the role individual breeders play in this purchase decision, rather than collaborative breed-groups. Although breeders exert the most influence on this purchasing decision, meat processors seem to occupy a more focal role than either wool or leather processors and also seem to make more effort to communicate directly with breeders and farmers.

Farmers appear to believe breeders are not only a source of rams but are also industry leaders and small research and development centres. Observing the stock and farm practises of a breeder provides ideas for improving the performance of farmer's sheep flock and farm output in general.

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