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## **Farmers' Choice of Marketing Strategy: A Study of New Zealand Lamb Producers**

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### **Abstract**

The red meat industry is of utmost importance to New Zealand's economy, generating \$2.8 billion in export earnings, accounting for 6.5% of the total merchandise export value in 2010 - 2011. However, sheep numbers fell substantially from 70 million in 1982 to 31 million in 2012. This has led to large-scale rationalization within the processing industry, causing major processing companies to now focus on in-house performance, including external relationships with suppliers and downstream customers. Yet, there are still openly adversarial relationships between processing companies and farmer suppliers with a prevalence of spot market relationships between many producers and processors. As the industry attempts to determine how to improve performance, a clearer understanding of producers' selling behaviors and the drivers behind such behaviors is needed in New Zealand to effectively move towards a more comprehensive and sustainable procurement strategy for the industry. This research provides insights into why, and what influences why individual farmers chose various selling channels within the lamb meat supply chain.

**Keywords:** meat producer marketing strategies, commitment, uncertainty, selling channels, supply chain relationships, PCA, regression partitioning models

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## Introduction

New Zealand has a long history in meat production with mature supply chain industries built around it. The lamb sector continues to play a dominant role in the economic well-being of the New Zealand economy. Exports of sheepmeat contributed NZD\$2.7 billion, representing 6.3% of New Zealand's merchandise exports in 2010 (Beef and Lamb New Zealand 2012). Recent years of low profits, volatile prices, and declining production have hampered opportunities for growth. The industry is now under threat from competing land use from dairying, dairy support, and forestry (MacLeod 2011).

Currently, a clear conflict faces sector participants at different points across the value chain. While processors benefit from being able to elicit longer-term supply commitments from farmers to ensure supply certainty, they face short-term financial incentives to procure on the spot market to both maximize capital utilization and gain additional quota markets (Ministry of Agriculture and Forestry 2009).

Over the last two decades New Zealand's red meat industry has undergone significant change with large-scale rationalization of processing capacity from the peaks of the early 1980's created by Government subsidy payments (Clare, Shadbolt, & Reid 2005). Now major processing companies focus on in-house performance including external relationships between suppliers (farmers), and downstream customers (distributors, retailers and consumers).

New Zealand lamb production is based on a seasonal pasture-based system. Lamb production closely follows New Zealand's pasture growth curve, where the bulk of lamb is supplied over the summer and autumn months (Beef and Lamb New Zealand 2012). On one hand, these systems provide a comparative advantage of relatively low-cost production that yield a natural product. On the other, the highly seasonal nature of this supply results in excess processing at certain times of the year and tight capacity during others when exacerbated by drought conditions that push slaughter dates forward by farmers. Furthermore, due to the decline of sheep numbers from 70 million in 1982 to 31 million in 2012, there is an excess processing capacity within the industry. This excess capacity combined with the seasonality and uncertainty of the lamb supply, drives processors to offer or remove procurement premiums throughout the season and engage in intense competition with one another (McDermott et al. 2008).

Supply and price uncertainty has led to an openly adversarial relationship between processing companies and farmer suppliers (Clare, Shadbolt, & Reid 2005, McDermott et al. 2008), not dissimilar to that found in red meat supply chains elsewhere (Fearne 1998). Behaviors of farmers said to drive the shape of the industry are the spot market relationships, yet there are farmers who have adopted contracts with processors to supply lambs at specific times and for specific customer requirements. However, McDermott, Saunders, Zellman et al. (2008) note that both farmers and processors often treat contracts with a cavalier attitude, depending on market and climatic conditions. Farmers can feel constrained by contracts as they try to match lamb production with pasture growth—which varies from year-to-year. Spreading the season beyond its natural pasture-based bounds is not always an option and can add both cost and risk to farmers (Ministry of Agriculture and Forestry 2009).

Achieving higher levels of supply certainty is often cited as a key value driver for the sector (MacLeod 2011; McDermott 2012) and agribusiness in general (Matopoulos et al. 2007). With certainty of supply the sector's processors and marketers will be able to better manage key risks and volatility in the market through increased use of contracts. With a fixed price contract, exporters can use financial instruments to manage their exposure to currency fluctuations, thereby reducing their price volatility and that of their suppliers. Key benefits identified for the processor include certainty of supply (procurement), inventory management (not having to freeze excess lamb supply, therefore lowering its value), cost efficiency and asset utilization (removing the peaks of supply, therefore, having less excess capacity during the winter months), customer service improvements, marketing effectiveness and sales growth (Zanquetto-Filho, Fearne, & Pizzolato 2003, Matopoulos et al. 2007). Other advantages include plants becoming more capital intensive and the ability to enter into new markets that require year-round supply of chilled cuts (McDermott, Saunders, Zellman et al. 2008, MacLeod 2011). The advantages for producers is not frequently mentioned in the literature.

It is unlikely that the benefits will be the same for both parties (processor and producer), but they need to be strong for both. In addition, the drivers must be strong enough to provide each party with a realistic expectation of significant benefits through a strengthening of the relationship (Lambert, Emmelhainz, & Gardner 1996).

It is not fully understood why some producers commit supply through contracts and others do not. A clearer understanding of producers' selling behavior and the drivers behind such behavior is needed in New Zealand to effectively move towards a more comprehensive and sustainable procurement strategy for the industry. The objective of this research is to provide insights into why, and what influences individual farmers choices in selecting various selling channels within the lamb meat supply chain.

In order to best examine these selling decisions an initial review of literature on the marketing strategies of producers, their choice of selling channel, and the nature of their supply chain relationships was carried out. This, combined with a selection of interviews with lamb producers and industry experts, was used to formulate a survey of the marketing strategies of a targeted random sample of New Zealand lamb producers. Principal component analysis and regression partitioning modelling identified factors that explain both the variance between the sample producers overall and then of each marketing strategy. Key drivers of the different marketing strategies were examined and discussed to best determine the factors that most influence selling decisions and behavior amongst NZ lamb producers.

## **New Zealand Lamb Industry**

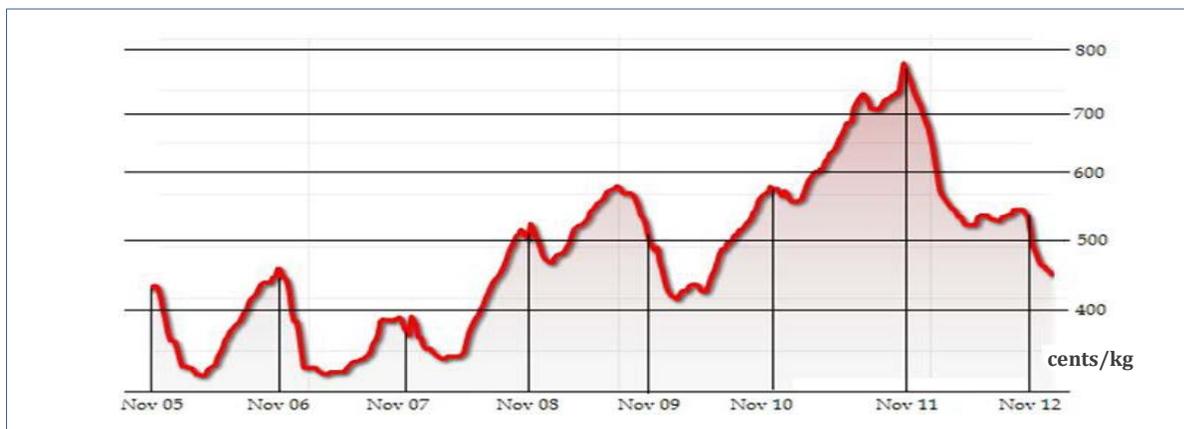
The efficiency of the New Zealand lamb industry is largely based on climatic conditions that allow for year-round pasture production. This enables the production of a low cost, natural product, providing the foundation of New Zealand's reputation as a global meat producer. However extensive free-range production also brings challenges with large variations due to climatic conditions between years.

Timing and spread of lamb supply varies by season and throughout the country depending on climatic conditions and pasture growth rates. The uncertainty surrounding the timing of lamb supply, and therefore prices, is a key predictor of the balance of power and economic fortune of producers and processors for the season. The entire lamb supply chain is at risk of disruption each year due to weather patterns.

Generally producers have at least two to three different marketing options in which to sell their finished lambs. This can include directly to a meat processing company or through an independent agent. Each company will have a range of procurement or supply options available to farmers which differ in the level of “contractual” risk and flexibility. This can include the determination of prices paid (fixed or spot market, per head or per kilogram weight); whether or not a producer must commit their lambs to the company; and any premiums available for meeting certain weights or supply of lamb target numbers.

