

**AN INVESTIGATION INTO THE FACTORS DETERMINING
RUMINANT LIVESTOCK DISTRIBUTION IN THE FAR SOUTH
WEST**

By

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An Investigation Into The Factors Determining Ruminant Livestock Distribution In The Far South West by

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Major changes are taking place in all sectors of the livestock and meat producing industries from farm to consumer which impinge on the processes and patterns of livestock distribution from farm to slaughter. These changes are identified and described.

A farm business survey of lowland beef and sheep finishers was undertaken, prior to the 2001 Foot and Mouth outbreak, to gain a better understanding of farm business behaviour in order to model the farm business strategies in relation to aggregate livestock channel utilisation. Statistically robust and predictive models using a number of derived latent strategic variables, distilling marketing and business orientations, were used in an adapted multivariate approach. Group profiling confirmed consistency with the cluster profiles.

Results show that both lowland beef and sheep producers can be statistically classified into three distinct strategic groups. The marketing approaches that farm businesses use vary according to group membership. For lowland beef producers these are described as selling orientation, buyer focus and differentiation strategies. *Sellers* view beef production as a minor enterprise to provide supplementary farm income, but fail to meet procurement requirements and are limited to channel utilisation. *Buyer focus* are production orientated, understand distribution, have good market knowledge and meet procurement standards. *Differentiators* have similar attributes to *buyer focus*, but are more likely to differentiate and add value and actively seek markets to which they can sell. Lowland sheep producer strategies are described as opportunist, production and differentiation. *Opportunists* have similar attributes to *sellers*, and fail to meet or understand procurement requirements. *Producers* are as production orientated as *buyer focus*, but have poorer market and distribution knowledge and tend to focus primarily on production concerns. *Differentiators*, as with beef finishers, are more likely to differentiate and add value and actively seek markets to which they can sell.

The developed typologies reveal that farm business marketing behaviour changes according to group membership and this has a significant influence on aggregate channel utilisation within the Far South West. For some farmers it would appear that channel utilisation is pre-determined.

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Davies, D., Eddison, J., Cullinane, S. and Kirk J. 2000. Does farm Business Marketing behaviour Affect Livestock Channel Utilisation? *Proceedings of the 2000 Agricultural Economics Society Conference*, University of Manchester.

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*Poster presentation

Signed: *Dr David*
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CHAPTER 1 INTRODUCTION

1.0 Introduction

The purpose of this chapter is to put the research area into context by giving a brief background to the subject area in order to identify the primary aims and objectives. It should be noted that this study was conducted prior to the 2001 Foot and Mouth outbreak.

The interdisciplinary research area is examined in greater detail in the subsequent literature review (chapters 2 to 5).