In most cases, producers have an option to commit to a particular company by giving estimated numbers and dates of their predicted lamb supply in advance. This decision must normally be made at the start of the lambing season (August/September) and an agreement will be made with one company for the forecast number of lambs to be sold in that year. Although committed to one company, often the price received will be determined on the day as the “spot price”. Farmers generally have the option to meet more stringent requirements such as monthly delivery of a pre-determined number of lambs to a specified weight range. In some cases, this will generate a fixed price and or a premium for the supply to meet these specifications.

Spot prices usually begin to decrease in early summer, November, when the pasture growth rates are at their peak and lambs are starting to be weaned for sale (Figure 1), and lift again as pasture growth rate and lamb supply dwindles in the winter. In some seasons the lift has been sooner (08/09 and 10/11) or not at all (11/12).



**Figure 1.** Seasonal New Zealand Lamb Schedule Prices (Polson 2012).

When growing conditions are favorable to producers (e.g. in 10/11), they often hold on to stock longer, reducing supply, resulting in companies paying premiums to source stock. (McDermott, Saunders, Zellman et al. 2008). Conflict arises as processors are seen to pay premiums to procure stock for plant utilization in the short term, whilst calling for long term commitment from

producers (Ministry of Agriculture and Forestry 2009; MacLeod 2011). However in the case of a drought season the converse occurs; supply increases and prices decrease. Processing space can also be extremely limited and producers must rely on a good relationship with their company or agent to get access to available space.

The behavior of producers that “shop around” for the best price is seen to be detrimental to the industry. Closer collaboration through increased certainty of commitment, long-term relationships and contracts between producers and processors is deemed necessary to increase the competitiveness of the lamb supply chain (McDermott, Saunders, Sinclair et al. 2008, McDermott, Saunders, Zellman et al. 2008, Ministry of Agriculture and Forestry 2009, MacLeod 2011).

There are two similar schools of thought in the industry related to the need for increased collaboration and commitment amongst producers and processors.

- The need for greater plant efficiency achieved through committed supply arrangements between producers and processors. This would involve producers committing a large proportion of their stock to one company.
- Adding increased value along the supply chain by better meeting consumer requirements such as greater traceability and a link to the origin of their food products.

Both of the above suggest it is the producers’ behavior that needs to change. Yet little research has evaluated why producers carry out the selling behavior that they do, what drives their behavior, and what is important to them when making selling decisions.

## Literature Review

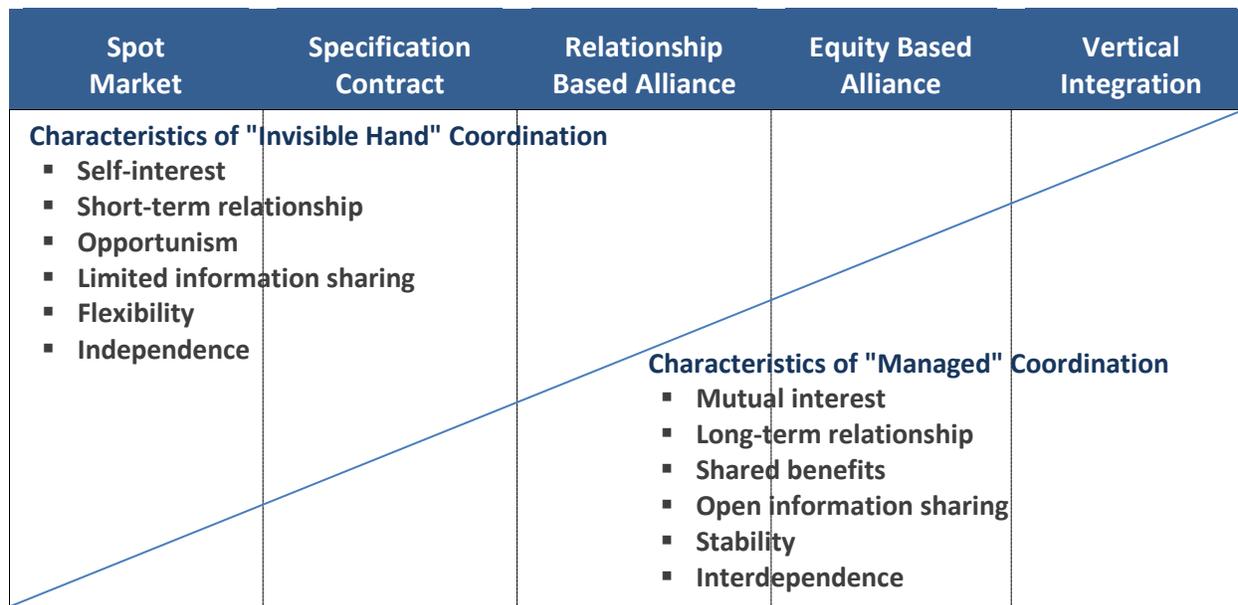
A review of the literature on producers’ marketing strategies, their choice of supply chain channel, and the nature of supply chain relationships was carried out to develop a framework to examine New Zealand lamb producers’ selling decisions.

### *Producers’ Marketing Strategies*

Food retailing is increasingly more customer responsive, more service focused, and more global in ownership. The input supply and product processing sectors are becoming more consolidated, more concentrated, and more integrated (Fearne 1998, Boehlje 1999, Hobbs & Young 2000). Vertical coordination refers to the means by which business arrangements move through the supply chain from production to consumption. It encompasses a continuum of possibilities from open market spot transactions at one extreme, through to full vertical integration at the other, and includes intermediate forms such as strategic alliances, joint ventures and contracting (Frank & Henderson 1992).

Several authors have identified a variety of hybrid coordination strategies between spot markets and vertical integration, such as contracts, and equity arrangements (Joskow 1987; Osborn & Baughn 1990), to more informal strategies, such as, information sharing and joint planning (Palay 1984, Noordewier, John, & Nevin 1990). The uniqueness and inter-connectedness

between individual strategies and the continuum of vertical strategies are discussed by Peterson, Wysocki, and Harsh (2001), and Wysocki, Peterson and Harsh (2006). Figure 2 is a hypothesized continuum, with five major categories of vertical coordination strategies that have been identified, ranging from spot markets to vertical integration.



**Figure 2.** Strategic Options for Vertical Coordination

Source. Peterson et al.(2001)

At the ends of the continuum, the characteristics of “invisible-hand” coordination and “managed” coordination are, respectively listed. At the spot market end participants follow their self-interest and pursue exchange relationships that are short term, opportunistic, limited as to information sharing, flexible, and preserving of their independence (Hobbs & Young 2000; Peterson et al. 2001, Matopoulos et al. 2007). At the other extreme, managed coordination is built upon the mutual interests of the exchange participants who pursue relationships that are long-term, benefit sharing, open as to information flow, stable, and supportive of interdependence (Peterson et al. 2001). As the continuum moves from left to right, coordination moves from being dominated by invisible-hand characteristics through a changing mix of invisible-hand/managed characteristics to coordination being dominated by managed characteristics.

In order to understand the concept of collaboration in the context of the agri-food industry there is a need to better analyze the sector by identifying its particularities and the changes that have occurred lately (Matopoulos et al. 2007). Global retailers are building partnerships and support close collaboration practices with many of their suppliers in an effort to achieve performance improvements across many business levels (Kaufman 1999). Also, consumers are more than ever interested in having healthy food and are characterized by higher levels of food safety concerns. This has increased public pressure for transparency, traceability and “due diligence” throughout the agri-food supply chain (Hughes 1994; Boehlje & Hofing 1999; Fearn, Hughes, & Duffy 2004).

Existing empirical studies clustering producers based on their business and marketing strategic orientation were reviewed. These types of studies emulate previous business management strategy theory that attempt to classify and identify firms that follow similar strategies. A gap in the literature was identified by McLeay, Martin, and Zwart (1996) in relation to describing the marketing activities of individual producers, they analyzed farm business marketing and strategic management processes and found that differences exist amongst groups of producers. Since then several other studies have analyzed producers' strategic orientation in several industries and locations (Davies et al. 1999; Poole 2000; Isengildina and Hudson 2001; Tsourgiannis, Eddison, and Warren 2008). The importance of marketing within a producer's strategy differs depending on the overall business strategy of the producer and their orientation towards production, the consumer and livestock market, risk, and flexibility.

### *Choice of Supply Chain Channel*

Given the existence of differences in marketing strategies, the next area of investigation was to explore in more detail the reasons behind the producers' choice of selling channel.

The transaction cost economics approach has traditionally been the most common method to determine the drivers of different types of transactional exchanges. Theory suggests that increased integration through contracts and more formal relationships will occur to safeguard investments and reduce uncertainty. The theory is driven by assumptions about the nature of human behavior and how this will impact exchanges between two parties. This is founded in static economic theory whereby the most efficient outcome which minimizes the costs of transaction will prevail. However from the empirical studies it would seem that the level of transaction costs is not sufficient in determining the extent of coordination in a dynamic supply chain (Boger 2001, Hobbs 1997, Ferto and Szabo 2002, Gong et al. 2006, Woldie and Nuppenau 2009).

The relationship between a producer's strategic orientation and choice of channel was explored (McLeay and Zwart 1998, Wachenheim, deHillerin, and Dumler 2001, Gillespie, Basarir, and Schupp 2004, Tsourgiannis et al.2008). These scholars identified that a producer is more or less likely to contract depending on their strategic orientation towards entrepreneurship and differentiation compared to the desire for stability, and how important the role of marketing is to the business. This introduces the idea that the choice of channel relates to the type of person rather than pure economic efficiency grounds. The studies illustrate that marketing strategies make up an important component of farm business strategies, and that producers carry out heterogeneous strategies (McLeay et al. 1996, Davies et al. 1999, Poole 2000; Isengildina and Hudson 2001; Tsourgiannis et al. 2008).

The concept of supply chain participants picking between channels based on the features of the 'solution' was explored through conjoint analysis by a number of scholars (Hobbs 1996, Stanford et al. 1999, McDermott, Lovatt, and Koslow 2004). In these studies producers (and processors) are asked to rate what they preferred and disliked about different marketing channel options. This implies that there are potentially many different reasons related to the actual features of the channel that result in a producer choosing a certain channel. Conjoint analysis enables an analysis of individual's decisions based on a bundle of attributes. This method

expands on the theory of transaction costs in that producers make inherent trade-offs between channels based on the individual's perceptions of the costs of transaction. Individuals with different perceptions of transaction costs can then be grouped together and accounts for differences in personal characteristics such as age, location, and farm size. Therefore, this method combines elements of multinomial regression analysis of transaction cost economics and personal characteristics.

Conjoint analysis limits the number of variables that can be analyzed as well as the need to specify a limited number of variable levels. Results to date are rudimentary, they can only conclude the order that producers judged a limited number of variables and that they would generally prefer to choose the level that seemed to be obvious as preferential e.g. higher prices over lower prices and easier access over tighter access to processing space. This method limits the research insights to a study of a producer's decision between hypothetical situations at a static point in time. However this method adds value to the research beyond purely grouping producers based on personal characteristics and demographics.

A more dynamic method adopted by Fairweather (1999); among others (Darnhofer, Schneeberger, and Freyer 2005, Sahin 2006 and James; Klein and Sykuta 2011) is the application of innovation diffusion and complementarities theory to analyze a producer's uptake of more integrated supply channel options. This aligns with analyzing the attributes of a "solution", but takes a more holistic approach assessing which attributes encourage or dissuade a producer from adopting a more formal, contractual supply channel. Decisions trees can then be used to group producers by their behavior as well as the different motivators and constraints that compel behavior.

Overall, it appears from the literature that some producers prefer a certain supply channel because it makes selling decisions such as fixed price, increased flexibility, or low requirements, easier. Other producers seem to need a channel to be more beneficial for them to join such as higher than average prices or lower costs, or increased information. This difference seems to relate to the producers ability to deal with uncertainty. A producer's selling decision is dynamic and complex with many factors of possible consideration.

### *Supply Chain Relationships*

The quality of supply chain relationships plays an important part in all business transactions and will be affected by several factors that can include wider macro factors, sector specific and personal factors. Various scholars concluded that the status of relationships is merely a consequence of the type of exchange transaction along a continuum of levels of integration between supply chain participants (Williamson 1998, Ferto and Szabo 2002, Young and Hobbs 2002; Peterson et al. 2001, Wysocki et al. 2006, Schulze and Spiller 2006; and Fischer et al. 2008). These scholars suggest that high quality, long-term, collaborative relationships increase the more integrated the supply chain transaction. Spot market transactions are considered to have a low level of relationship quality due to the arm's length, adversarial nature of the transaction. Other scholars view the transaction between producers and processors as similar to other business-to-business relationships, whereby industry and environment specific factors will influence the benefits, risks, enablers and barriers to increased integration (Zanquetto-Filho et al.,

2003, Ivens 2004, Gray, Boehlje, and Preckel 2006; and Matopoulos et al. 2007). Collaboration is driven by the recognition by both parties that collaboration makes sound business sense such as reducing costs or attempting to increase value. Only Matopoulos et al. (2007) highlighted that there were also risks involved in increased collaboration.

Further studies have examined the factors of quality of relationships rather than factors influenced, or those influenced by the nature of transactions and integration levels (Ivens 2004, Clare, Shadbolt, & Reid 2005, Theuvsen and Franz 2007, Fischer et al. 2008; and Schulze and Schlecht 2009). These studies attempt to empirically measure the quality of different relationships and factors that have played the largest role in relationship quality (Schulze and Schlecht 2009; Ivens 2004). The importance of dyadic variables such as trust and commitment on relationship quality led to investigating the antecedents for these factors (Kwon and Suh 2004, Schulze and Spiller 2006, Fischer et al. 2007). Relationships are important in supply chain transactions, yet how these relationships impact producers' marketing strategy or channel choices does not seem well defined.

### *Summary*

From the literature it was concluded that producers differ in:

- strategic orientation based on attitudes towards the importance of marketing as a function of their business, and the degree of stability versus flexibility they desire.
- human characteristics as they impact how producers' perceive features of different available marketing channel options including the perceived costs of transaction.
- relationships and collaboration that can play a role in reducing transaction costs.
- perceptions of the different transaction costs for each option. These perceptions may be influenced by the individuals own ability and resources, including their own human characteristics being their desire for opportunistic behavior, their ability to search for and process information, and their differing levels of bounded rationality.

These factors may have just as large an impact on the choice of channel as the transactional characteristics of uncertainty, asset specific investments and frequency, yet this has not been explicitly explored in the literature. In addition there is little analysis combining a wide range of factors in decision making such as strategic orientation, producer attitudes, demographics and relationship variables.

In the New Zealand lamb industry context there are no stark differences in the transaction characteristics between marketing solutions. Transaction costs are said to be impacted by transaction characteristics of uncertainty, frequency of transaction and level of asset specific investments made. Price uncertainty can be reduced by entering into fixed price contracts; however this creates price risk from upward movements in the schedule. Processing space uncertainty is reduced under committed supply arrangements. Frequency of transactions should remain the same regardless of supply option, as generally lambs will be sent off the farm at regular intervals in line with available pasture and lamb growth rates. While some asset specific investments may be made for some supply options, there is generally little restriction between

entering and exiting committed supply options. This illustrates that there is likely to be different reasons for supply channel options.

## Method

The literature review, initial interviews with producers and industry experts and pilot survey testing, determined the following topics to be included in the survey:

- 1) Producers' decision-making process and selling behavior.
- 2) Producers focus on market, production, flexibility, stability and cost orientation.
- 3) Producers values in relation to certain supply plan and company specific factors.
- 4) Factors that may cause producers to change between companies or between supply plans.
- 5) The quality of producers' relationships with their buying agent or meat company.
- 6) Farm and producer characteristics.

A range of variables including the producer's strategic orientation, values, relationships, and demographics formed the basis of the survey designed to investigate the characteristics of the producers carrying out different marketing strategies and the level of importance placed on different variables when making selling decisions.

A survey allows the investigation of the importance of the particular variable and the development of generalizable relationships between variables (Philliber, Schwab, and Sloss 1980). Interviews with 14 lamb producers throughout New Zealand were used to test the main concepts developed from the literature. Procurement managers for eight different meat companies were interviewed to discuss the different supply plan options available to producers, and to identify any differences in requirements or benefits to producers from selling to each company. The survey was tested for questionnaire design and ease of completion with seven producers. The initial design was adjusted based on feedback from producers.