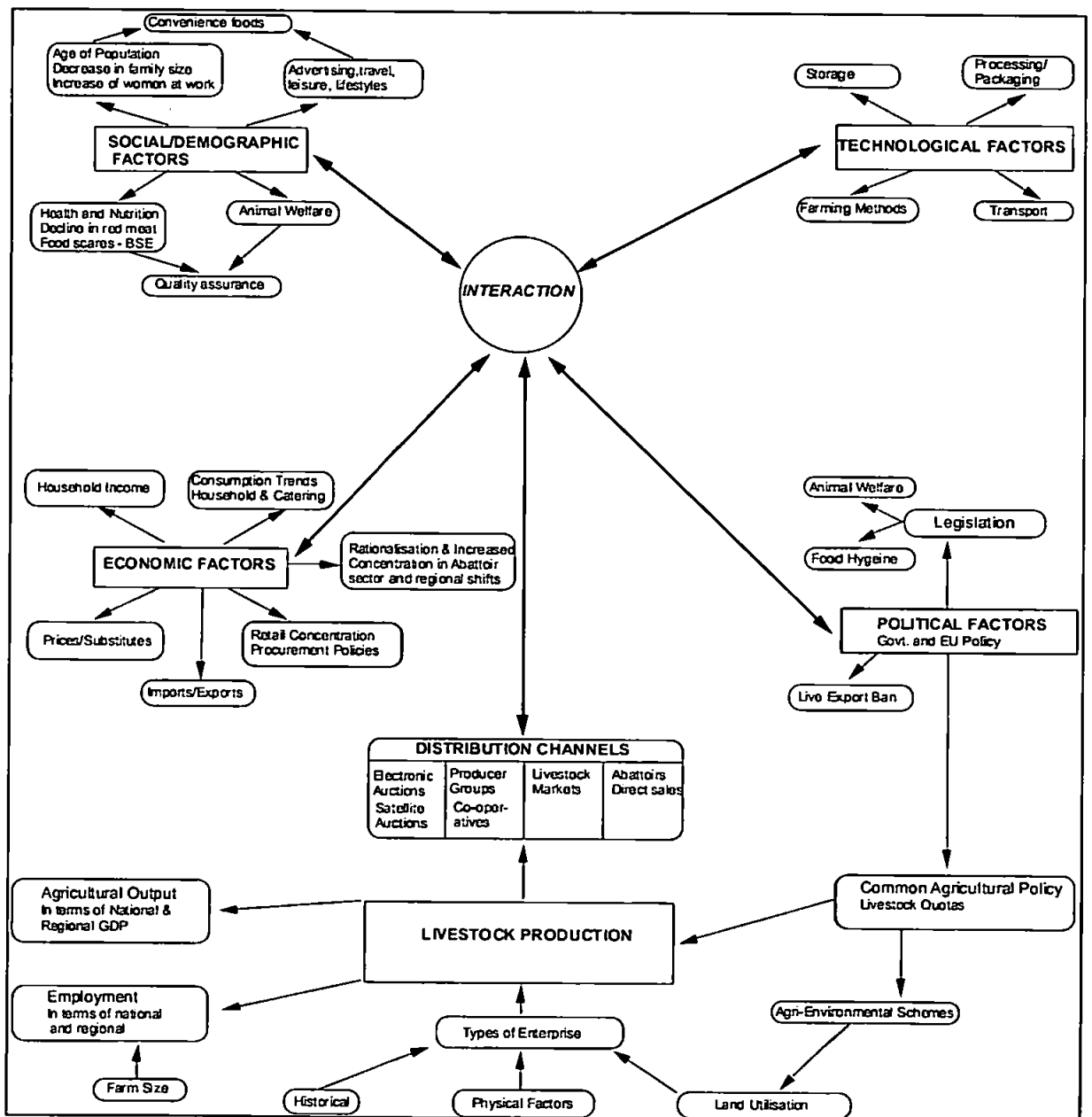
1.1 Background

Major changes have occurred in recent years to alter fundamentally the distribution of meat and livestock in the UK. These changes have been brought about by a multiplicity of social and economic pressures, technological advances and legislative controls which may have important consequences in the way in which farmers produce and market their livestock.

Clear structural changes have, and are, occurring within the meat and livestock industry and its market, some of these shifts are trends that have been under way for many years and others are recent developments that seem likely to alter the livestock and meat sector quickly and dramatically. However, no single influence is dominant. Pressures are evident at each stage of the production and distribution process. In some cases the reasons are direct and in other cases they are indirect and occur as a result of changes within other sub-sectors of the industry illustrating the dynamic and

complex nature of the distribution process. Figure 1.1 has been constructed to provide a visual focus and to highlight the various factors and influences determining meat and livestock distribution. This illustrates the dynamic and interactive nature of the distribution process and the interdisciplinary and complex nature of the study. The following paragraphs relate to the figure.

Figure 1.1 Factors Determining Meat and Livestock Distribution



The past three decades have seen changes in livestock production for all red meat ¹ categories reflecting changes in consumer demand, farming practices and the Common Agricultural Policy (CAP). These changes have not only influenced levels of production but also distribution patterns, which in turn may affect farm marketing behaviour.

Livestock production has seen recent policy changes under the 1992 CAP Reform package to reduce support prices and to compensate for the loss of price support. A variety of direct payments to farmers have been instituted linked to historical production in the form of the Beef Premium Scheme, Suckler Cow Premium Scheme and Sheep Annual Premium Scheme.

In the UK, between 1992 and 1994, there was a 16% decrease in beef production from 33.4 million to 31.8 million cattle and the introduction of a 425,000 ceiling on imports resulting in increased prices and the fading out of intervention buying (Benninck 1995).

However relatively high prices have had a negative effect on consumption compared to other meats and the situation has changed dramatically since the BSE crisis with the introduction of the live export ban under the Florence Agreement, although a partial lifting of the ban was negotiated in 2000.

The sheep sector in the UK has seen a stabilisation in production and averaged 1.16 million tonnes per annum in 1996 and the Meat and Livestock Commission forecast that this is unlikely to change significantly (MLC 1996a). Consumption has declined

¹ Beef, Sheep and Pigs

in line with production and in response to lower imports and market prices are projected to remain stable (Benninck 1995) .

Accompanying the CAP reforms for specific agricultural sectors are a series of agri-environmental measures introduced under the Agri-Environmental Regulation (EU 2072/92) increasing the pressure for cross compliance to ensure the protection of the environment and maintenance of the countryside (Whitehead 1994). Measures include schemes such as six new Environmentally Sensitive Areas (ESA's), ESA Access Tier, and Countryside Access Scheme. The implication for livestock production is the introduction of stocking density limits and extensification premiums.

In addition to the measures outlined, the CAP also includes a number of structural measures (EU Directive 2328/91) financed through FEOGA² and channelled through the European Regional Development Fund to provide funds for co-operatives and producer groups, improvements in marketing and processing, technical business training and investment grants for producers in peripheral areas (Brassley 1995; MLC 1992).

This is particularly important as far as Devon and Cornwall is concerned since all of Cornwall and most of Devon falls within the Objective 5b area scheme, the aim of which is to encourage regional regeneration, add value to agriculture, assist small and medium enterprises and protect the environment. With £170 million of 5b funding allocated to Devon, Cornwall, the Isles of Scilly and West Somerset, it is by far the largest programme in England and has important socio-economic

² Fonds Europeen d' Orientation et de Garantie Agricoles

consequences for regional development (Government Office for the South West 1997) .

The European Commission Agenda 2000 proposals for the Common Agricultural Policy is likely to have important consequences for livestock producers and may force producers to become increasingly marketing orientated if they are to remain competitive and maintain farm incomes.

The livestock market sector has been in decline since the 1940's. The rate of closure of markets, however, was particularly marked in the 1970's when the number of markets declined by 25% from 416 in 1971 to 312 in 1991.

The decline has continued with the number falling to 235 by 1993 (Jones and Steele 1995) . Rationalisation has not been geographically uniform with traditional grassland areas such as Devon and Cornwall least affected, suggesting a direct relationship between livestock production and the provision of livestock markets. Livestock markets in Devon and Cornwall have declined from 30 in 1980 to 25 in 1993 (LAA 1993).

The decline has been accompanied by a reduction in market share for stock sold at traditional livestock markets. For example between 1990 and 1994 cattle and sheep sold at market declined by 11% and 4% respectively (MLC 1996a).

The sector is facing increased pressures through competition from direct sales to abattoirs, other forms of marketing such as electronic and satellite auction systems (at present accounting for only 3.4% of cattle and 5.4% sheep sales (Murray,

Cullinane, Eddison and Kirk 1996), animal welfare considerations, retail procurement policies (with multiple retailers having stated their intention to withdraw from livestock markets (Agra Europe 1991), current and forthcoming EU legislation for the Protection of Animals during Transit Regulations (95/29/EU) and the effect of the BSE crisis. These factors combined with changes in demand are likely to have significant impacts that will continue to affect livestock throughputs and may threaten the future of the livestock market sector.