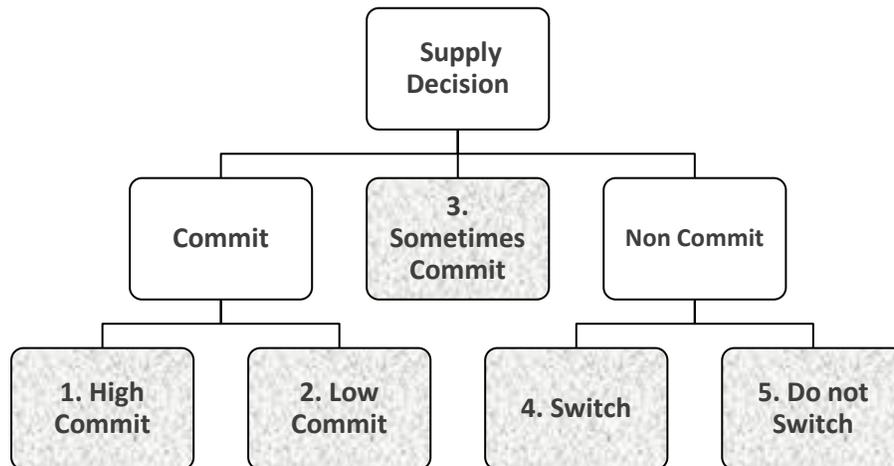
A purposive random sampling procedure was used. Differences in selling decisions may be influenced by the number of selling options available and agro-climatic conditions. To limit the impact of these factors on the results, the two regions of New Zealand, the East Coast of the North Island and Otago-Southland in the South Island, were targeted for the study sample. Both regions have several different meat processing companies operating to which producers could choose to sell their lambs. The sampled regions represent several different land use classes within New Zealand from extensive high country farms in the South Island, to steep hill country, and more intensive finishing country. Surveys were sent either electronically or by post. From the sampled 2,621 producers, 883 (34%) responses were received, with 734 usable responses (28%) analyzed. Due to the high response rate, no further surveys were sent out and so there is no analysis of non-response bias.

Principal component analysis (PCA) was carried out on survey sections relating to strategic orientation, selling behavior, values, and relationship status to determine the main factors that differentiate producers. This grouped a range of questions in the survey into key variables which were then used to define key differences between producers based on their overall weighted scores of answers to each group of questions. Data was collected through Likert Scales ranging

from 1 (Strongly Disagree; or No extent) to 5 (Strongly agree; or High Extent). The principal component scores were obtained for each individual by multiplying the weightings and standardized original scores. To allow analysis with missing data, multiple imputations using the nearest neighbor method was carried out.

PCA was carried out to investigate which types of constructs could explain the most variance in the data. PCA was used rather than factor analysis, as factor analysis only improves the interpretability of the loadings by removing variables with low loadings. The final principal components that demonstrated the largest difference between producers were combined with demographic variables in logistic regression partition models to demonstrate the factors of greatest variance between producers carrying out different marketing strategies.

These different marketing strategies were the dependent variables used for the analysis. They were based on level of vertical coordination. For the case of the New Zealand sheepmeat industry, five marketing strategies were defined as illustrated in Figure 3.



**Figure 3.** Marketing Strategies: The Dependent Variables

Strategies are categorized firstly based on how often the producer has committed their lambs to one company in the last five years. Secondly the producers are split based on the level of buy in they have to the initial split. Those that always commit are split into high or low committers based on the specifications of their commitment arrangement. High Committers are subject to greater specifications in delivery and price by meeting monthly or weekly delivery of specified lamb numbers, aiming for targeted weight and fat grades, have breeding or feeding requirements, or delivering under a contracted fixed price. Low committers are subject to less stringent specifications, but still provide an annual commitment of lambs to one company, and meet weight targets. These producers are seen as having a low level of buy in to a committed program.

Sometimes Committers have committed once or twice in the last five years, and are either new to committing, or have tried to commit but then for some reason have stopped. These producers were found to be more likely to commit to a fixed price contract arrangement than those that always commit.

Producers that have not committed in the last five years were split into those producers that have switched companies and those that have not switched companies in the last five years. Those that switch were considered to be more active in searching out the highest price on the day, or are active in their consideration of which meat company to sell too. This implies that Switchers carry out a certain amount of searching for information and evaluation of alternative companies and selling options. This can either be carried out by the producer, or they may use a third party agent. This implies a high level of buy in to the Non Commit option. Non Switchers are considered more complacent in their selling decisions, as while they have not actively looked to switch companies in the last five years, they are not compelled to commit to their current company. This option has a very low level of searching and evaluation and represents a low level of buy in to the Non Commit option.

The package Recursive partitioning and regression trees (Rpart), from R was used to model the data. Rpart uses recursive partitioning to create a decision tree which firstly classified a producer as a Committer or Non Committer. All principal components and demographic variables were initially included as independent variables in each model and the package Rpart selected the significant variables in terms of binary classification. Once analysis had been done to compare producers that do and do not commit, a similar process was carried out to compare producers within each group based on whether they had a high or low level of buy in to the channel. Refer to Appendix C to for a full list of independent variables used in the analysis.

Regression partitioning with a binary response allows the creation of groups based on the variables that are most important in defining the groups, rather than using all available variables as is the case in traditional hierarchical clustering techniques. Regression partitioning allows the interpretation of different groups based on the most important variables, rather than clustering on certain variables and then having to interpret the clusters through a second regression analysis of variables of difference. The models were created using Rpart programming and allocated producers to an end node based on the greatest differentiation between producers at each point of the regression-based partitioning trees. The models split producers based on the factors that cause the most differentiation between producers of each binary group at each branch for each model. Producers continue to be split until they cannot be significantly differentiated based on the producers' constructs scores or until they reach the limit of final node numbers. The partitioning was based on a specified minimum split size of 60 and end node size of 30 for model one, and 40 and 20 for models two and three.

In the commentary for each model, producers are partitioned based on whether they have a 'high' or 'low' (and in some cases a 'medium') score for the components. These terms have not been defined based on the level of the score, but are rather used for simplicity when describing one group of producers that have been partitioned to one side of a tree-branch relative to the other. Due to the standardization of the PCA scores, each component will have an average score of around zero, with half of the producers having positive scores, and half having negative scores. So while the value that partitions producers may be higher or lower than the average (at zero), producers with scores greater than the value of the partition are deemed to have 'high' scores and those that have scores less than the drafting value are deemed to have 'low' scores.

Generalization of the research may be limited by several factors. Overall this study was of an exploratory nature rather than a strict test of pre-specified relationships between variables. Little

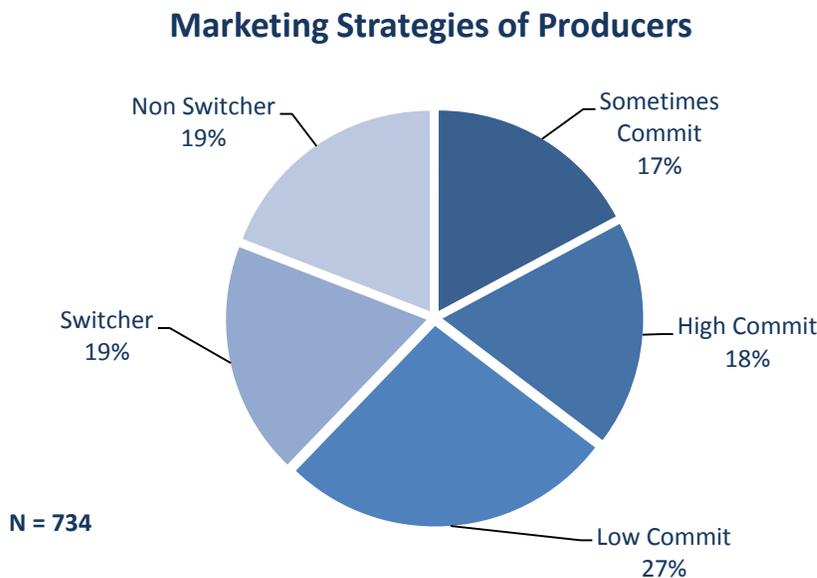
research has previously examined the selling decisions of New Zealand lamb producers and the literature identified a wide range of factors that could impact selling decisions.

There may be an over representation of producers that are more interested in selling decisions for their lambs as these producers would seem to be more likely to reply to a survey on this topic. The survey was conducted in a season of higher lamb prices following a period of several consecutive years of declining producer profitability. If this survey was conducted in the period of declining profitability results may differ. Producers were asked to describe their behavior over the last five years in an attempt to counter this issue. Exploratory factor analysis was used in this research and the constructs developed may need testing in future research to be further validated.