The abattoir sector has also seen dramatic changes in recent years (MLC 1994a). Between 1980 and 1995 numbers fell from 1,281 to only 402. This downward trend has been further exacerbated by the introduction of the Fresh Meat Directive (91/497/EU) in 1993 under the Single European Market harmonisation legislation, which forced abattoirs to achieve EU status by 1996. Of the 402 remaining abattoirs in 1995 only 92 were EU approved with 190 awaiting approval and 120 approved for low throughputs. Of the 27 abattoirs in Devon and Cornwall, 13 remained under temporary derogation by January 1996 (Murray *et al* 1996) .

The decline has had significant affect on throughput numbers leading to concentration and rationalisation within the sector. In England in 1994, 7% of abattoirs with throughputs greater than 50,000 ELU's³ accounted for 55% of total slaughtering of cattle, sheep and pigs whilst smaller abattoirs of less than 5000 ELU's accounted for only 9% (MLC 1994a) .

³ European Livestock Unit defined as : 1 Soliped, 1 Adult Bovine Animal, 0.5 Other bovines, 0.2 Pigs (Liveweight > 100kg), Other pigs 0.15, Sheep and Goats 0.1 and Lambs, Kids, Piglets (Liveweight <15kg) 0.05.

In the South West for the same period, larger plants in Cornwall (no greater than 40,000 ELU's) accounted for 55% whilst in Devon, abattoirs with throughputs exceeding 50,000 ELU's accounted for 75%. Rationalisation and increased concentration has resulted in regional shifts in distribution with the South West accounting for 25% of all sheep slaughtering in 1980 falling to 15% in 1994. Similar trends also exist for cattle and pigs (Murray *et al* 1996, MLC 1994a) .

The abattoir sector is facing increased pressures through the Fresh Meat Directive and high investment costs, relatively low marketing power in relation to multiple retailers, low margins and high volume, reduced supplies, consumer demand and overcapacity.

Many abattoirs, however, are working hand in hand with major retailers to establish producer groups to guarantee quality and traceability. For example, Tescos and St Merryn Meats have recently announced that they require 3,500 producers to join their producer scheme. St Merryn has five abattoirs in the South West and are hoping to attract the majority of producers from the South West region which may have important consequences for the local economy by checking the regional shift of slaughtering (Tesco 1997, Western Morning News 1997).

Consumer demand for red meat has declined. Between 1984 and 1994 average weekly household meat consumption has fallen from 1037 grams to 943 grams (MLC 1995) and during this period beef and veal consumption has fallen by 14%, mutton and lamb by 20% whilst in contrast poultry has seen a strong growth of 40% and pork 9% for the same period (Miller 1995) . In marked contrast, the catering sector which includes hotels restaurants, fast food outlets, public houses etc., has

seen an 18% growth of red meat consumption between 1983 and 1994 equating to a 3% rise. The real gains have been for pork and beef eaten either as fresh or processed products (Gunthorpe, Ingham, and Palmer 1996, Miller 1995) .

Factors affecting meat consumption are numerous and diverse, covering the socio-economic, social and demographic, technological and legislative spectrum. These range from price and income factors relating to household incomes, increase in the number of women in the workplace and number of one person households leading to a decline in traditional family meals and an increase in convenience foods.

Dietary awareness, animal welfare considerations and changing lifestyles have reduced aggregate demand further and increased demand for added value goods. The growing dominance of retailers and introduction of food safety laws has provided more consistent quality, traceability and assurance for the consumer (Gunthorpe *et al* 1996, Bansback 1995). These factors are likely to continue to impact on the aggregate utilisation of distribution channels which in turn are likely to impact marketing behaviour.

The South West region⁴ accounts for almost 20% of the agricultural land in England. Agriculture accounts for 2.2% of regional GDP, some 1% above the national average (MAFF 1995a). In Devon and Cornwall it accounts for 4.6% and 2.9% respectively of the civilian population (Pierpoint 1995) . The industry in Devon and Cornwall is dominated by dairying, beef and sheep production accounting for 65% of holdings in 1994 (MAFF 1994) and it is therefore inevitable that agriculture plays a vital role in the life and community in Devon and Cornwall. Problems posed to the South West

⁴ Defined as Avon, Cornwall, Devon, Dorset, Gloucestershire, Somerset and Wiltshire.

farmers by changes in distribution patterns are considerable and solutions cannot be offered without a thorough investigation and understanding of the links involved in the meat and livestock process. This project aims to examine the choice criteria and linkages between marketing and business orientations of beef and lamb finishers in relation to the marketing channels they select.

1.2 Aims and Objectives

The principal aim of the study is to investigate the choice criteria, business and marketing orientations of beef and sheep finishers in Devon and Cornwall with the aim of developing marketing typologies that are applicable at the turn of the century.

Objectives

- To analyse past and present distribution patterns of meat and livestock distribution in order to establish base line data on the distribution chain;
- To determine the major underlying causes of changes in distribution channel utilisation;
- To assess the likely impacts that these changes may have on the supply chain and aggregate channel utilisation;
- To identify and quantify the criteria that beef and lamb finishers in Devon and Cornwall use to select marketing channels;
- To examine the links between farmer/farm types in relation to their business and marketing orientations in order to develop marketing typologies;
- To determine if farm marketing behaviour influences market channel utilisation.

In order to maintain farm incomes, agricultural economists, policy makers, agricultural marketers, farm management specialists and farm advisers may need to tailor programmes according to the strategic business typologies of farmers. In particular, it is important that they clearly understand the marketing behaviour of farmers in relation to livestock channel selection and understand the effect on farmers of the ongoing changes occurring across the supply chain.