## Results

### *Description of Sample*

From the 734 responses used in all the analysis, 330 (45%) committed their lambs to one company over the previous five years (Committers). These were made up of 18% (Figure 4) that committed (40% of the committers) had a high level of buy-in to the channel either through a fixed price contract or meeting tighter delivery specifications such as weekly or monthly delivery and weight and fat specifications (High Commit). A small number of these producers also adhered to breeding and feeding specifications. The other 27% (60% of the committers) that committed delivered an annual commitment without the tighter specifications (Low Commit). There were also 125 (17%) that had committed once or twice (Sometimes Committers). Of the 279 (38%) that never had (Non-Committers), this was further divided equally into the 19% that had switched the company they sell to more than once (Switchers), and 19% that had not changed companies over the last five years (Non Switchers). The resultant breakdown into the five marketing strategies is shown in Figure 4.



**Figure 4.** Marketing Strategies by Proportion

Overall respondents were evenly split between the two regions; however there were differences in locations based on the selling behavior of producers. For example, of those producers who are in the low commit group 80% were in the Otago/Southland regions, 20% in the East Coast. Conversely those who do not commit and actively switched, 76% were in the East Coast and 24% in Otago/Southland. Respondents were asked who they considered their main relationship when selling lambs; a third party agent, the meat company, or a meat company representative. While there was a relatively even split overall between the three types, some groups of producers were much more likely to use a certain type of relationship. The low commit group is unlikely (9%) to use an agent to sell through whilst the switchers would (55%), and the high commit group are more likely (59%) to relate directly with the meat company

**Table 1.** Location of Sampled Producers

Marketing Strategy	Location of Farm		Main Relationship		
	East Coast	Otago-Southland	Agent	Meat Company	Company Rep
High Commit	42%	58%	14%	59%	27%
Low Commit	20%	80%	9%	50%	41%
Sometimes Commit	58%	42%	34%	26%	40%
Switcher	76%	24%	53%	16%	31%
Non Switcher	58%	42%	27%	39%	35%
<b>Total</b>	48%	52%	26%	39%	35%

#### *Principal Component Analysis (PCA)*

Producer responses were examined for variance under four groups - strategic orientation, selling behavior, values and overall relationship status. These four groups were selected based on the literature and the hypotheses generated from initial discussions with producers. The PCA creates a loading for each variable from which differences between producers can be determined. These differences form the basis of the components described in Table 2 and the percentage of variance in producer scores explained by component by group. Further details on the PCA as well as the survey questions that make up the different components for each group are provided in Appendix A.

**Table 2.** Principal Component Analysis (percentage of variance in producer scores explained by component by group)

Components	Strategic Orientation	Selling Behavior	Values	Relationship Status
<b>One</b>	Market Focus (18%)	Active (24%)	Conscientiousness (20%)	Trusting (36%)
<b>Two</b>	Trader (9%)	Influencer (20%)	Convenience (16%)	Adversarial (12%)
<b>Three</b>			Autonomy (11%)	

#### *Strategic Orientation*

Principal component analysis demonstrated that overall producers are quite similar in their strategic orientation towards production and cost factors as no large variance in responses were received. However producers did differ in their orientation towards the consumer market (Market Focus), and whether or not they like the risk that comes from trading (Trader). This indicates that while production activities are generally important for all producers, it is the extent that producers consider the importance of marketing and trading that differentiates them the most.

### *Selling Behavior*

Two components are found to explain the most significant amount of variance in responses for the selling behavior group. The first relates to how active a producer is in supporting and recommending their preferred meat processing company (Active). The second component measures how the producer perceives their level of bargaining power, leadership, and openness to new marketing plans (Influencer).

### *Values*

Three components are found to explain the most significant amount of variance in responses for the values group. The first explains the majority of the variance and measured how conscientious (Conscientious) a producer is in relation to how much thought and effort goes in to making marketing decisions for their lamb, and how much the producer tries to produce lambs to preferred specifications. Producers with high Conscientiousness scores are much more likely to be willing to make changes to their business to improve the marketing of their lamb, and consider that differences exist between meat companies and the prices offered by companies.

The next component was Convenience. Producers with high scores for this factor prefer to use a third party agent to take care of the marketing arrangements, are not overly concerned with the quality of their lambs, and do not see value in spending time on marketing activities. The third component of Autonomy differed from the second primarily on the variables that they prefer to make their own decisions rather than use a third party agent, and more concern is placed on lamb quality. Both components had positive loadings for importance of being committed to a company, and selling to a cooperative. They both had negative loadings for perceived differences between companies and prices offered, which means if a producer believed differences exist, they would have a lower Convenience and Autonomy scores.

### *Relationship Status*

Two components are found to explain the most significant amount of variance in responses for the relationship group. The responses for this group of questions are a combination of responses to questions based on the producer's main relationship for selling lambs (the meat company, a meat company representative, or a third party agent). The first component measured the quality of the relationship a producer had with their main sales relationship based on high levels of integrity, competence, honesty, and trust (Trusting). The second component measures how adversarial the relationship is (Adversarial). A high loading for this factor is put on seeing the relationship as a necessity due only to the level of dependency the producer has on the other party.

### *Regression Partitioning Models*

Three regression partitioning models were created based on differences in producers' marketing strategies (refer to Appendix B for copies of the models).

The first binary model (Figure 6) examined differences between producers that always commit (Committers) and those that do not always commit (Non Committers and Sometimes Committers). A producer's score for Conscientiousness (end node D) and their location (end node C) were the factors that caused the most variance between producers that do and do not commit. To explain in more detail, at the top branch out of the 734 producers 45 per cent are Committers. The largest cause of differentiation between the two groups (Committers and Non Committers) is the producers' scores for Conscientiousness. Three-hundred and thirty three have low Conscientiousness scores of which 23 per cent commit, while of the 401 that have high Conscientiousness scores 63 per cent commit. At the left branch (Low Conscientiousness scores), Location is the only factor that can further differentiate Committers from Non Committers out of those with Low Conscientiousness. Out of the 333 that have a Low Conscientiousness score, 196 are in the East Coast, and 137 in Otago-Southland. Out of both of those groups, 13 per cent of the 196 in the East Coast are Committers, and 38 per cent of the 137 in Otago-Southland are Committers.

Caution in interpretation is needed however as it could be that producers that commit need to be more conscientious to fulfil their commitments, rather than the conscientiousness tendencies leading to a desire to commit. Nevertheless the model is designed to be exploratory in nature rather than predictive and therefore it is useful to understand the strength of the relationship between Conscientiousness and commitment.

The second model (Figure 7) analyzed different behavior of producers that always commit, by comparing those that make a high commitment (High Committers) with those that make a low commitment (Low Committers). High Committers are more likely to have a high Market Focus, and low Convenience and Autonomy scores. Convenience and Autonomy components were orthogonal in the PCA and it could be that producers with low scores for both do not value the use of a buyer to organize sales, but do not have a strong desire to have full control of decisions themselves either. This is illustrated through their higher level of commitment which places increased restrictions on their selling activities and reduced their control relative to Low Committers. Negative variable loadings for Convenience and Autonomy include the perception that prices are different between companies and that there are differences between companies. These beliefs are therefore important in differentiating High Committers from Low Committers.

The third model (Figure 8) analyzed behavior of Non Committers, by comparing the producers that switch companies (Switchers) and those that do not switch (Non Switchers). Switchers are more likely to have lower scores for Convenience and Conscientiousness, and higher scores for Trader.

## Discussion

From a range of constructs and demographic variables, a limited number of strategic orientation and values constructs have the majority of influence in determining the difference between different types of marketing strategies. The profile of characteristics identified from this analysis of producers within each type of marketing strategy, are as follows:

**High Committers** are conscientious, and are the marketing strategy most interested in what is going on in the consumer market. This combination of traits means that they are willing and able to meet tighter specifications in terms of price and delivery. They see selling decisions as playing an important part of their overall business strategy, and will make changes to production activities that are tied in to marketing decisions. While these producers like to have involvement in the selling process, they do not require full control of the process and are willing to lose some control to be part of the bigger picture of delivering the required product to the market. Some control is given to processors in more coordinated and committed supply channels through commitment to dates and numbers of livestock delivered. High Committers place higher value on the services processors provide such as market information, producer groups and technology for feedback. These producers do not value the provision of a livestock drafter. They prefer to use the information available to make their own decisions.

The High Committers strategy is the most company focused marketing strategy. These producers are influenced by the provision of targets and rewards for meeting targets, partnership with the company, and any potential area for closer collaboration. These producers value a high level relationship with a meat company, and the drivers of this relationship are different than those producers who have dependent relationship with their buyer. There is potential to bind these producers in closer to the company by rewarding them for meeting more stringent delivery specifications, provision of more in-depth information above what regular suppliers get, and an increased level of services. This collaboration incentive needs to come from the meat company executive to be effective. There is potential to increase asset specific investments for these suppliers combined with more formal contractual arrangements that appeals to their higher level of conscientiousness. These producers had the lowest propensity to switch companies once they had committed at any price level examined illustrating their loyalty to a company and its strategy.

**Low Committers** have less desire than High Committers to be involved in market oriented activities but commit to decrease uncertainty and standardize selling decisions. Low Committers are more likely to commit for low or zero financial incentive, due to the non-pecuniary benefits commitment provides to them. Trusting relationships are important to Low Committers, primarily with a meat company representative. Low Committers had the highest scores for relationship quality and this in part reflects the dependence that these producers have with their buyer. Therefore the buyer may have a higher degree of influence over these producers than the High Committers. However the preference for autonomy and lack of market focus prohibits greater integration with the company.

**Sometimes Committers** were more likely to commit under a fixed price system than other committers. Price certainty is the main reason this marketing strategy committed rather than guaranteed processing space which was the main reason for High and Low Committers. Sometimes Committers have the lowest ranking for guaranteed processing space as a necessary service. This illustrates that these producers most likely operate farming systems that are not pressured to gain access to processing space. While these producers were drawn to committing for price certainty, potentially following a season of volatile or low prices, a proportion of these producers decided to stop committing. Reasons centered on an adverse weather event which resulted in producers deciding that committing did not suit their farming operation. Those

producers that entered fixed price contracts may have also experienced a year where the schedule price went above the fixed price, and felt that contracts were not worthwhile. Therefore these producers are particularly sensitive to committing and may illustrate the issue of compatibility of commitment programs to different farming systems, the need for flexibility and tailoring of programs to suit individual farm needs.

**Switchers** are characterized by their focus on trading. The Trader construct relates to attempting to maximize returns by buying and selling at certain times based on market conditions. This desire for flexibility in sales channels is an inherent difference from other marketing strategies. The ability to have full control and evaluation of a number of different selling channels is a pivotal part of this marketing strategy. These producers also have a higher level of bargaining power and influence in selling decisions. Switchers prefer to internalize uncertainty and feel that they are better equipped to deal with the potential for opportunistic behavior, and have greater information than other parties. The desire to retain control means these producers require the highest financial incentive to commit, and the preference for trading means these producers are most likely to switch companies for smaller financial incentives. Switchers place the most value on achieving the highest price, and are willing to trade this off against convenience, security and service. They feel little connection to any one company, and have little requirement for services provided by a company.

**Non Switchers** are characterized by not committing to one company yet having passive involvement in their selling decisions. The producers seem to be complacent in their selling decisions and prefer another party to take care of selling arrangements for them. This is related to their high score for convenience, and lower concern for trading than their Switcher counterparts. These producers are satisfied with their current selling plan, and have little desire to change. The provision of a livestock drafter is considered a very important service to be provided by a meat company as these producers prefer not to have to make these decisions themselves. Non Switchers generally do not like to be involved in selling decisions and commitment would increase the burden of selling decisions and potentially impact on their production activities.

So, with the exception of the sometime committers, while producers can make the same selling channel decision (commit or not commit), they carry out quite separate marketing strategies based on their level of buy-in to the channel, whether they are active or passive in their selling behavior (Figure 5).

	Commit	Non Commit
Active	High Committer	Switcher
Passive	Low Committer	Non Switcher

**Figure 5.** Marketing Strategy Matrix

This concept is inherently different to that of other vertical coordination theories (Schulze and Spiller 2006, Ferto and Szabo 2002, Wysocki et al. 2006) which consider the level of integration to be a linear progression from spot market to full integration between companies. The decision by producers whether or not to commit seems to be linked to their preference for dealing with uncertainty, while the level of buy in to a channel is determined by how active or passive the producer is in making selling decisions. Demographic variables such as age, education and size of farm were found have little effect differentiating marketing strategies.

The free range and seasonal nature of New Zealand lamb production leads to several uncertainties producers must deal with. These include access to processing space at peak supply periods and during drought conditions; uncertainties around how favorable production conditions will be from year to year; and market prices within and between seasons. Committers seem to externalize this uncertainty through secured processing space and fixed contract prices. They do this by transferring the production and market uncertainty to the processing company as a type of insurance. By removing this realm of uncertainty from their business, they can focus on controlling on-farm production factors. Non Committers seem to prefer to internalize uncertainty through maintaining control of selling decisions, or “self-insuring”. These producers dislike the lack of control that comes with committing and prefer to keep this production and market uncertainty within the realm of their overall farm business. For Switchers, this allows them to make the most of uncertainty through trading. Non Switchers are already satisfied with their current arrangement and prefer the convenience that comes from not having to meet commitments. To these producers, commitment would potentially create increased uncertainty.

Producers also seem to differ in their desire and ability for involvement in selling decisions. An active involvement in selling decisions includes searching for market information, attempting to meet market specifications (either timing or specification of supply), and generally taking an active interest in where and how the lambs will be sold. This comes down to the selling decision playing an important overall role in the producers’ farming business. Previous studies found that producers with more independence and market knowledge were more likely to use spot market transactions (McLeay and Zwart 1998; Fischer et al. 2007). The appeal of contractual certainty is seen to be reduced if a producer has the ability or desire to undertake other management strategies that increase market knowledge (Isengildina and Hudson 2001; Blandon, Henson, and Islam 2009; McLeay and Zwart 1998) and this is reinforced in this study through the Switchers marketing strategy.

In contrast a passive involvement attempts to minimize the amount of time and energy spent on selling decisions. This can be through a combination of outsourcing this task to a third party or company livestock representative and by keeping these decisions and activities as simple and standardized as possible. This reinforces previous studies findings that producers differed in their level of desire and ability for involvement in decision process for buying goods (Kool, Meulenberg, and Broens 1997; Feeney, Berardi, and Steiger 2011; Gunderson, Boehlje, and Gray 2005; Gloy and Akridge 1999; Bunn 1993; Diekmann, Loibl, and Batte 2009).

In terms of the nature of relationships it seems the level of dependence and collaboration relates more to the producer’s active or passive involvement than the level of supply chain integration. It would seem that producers with passive involvement, the Low Committers and Non Switchers,

have more dependence on the other party. Close and trusting relationships play an important part of their marketing strategies due to this dependence. There seems to still be a level of collaboration between those with an active strategy and their buyer, yet the relationship does not play as large a role in the selling decisions. This is most likely at a company level in the case of High Committers, and with an independent agent in the case of Switchers. These results differ somewhat from previous theory that suggest relationship quality is determined by the level of integration (Ferto and Szabo 2002; Cox 2004; Fischer et al. 2007; Fischer et al. 2008; Gray, Boehlje, and Preckel 2006; Ivens 2004; Matopoulos et al. 2007; Peterson et al. 2001; Schulze and Spiller 2006; Trienekens and Beulens 2001; Wysocki et al. 2006; Young and Hobbs 2002; Zanquetto-Filho et al. 2003).

Seasonal grass-based production systems are the foundation of the cost efficiency of New Zealand's lamb industry. However the link between climatic conditions and lamb production creates uncertainty in the timing and quality of lamb production, processing plant efficiency and market prices. This uncertainty has been found to have a strong relationship with the nature of producers' selling decisions. Therefore it can be concluded that the seasonal nature of production and the uncertainty of climatic conditions does create unique factors that influence producers' selling decisions in comparison to other industries and countries. Furthermore a producer's marketing strategy is also influenced by their ability and willingness to be actively or passively involved in selling decisions and activities.

### *Implications*

It is useful for policy makers, industry stakeholders, and processing companies to understand the differences in producers' marketing strategies. Producers differ in their choice of whether to commit to one company or not, and also in their desire for active or passive involvement in selling decisions. These preferences for involvement have a fundamental influence on a producers' selling behavior and will heavily affect the success of any efforts by parties to try to change producers' behavior. In particular, for some producers such as Switchers, committing to one company goes against core aspects of the strategic orientation of their business. For these producers the ability to remain flexible and have autonomy of selling decisions to be able to respond to changing climatic and market conditions is fundamental to their business strategy. Commitment can require more from producers than deciding to only sell to one company. Commitment can impose new requirements on producers such as needing to meet production targets. For some producers, particularly Non Switchers, this will create extra uncertainty.

Creating marketing strategy profiles and providing choice of company procurement programs may provide producers with options that better suit their strategic orientation and values. This research has identified the key factors of strategic orientation, values, selling behavior and buyer relationships and how they influence producers in each marketing strategy group. These factors influence how price sensitive producers are, how they are influenced by their main relationships, and potential drivers of behavioral change. Procurement programs could be designed to vary in the level of commitment necessary, which would relate to the level of risk and reward.