At present, there is very little understanding of these typologies. This research provides a useful starting point for understanding the integrated nature of farmers' decision making because it identifies the key strategic dimensions important to farmers and will lead to a clear understanding of the profiles of strategic group members and the strategies they adopt.

For example, if policy makers wish to assist farmers to exploit changing markets to secure quality and price advantages, it is essential to gain a better understanding of their choice criteria and the linkages between the marketing and business orientations in relation to the channels that they select.

The results of this type of research may have both efficiency and equity implications for farmers because businesses in specific groups are likely to be affected by government policy and other factors (increased retail concentration, quality assurance and traceability) in different ways.

For example, the recent Agenda 2000 proposals are likely to have a major impact on livestock producers in terms of levels of production and farm income. For some farmers, these outlined changes combined with other factors may force them into a

position where they can access producer supplier schemes/marketing groups to establish preferred supplier relationships with major retail multiples. For other farmers, their behaviour may be quite different.

In terms of aggregate channel utilisation, changes in agricultural policy and other ongoing changes along the supply chain are likely to have an important impact. This view is one that is shared by the National Farmers Union, Royal Institution of Chartered Surveyors and the Livestock Auctioneers' Association.

1.3 Summary

This introductory chapter has briefly illustrated the complex and diverse nature of the study. As mentioned in section 1.0, the background to the research area is examined in greater detail in the literature review contained within Chapters 2-5. As a result of the literature review a more complete conceptual model (see Chapter 6) was developed which assisted in the methodological development of the research phase.

CHAPTER 2 DISTRIBUTION, TRANSACTION COSTS, VERTICAL CO-ORDINATION AND AGRICULTURE

2.0 Introduction

This chapter introduces the concepts surrounding distribution theory and highlights the importance of transaction cost logics within the vertical co-ordination framework and the impact that transaction costs may have within the agricultural sector.

2.1 What is a Distribution Channel?

In today's economy most producers do not sell their goods directly to end-users. Between producer and the final user stands a host of marketing intermediaries performing a variety of functions. Most producers work with marketing intermediaries to bring their products to market. These marketing intermediaries make up the distribution channel (also called trade or marketing channel). Stern and El-Ansary (1992) define marketing channels as:

“... sets of interdependent organisations involved in the process of making a product or service available for use or consumption.”

In any channel configuration there are combinations of producers, agents, distributors, wholesalers, retailers and consumers. Also included is a whole range of support agencies which support the passage of title and the physical movement of products.

The channels chosen for a producer's products may intimately affect every other marketing decision and involve the firm in relatively long term commitments of resources and sometimes contractual relationships with other firms (Christopher 1994, Rushton and Oxley 1991). It has been suggested by Stern and El-Ansary that the concept of marketing channels is one of the most fundamental, original and enduring concepts in the marketing of goods and services with marketing channel decisions linking to other marketing mix decisions.

In this context it is necessary to distinguish between the concept of *marketing channels* and the concept of *physical distribution*. In addition to the Stern and El-Ansary definition above, Bucklin (1973) defined marketing channels as:

“...the vertical marketing system of forces, conditions and institutions associated with the sequential passage of a product or service through two or more markets, or sets of contractual relationships through which the exchange of goods and services are consummated.”

Physical distribution is viewed as the functional area of marketing associated with the method by which a product or group of products are physically transferred from their point of production to the end user (Heskett 1966, Rushton and Oxley 1991).

2.2 Emergence of Marketing Channels

Alderson (1954) expressed the tasks to be fulfilled within the marketing channel in terms of the time, place and possession gaps that separate goods and services from those who would use them. Five gaps were identified that needed to be filled by an

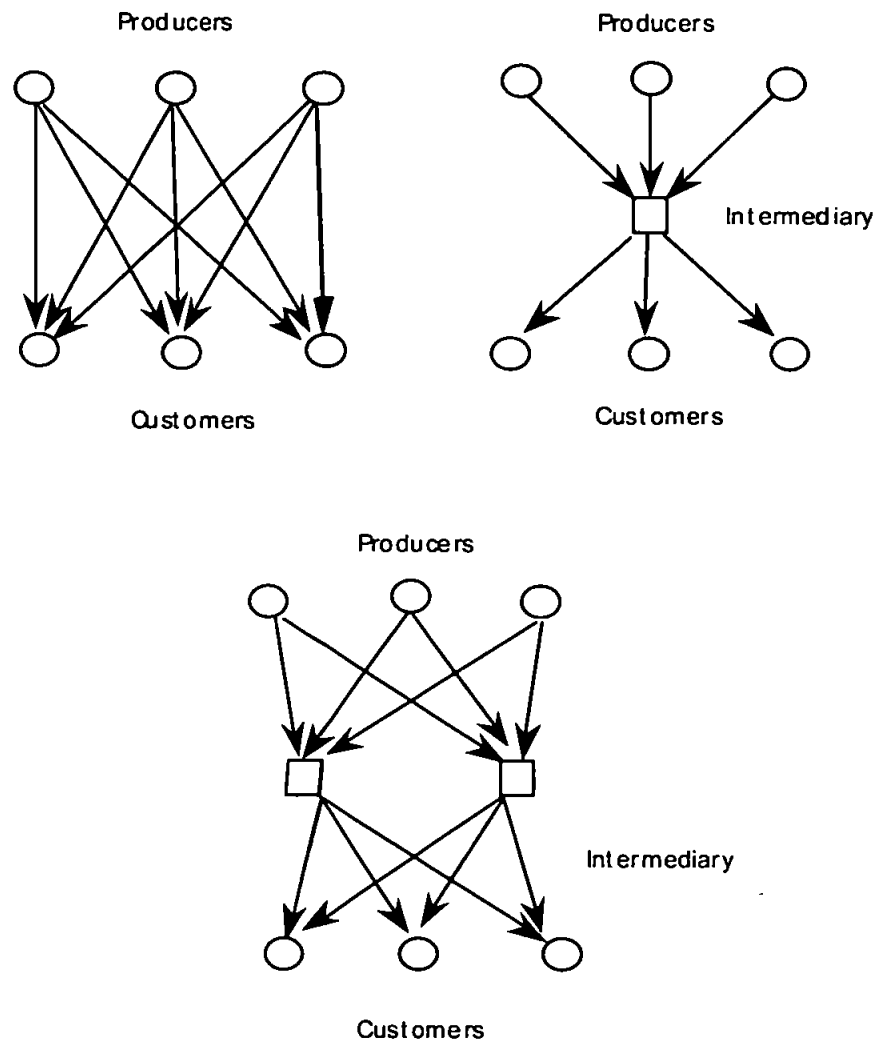
intermediary between production and consumption: time, space, quantity, variety and communication. These are described below:

- *Time*: consumers tend to purchase items at more or less discrete intervals, whilst the majority of firms, produce on a continuous basis in order to take advantage of production economies.
- *Space*: consumers are usually dispersed throughout the market whilst producers are located in few areas and are often separated by distance from their customers.
- *Quantity*: firms produce large quantities at a time whilst consumers usually produce in smaller quantities.
- *Variety*: The range of products produced by a firm is limited and consumers have many needs that require a wide range of products to satisfy them.
- *Communication/Information*: consumers do not always know the availability or source of the goods they want and producers may not know who or where are the potential suppliers of their products.

The tasks identified need not be carried out by intermediaries; they can and sometimes are carried out by the supplier and buyer. However, it is quite often the case that the most cost effective means of closing the gaps is through the use of marketing intermediaries such as distributors, wholesalers, retailers etc. In very simple terms the use of an intermediary becomes appropriate when the cost of closing one of the identified gaps is greater without one than with one (Christopher 1994).

Figure 2.1 illustrates the principle in simplistic terms where three producers are selling to three end users.

Figure 2.1 The effect of an intermediary in the marketing channel



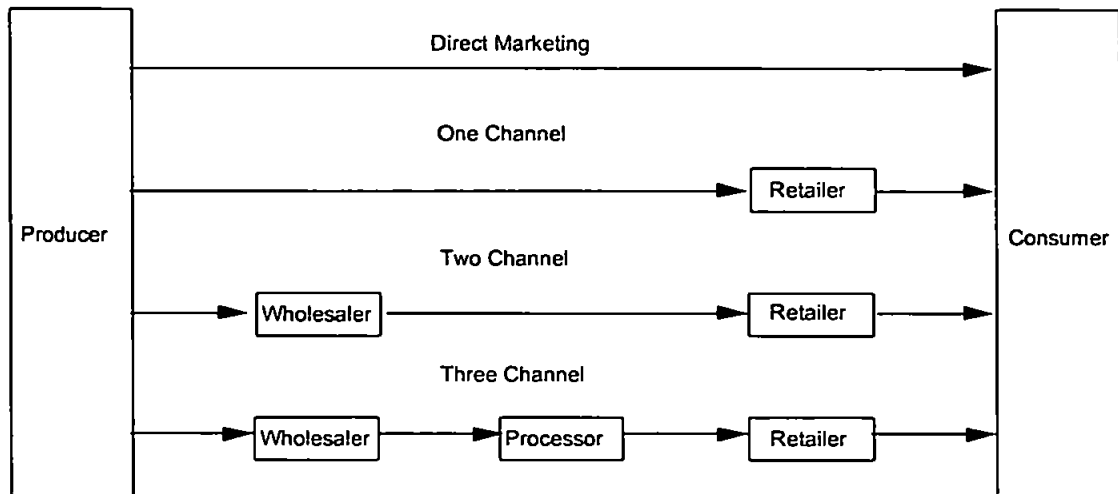
Without an intermediary there are nine sets of physical and transactional links; with the introduction of an intermediary this is reduced to six. Whilst this is an over simplification it serves to illustrate the principle of an efficient marketing channel and illustrates the concept of decentralisation versus centralised exchange. By extending the simplistic model further by the addition of another intermediary, it

illustrates that as more intermediaries are added the channel becomes subject to diminishing returns from a contractual efficiency and conflict perspective (Christopher 1994, Stern and El-Ansary 1992).

It is acknowledged that the emergence of these channel structures are governed by a variety of economic, technological, political and social factors. However, economic factors are the identified as the main determinant with the basic role of transforming the heterogeneous supplies in nature into assorted goods that people want to buy (Christopher 1994, Stern and El-Ansary 1992, Bucklin 1973). Intermediaries smooth the flow of goods and services in order to bridge the discrepancy between the assortment of goods and services generated by the producer and the assortment demanded by the consumer with the goal of matching segments of supply and demand (Alderson 1954, Bucklin 1973).

The channel length is characterised by the number of intermediaries operating in the marketing channel between the producer and consumer. This will be determined to a greater or lesser degree by the nature of products produced, the industry structure and the marketing/business strategy of the firm. Figure 2.2 illustrates several consumer goods channels of differing lengths.