## Conclusions

The research has identified why, and what influences why, producers in the New Zealand lamb supply chain commit their lambs to processors or not. It has shown that producers do not act in a homogenous manner. Interestingly only 19% of this sample of producers 'shop around', the rest either actively or passively commit their lambs through contracts or don't commit but don't change which company they sell to either, and are quite passive in their marketing activity. Importantly, for these producers it provides a better understanding of what drives the differences in producers' marketing strategies. The decision by a producer of whether or not to commit cannot be considered in isolation. This decision is interwoven within many other farm management decisions and therefore a holistic approach is needed to unravel the many elements that factor in to the individual producer's decision.

Producers carry out a range of marketing strategies defined by whether or not they commit to one company and secondly whether the producer is active or passive in their involvement in selling decisions. Producers' values and strategic orientation in their selling decisions were found to cause the most differentiation between marketing strategies. An association between the producers' marketing strategy and their desire to internalize or externalize the uncertainty associated with selling decisions was found. Furthermore, differences in the drivers of the marketing strategies present challenges and opportunities to influence producers' selling behavior. This is critical to the development of more collaborative transactions between producers and processors through improved relationships and more integrated and coordinated supply chains.

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## Appendix A

### PCA Analysis Groups, Components and Variable Loadings

The tables below outline the components used in the modelling analysis for each of the four groups of questions. Each component had a loading for each variable in the group, however only loadings greater than 0.10 or the top ten loadings are displayed in the tables below. The number of components per group reflects the amount of variance explained by each component. The proportion of variance for each group explained by each component is illustrated below.

**Table 3.** Strategic Orientation Market Focus Construct Variable Loadings

<b>Strategic Orientation - Market Focus</b>	<b>Comp 1</b>
I only think about selling my lambs when I have lambs ready to be sold	-0.242
I enquire as to where my lamb is being consumed	0.212
I am actively involved in a producer group that is linked to a particular supermarket	0.187
I have made changes to my farming operation to better meet customer requirements	0.184
I can't worry much about marketing because my main concerns are the animals on the farm	-0.184
I have production targets I am aiming to meet each year	0.148
I have made substantial investments on my farm that tie me to a particular supply channel or company	0.142
If the price is right I don't care who I sell to	-0.135
I plan for the long term	0.132
There is little room to change my farming operation due to natural production constraints	-0.127
If an opportunity comes up to make an additional margin I buy stock even if it isn't part of my normal operations	0.124
I always use the latest technology on my farm	0.123

**Table 4.** Strategic Orientation Trader Construct Variable Loadings

<b>Strategic Orientation - Trader</b>	<b>Comp 2</b>
If an opportunity comes up to make an additional margin I buy stock even if it isn't part of my normal operations	0.517
If the price is right I don't care who I sell to	0.507
I only think about selling my lambs when I have lambs ready to be sold	0.387
I get a sense of anticipation at the beginning of each season to see what will happen in the market	0.233
I can't worry much about marketing because my main concerns are the animals on the farm	0.216
I am skeptical about the value of the latest market led supply programs	0.198
I have made changes to my farming operation to better meet customer requirements	0.184
Production systems take priority on my farm	0.163
I have production targets I am aiming to meet each year	0.163
I plan for the long term	0.129

**Table 5.** Selling Behavior Active Construct Variable Loadings

<b>Selling Behavior - Active</b>	<b>Comp 1</b>
I would sell to a processing plant further away than the local plant to sell to my company of choice	0.767
If I say I will send my stock to one company I will do so even if it turns out to be better to send them somewhere else on the day	0.518
I recommend my meat company to other farmers	0.374

**Table 6.** Selling Behavior Influencer Construct Variable Loadings

<b>Selling Behavior -Influencer</b>	<b>Comp 2</b>
In discussions with fellow farmers are you often used as a source of advice	0.738
I feel I have the following amount of influence on lamb sales negotiations	0.467
I am tempted to try out new supply plan options	0.377
I recommend my meat company to other farmers	0.116

**Table 7.** Values Conscientiousness Construct Variable Loadings

<b>Values - Conscientiousness</b>	<b>Comp 1</b>
It is important to be committed to one meat company	0.427
I regularly weigh my lambs or get them in to the yards to monitor when to sell them	0.381
If you were to select from several companies and supply plans available and they offered the same price would you say that you care a lot who you sell to	0.366
It's easier to let my buyer agent arrange when and where my livestock are processed	-0.343
I will only sell to a farmer owned cooperative meat company	0.336
I consistently target premiums for producing to the preferred range of weights and grades	0.283
The various companies and supply plans for lamb available are all different	0.243
I use information from my previous killing sheets to influence decisions about my next draft of lambs	0.225
You will always get better prices over a season by being able to play the market	-0.225
I would be ok joining a supply plan that requires me to change how I produce my stock	0.200

**Table 8.** Values Convenience Construct Variable Loadings

<b>Values Convenience</b>	<b>Comp 2</b>
It's easier to let my buyer agent arrange when and where my livestock are processed	0.630
I will only sell to a farmer owned cooperative meat company	0.587
It is important to be committed to one meat company	0.316
Prices offered by different meat companies are different	-0.248
The various companies and supply plans for lamb available are all different	-0.222
If prices are high I sell some lambs that may not meet preferred weight and grade ranges	0.202

**Table 9. Values Autonomy Construct Variable Loadings**

<b>Values Autonomy</b>	<b>Comp 3</b>
It's easier to let my buyer agent arrange when and where my livestock are processed	-0.540
Prices offered by different meat companies are different	-0.400
I regularly weigh my lambs or get them in to the yards to monitor when to sell them	-0.318
The various companies and supply plans for lamb available are all different	-0.306
I would be ok joining a supply plan that requires me to change how I produce my stock	-0.260
I use information from my previous killing sheets to influence decisions about my next draft of lambs	-0.248
You will always get better prices over a season by being able to play the market	-0.234
I will only sell to a farmer owned cooperative meat company	0.218
If prices are high I sell some lambs that may not meet preferred weight and grade ranges	-0.212
It is important to be committed to one meat company	0.207

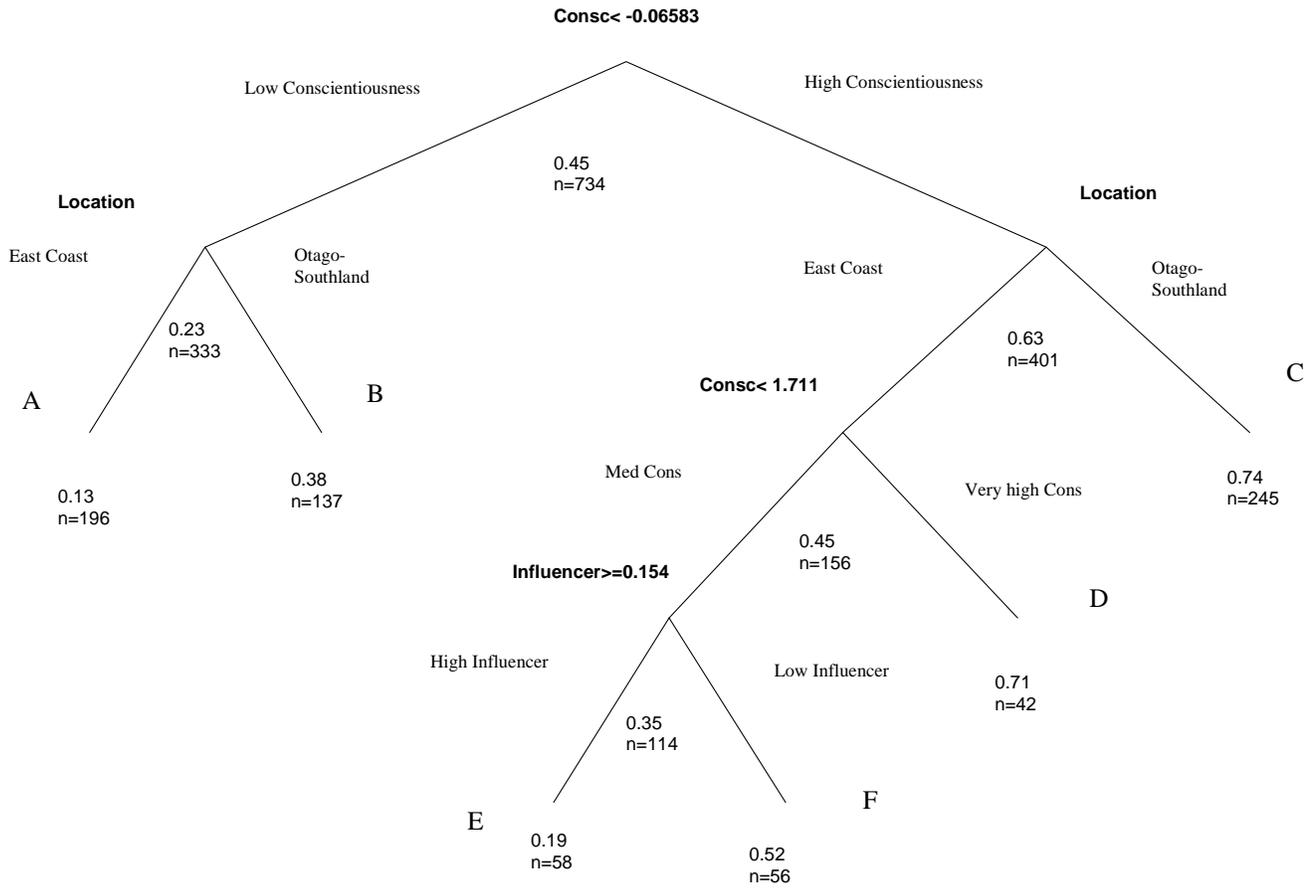
**Table 10. Relationship Trusting Construct Variable Loadings**