Figure 2.2 Lengths of Channels



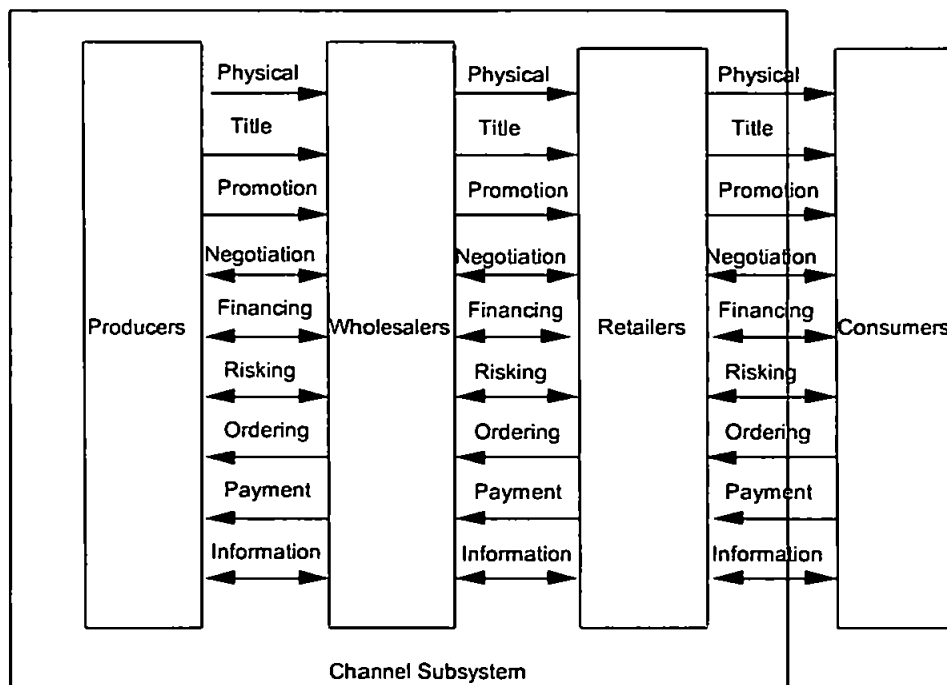
Source: Adapted from (Quayle, 1993)

A direct marketing channel consists of the producer selling directly to the consumer, one level channel contains one intermediary such as a retailer and so on. It is as stated above very much dependent on the nature of the product and industry.

2.3 Marketing Channel Functions and Flows

A marketing channel performs the function of moving goods from producer to consumer and overcomes the time, place and possession gaps that separate goods and services from those who would use them (Cristini 1986, Kohls and Uhl 1990). Members in marketing channels perform a number of key functions and participate in a range of marketing flows which are illustrated in Figure 2.3.

Figure 2.3 Marketing flows and functions in channels



Source: Adapted from (Stern and El-Ansary, 1992)

Physical, title and promotion are typically forward flows from producer to customer, each of these move down the distribution channel i.e. a producer promotes its product to a wholesaler who in turn promotes to the retailer and so on. The information, negotiation, financing and risking flows move in both directions whereas ordering

and payments are backward flows (Mallen 1976). Explanations of these functions are described below:

- *Physical*: the successive storage and movement of physical products from raw materials to the final consumer
- *Title*: the actual transfer of ownership from one organisation or person to another
- *Promotion*: the development and dissemination of persuasive communication about the product to attract custom.
- *Negotiation*: the attempt to reach an agreement on price and other terms so that transfer of title can take place.
- *Financing*: the acquisition and allocation of funds required to finance title at the various stages of the marketing channel
- *Risking*: the assumption of risks that are associated with carrying out transfers of title within the marketing channel
- *Ordering*: the backward communication of intentions of members within the channel to acquire title.
- *Payment*: buyers paying their bills through banks and other institutions to acquire title.

- *Information*: the collection and dissemination of marketing research information about potential and current customers, competitors and other factors and forces within the marketing environment.

All of the flows or functions of the distribution channel must be performed by at least one institution or agent for the channel to operate at all. Changes in channel utilisation largely reflect the discovery of more efficient ways to combine or separate economic functions that must be carried out to provide more efficient ways of supplying meaningful assortments of goods to target customers. The key to the co-ordination of channel flows is *information sharing* amongst channel members and is inherent within each market flow (Bucklin 1973, Mallen 1976, Gattorna 1978, Stern and Reve 1980).

2.4 Channel Participation and Structures

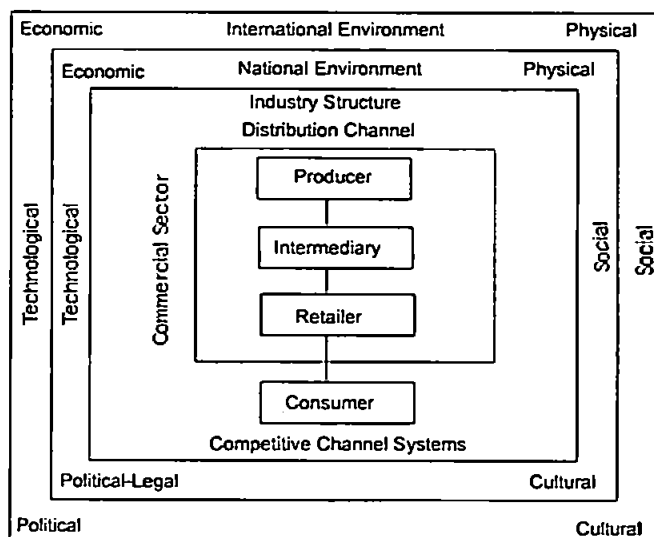
Marketing channels evolve over time in response to forces of change and this process is continuous. The basic economic rationale for the emergence of channels can be understood in terms of the need for exchange, efficiency of exchange, minimisation of assortment discrepancies and the facilitation of searches to meet customer needs, essentially filling the gaps (Alderson 1954).

However this provides little information as to why channels are structured in one particular way rather than another. Perhaps the most important aspect of channel structure is an understanding that channels consist of interdependent institutions and agencies. These channels must be viewed as a system because of the interrelated and

interdependent components engaged in producing an output to the end user. The commercial subsystem includes a set of vertically aligned intermediaries (channel members) such as producers, wholesalers and retailers and each is dependent on the other channel members to reach its goals.