<b>Relationship Quality Trusting</b>	<b>Comp 1</b>
I sometimes worry that the buyer will not act in my best interests	-0.341
The buyer understands how my business fits into the bigger picture	0.325
Sometimes I feel the buyer uses their power against me	-0.307
The buyer has broken promises in the past	-0.307
I have a high level of trust in the buyer	0.297
I feel like I could call anytime and be listened to	0.275
I make better sales decisions because of my buyer	0.272
My buyer and I share similar values	0.268
My business is important to the buyer	0.265
I depend on my buyer when making selling decisions	0.243
The buyer communicates with me as frequently as I think is necessary	0.237

**Table 11. Relationship Adversarial Construct Variable Loadings**

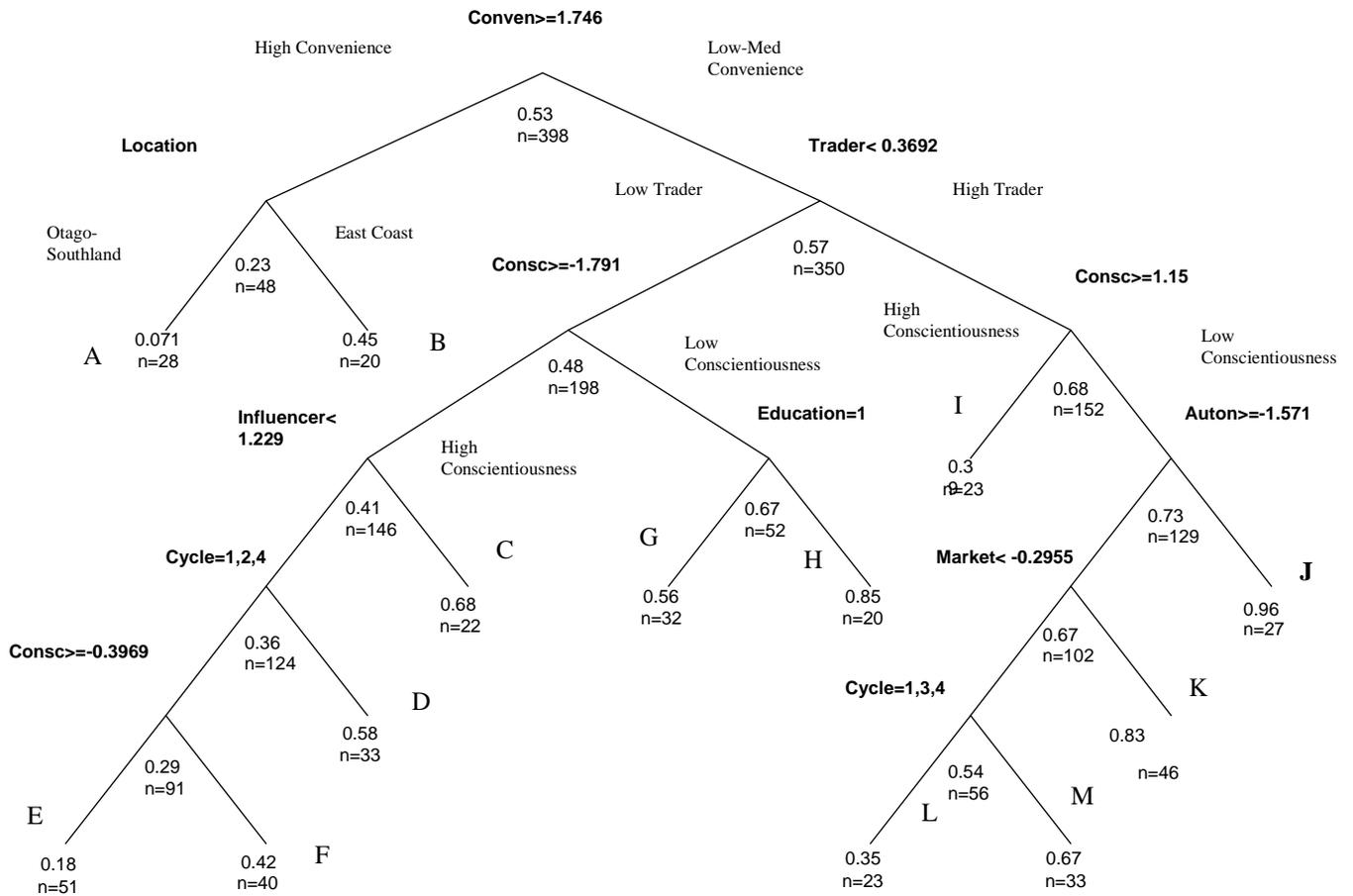
<b>Relationship Adversarial</b>	<b>Comp 2</b>
The relationship is mostly a marriage of convenience	0.478
I depend on my buyer when making selling decisions	0.436
I sometimes worry that the buyer will not act in my best interests	0.361
The buyer has broken promises in the past	0.316
I make better sales decisions because of my buyer	0.279
Sometimes I feel the buyer uses their power against me	0.278
My business is important to the buyer	0.243
The buyer offers me good prices relative to other buyers	0.207

**Appendix B. Logistic Regression Models**



**Figure 6.** Model One: Likelihood Committer





**Figure 8.** Likelihood Switcher (If Non-Committer)

## Appendix C. Regression Modelling Variables

**Table 12.** Model Dependent Variables

<b>Dependent Variable</b>	<b>Model One</b> Commit/Not Commit	<b>Model Two</b> High Commit/Low Commit	<b>Model Three</b> Not Commit + Switch /Not Commit + Non-Switch
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**Table 13.** Model Independent Variables

<b>Independent Variables (for all three models)</b>		
PCA Component Scores	Market, Trader Active, Influencer Conscientiousness, Convenience, Autonomy Trusting, Adversarial	
Relationship score for quality (out of ten)	1-10	1: Low Quality 10: High Quality
<b>Demographics</b>		
Location	Otago-Southland	East Coast
Business cycle	1:Entry 2:Consolidation	3:Growth/Expansion 4:Exit
Age	1:20-29 2:30-39 3:40-49	4:50-59 5: 60-69 6: 70+
Education	1:<1 year 2:1	3:2-3 4:4+
Debt as percentage of income	1: 0-9% 2:10-19% 3:20-29%	4:30-39% 5:40+%
Lamb sales as proportion of income	1:0-19% 2:20-39% 3:40-59%	4:60-79% 5:80-100%
Proportion of non-farm income as percentage of gross income	1:0-10% 2:10-20% 3:20-40%	4: 40-60% 5:60+%
Class	1: Hill country 2: Breeding Finishing	3:Intensive
Effective hectares	1:0-250 2:250-500	3:500+
Total stock units	1:0-2,500 2:2,500-5,000	3:5,000+
Sheep Stock units as proportion Total Stock units	1:0-19% 2:20-39% 3:40-59%	4:60-79% 5:80-100%
Total annual lambs sales	1:0-999 2:1,000-1,999	3:2,000—4,999 4:5,000+
Farm Owner-operator	1: Yes	2:No
Number of people working on farm (including self)	1:1 2:1-2	3:2-4 4:4+
Experience (years farming)	1:0-5 2:5-10 3:10-20	4:20-30 5:30+