As all systems, marketing channels have boundaries which include geographic (market area), economic (capability to handle volumes of goods) and human (ability to interact with channel members). Furthermore a channel, like other systems, is a part of a larger system that provides it with inputs and imposes restrictions on its operations. A channel exists as part of an economy's distribution structure that encompasses other channels and exists as a subsystem of the national environment, which in turn exists as a subsystem of the international environment. Both the national and international environments encompass physical, economic, social and cultural subsystems that influence the development and impose constraints on the focal channel system illustrating the dynamic and complex nature of the distribution process. This is illustrated in Figure 2.4

Figure 2.4 Marketing Channel as a Subsystem of the Environment



The survival and growth of certain channel members will depend on how they can adapt to the changing environment, as they adjust their organisations to cope with these changes they will impact on the entire channel organisation. Therefore the evolution of channel systems is an ongoing reaction to economic, social, technological, and political forces both within the channel and external environment.

2.5 Determinants of Channel Structures

Each marketing channel will produce a different level of sales and costs and each marketing flow may be thought of as having differently shaped cost curves which may include increasing, decreasing or constant returns. Thus savings can be achieved if the activities or flows responsible for increased returns are capitalised upon whilst flows that produce decreasing returns are delegated to or 'spun off' to an intermediary that can perform the function more efficiently (Zinn and Levy 1988). Through 'spinning off' a firm may be able to lower its costs and improve its competitive position by assuming functions that it can perform more efficiently. The resulting synergy helps to strengthen the competitiveness of the entire channel. However, there are considerable problems associated with 'spinning off' as it may be difficult to separate the joint costs associated with the performance of many marketing flows (Mallen 1973).

Bucklin (1973) argues that channel members perform various market functions to meet expressed demand for outputs based on four generic service outputs: spatial convenience, lot size, delivery time and product variety. The result of the interaction between channel members and end user requirements is a channel structure that is

capable of meeting the needs of both parties. Under reasonably competitive conditions and low barriers of entry, the channel structure that evolves over a long period should comprise of channel members that are so well adjusted to the structure's task and it's environment that no other type of arrangement could create greater returns or increase market efficiency. As a result an efficient *normative* market structure will emerge.

In addition to the economic related factors, there are a whole range of technological, cultural, physical, social, and political factors that determine channel structure (as illustrated in Figure 2.4). For example, food preferences, food technology, information technology, retail concentration, national and international law, geography, demographic and so on. All of these and other factors play important roles in determining channel structure.

Social and behavioural variables may also influence the channel structure. Galbraith (1956) advanced the concept of countervailing power as a tentative explanation of channel structure and practices. Emphasising that private economic power is held in check by the countervailing power of those who are subject to it, economic power produces countervailing power and that countervailing power is a self generated force that complements and acts as a regulatory force in the economy.

Countervailing power can take many forms, however, it usually emerges in the form of vertical integration (Stern and Reve 1980, Howe 1990). Indications of the emergence of this anomaly in the distribution channel structure are the emergence of mass retail multiples to countervail the power of large manufacturers; voluntary co-operatives to countervail the power of large retail multiples and trade associations'

activities of small producers in an attempt to countervail the power of chains and manufacturers.

Explanations of channel structures in terms of economic variables alone are insufficient even though economic models provide a starting point for understanding why specific structures emerge. Bucklin's argument fails to account for any change other than economic in the channel structure. In order to meet the *normative* structure a channel must meet the assumptions of low entry barriers and competitive conditions.

In many cases the reasons for structural change are direct (i.e. changes within the market sector) and in other cases they are indirect and occur as a result of changes within other sub sectors of the industry, illustrating the dynamic and complex nature of the distribution process. No channel structure is the same because they react to a myriad of social, cultural, economic and political variables in differing ways.

Whilst institutional shifts in channels may be required in terms of economic efficiency, uneconomic channels may still exist as a result of: a reluctance to change to new channel alternatives and remain with traditional, long-established relationships, producers respond slowly to change due to the rigidity of the industry structure, producers are comfortable with existing arrangements and traditional institutions attract loyalty and are not compelled to change (McCammon 1971).

Change must always take place according to the assessment of future requirements and there will always be a gap between the actual and the ideal. It is probably better

to adopt an evolutionary view to explain the existence of marketing structures because of the dynamic nature of the process.

2.6 Vertical Marketing Systems

One of the most significant recent channel developments has been the emergence of vertical marketing systems which have emerged to challenge *conventional* marketing channels (comprising of independent producer, wholesaler and retailer). Each is a separate business attempting to maximise its own profits, even if this reduces profits for the system as a whole. Conventional channels can be categorised as fragmented networks in which loosely aligned producers, wholesalers and retailers negotiate at arms length but otherwise behave autonomously (McCammon 1971).

A vertical marketing system (VMS) by contrast, comprises a producer, wholesaler and retailer acting as a unified system which is achieved either by vertical integration or vertical co-operation. VMSs came into being to control channel behaviour and eliminate the conflict that results when independent channel members pursue their own objectives. They achieve economies through their scale, bargaining power and elimination of duplicated services (Dawson and Shaw 1990).

2.6.1 Vertical Integration

Vertical integration can be defined as the combination of two or more stages of the marketing channel under single ownership and can be dominated by any member of

the channel (den Ouden, Dijkhuizen, Huime, Ruud and Zuurbier 1996). In effect, the operation of the channel is determined by the legitimate power of the owner.

This form of VMS, sometimes called corporate integration, is found when any one of the nine marketing flows (Figure 2.3) is assumed by one organisation across two levels of distribution. By virtue of owning a marketing activity a firm increases the probability that it will gain absolute control over how the activity is performed (Stern and El-Ansary 1992). This control permits an assurance to the firm that its service outputs to its customers are met.

Most formal economic models of markets, industries and firms have used the *neoclassical* approach to analyse the organisational behaviour of the firm and the market. Central to *neoclassical* economic theory is the concept of a single product firm, operating in a perfectly competitive industry with large numbers of competitor firms all producing a homogenous product under the same market conditions with the same market demand curve. However, neoclassical theory covers monopolies and other intermediate forms of industrial organisation such as oligopolies and monopolistic competition (Williamson 1986, Hobbs 1996a).

The standard *neoclassical* transaction involves the exchange of a homogeneous product, thus there are no quality variations between products and consequently no costs involved in measuring the value of a product. If quality differences do exist then they are regarded as distinctly different products serving different markets. Economic agents (buyers and sellers) are assumed to possess perfect information and there is no uncertainty regarding prices, product characteristics, and the behaviour of competitors and trading partners. The *neoclassical* transaction occurs in the current

time period between buyers and sellers thereby ruling out the possibility that one firm could exercise market power over another since many alternative buyers and sellers exist. This approach concentrates on equilibrium market outcomes and there is no consideration of how business relationships arise; instead transactions are treated as though they occur in a frictionless environment. It does not provide a rationale for the existence of firms (other than profit), an explanation of the growth of firms or an analysis of the internal organisation or structure of the firm. Instead, the firm is treated as a featureless production function which turns inputs into outputs. This type of analytical framework provides few insights to the workings of marketing channels in the supply chain (Williamson 1975, Williamson 1979, Williamson 1986, Hobbs 1996a, Loader 1996, Loader and Hobbs 1996).

Coase (1937) identified some limitations to the neoclassical paradigm for understanding relationships between firms and these later became the foundation for the *new institutional economics*. Coase argued that in order to understand what the firm does, it is necessary to understand why the firm exists and what forces govern the organisation of economic activity. This approach recognised that there are costs associated with using the market mechanism. These include costs of discovering what prices should be, the costs of negotiating individual contracts for each exchange transaction and the costs of accurately specifying transactions in a long term contract - these were later to be termed *transaction costs*.

The costs of using the market can be avoided if a firm becomes vertically integrated and assumes the burden of co-ordinating economic activity internally. However, this means that the firm must assume the alternative costs of administering vertical flows of products and factors of organising production. Provided that a firm can carry out

these activities internally lower than though transactions in the open market then one would expect the organisation of economic activities to be carried out by a vertically integrated firm (Williamson 1975). Thus a rationale was established for the existence of the firm which were based on the costs of carrying out a transaction.

The reduction of *transaction costs* has formed an important argument in favour of vertical integration in recent years. Work in the development of the theory was carried out by Williamson (1975, 1979) and gradually a body of transaction economic cost theory has emerged based on the original ideas of Coase (1937) and uses the concept to explain governance, the organisation of firms and the way they interact along the supply chain or marketing channel.

The transaction cost theory approach considers the nature of a marketing channel, concentrating on the implications of individual transactions for the organisation of the system and the ways in which these transactions (between market participants) are carried out. The approach focuses on the transaction as the foundation of economic process, suggesting that an economic system or subsystem is constituted by a series of transactions, and that the economic actors (channel members) aim to effect those transactions as efficiently as possible (Williamson 1979, Williamson 1986, Hobbs 1996a, den Ouden *et al.* 1996, Peterson and Anderson 1996). The theory addresses when the costs of transacting business *across a market* (with outsiders or third parties or independently owned institutions or agencies) are too high relative to those of bringing the transaction 'in house' via vertical integration. Transaction costs become excessively high when it is difficult to locate appropriate partners and market intelligence regarding the abilities of those who are found; draft an agreement that will cover the host of contingencies that will arise during the relationship and/or

negotiate an equitable relationship and build adequate safe guards into the agreement so that critical interest can be protected (Williamson 1979).

Profit maximising firms will choose to undertake internally only those activities that they will find cheaper to administer themselves rather than purchase in the market (Schary 1994).

However, after establishing a relationship, transaction costs may also escalate if it is difficult to monitor and enforce an agreement, adjust an agreement and maintain and ensure the relationship to assure its continued efficiency. Three additional factors tend to intensify these problems:

- every individual and organisation is subject to *bounded rationality*, that is it is impossible to make truly rational decisions because it is impossible to assimilate enough information and develop appropriate decision rules for every eventuality or contingency for the business.
- there is a risk that parties to a transaction may behave opportunistically and are willing to deceive channel members to maximise their own aims which may suboptimise the supply chain thus increasing transaction costs.
- in order to build successful relationships, it is necessary to make asset specific investments, i.e. put non-salvageable assets at risk to assure that the relationship will work (Williamson 1979, Williamson 1986, Hobbs 1996a, den Ouden *et al.* 1996, Loader 1996, Peterson and Anderson 1996).

All of these factors, when combined with the pre and post relationship costs can lead to market failure and drive an organisation to vertical integration. Table 2.1 divides transaction costs into six categories and identifies the sources of hidden costs, the nature of such costs and highlights how important they may be in terms of time and effort to monitor and screen contracting situations.

Table 2.1 Transaction Cost Sources and Forms

Type of Cost	Source of Cost	Form of Costs
Search costs	Lack of market intelligence about opportunities e.g. products, prices, demand, supply, market outlets	Personal/personnel time, travel expenses, communication, advertising/promotion, consulting/service fees
Screening costs	Uncertainty about reliability of potential suppliers/buyers and quality of goods/services offered	Consulting/service fees, costs of credit rating
Bargaining costs	Conflicting objectives and interests of transacting parties, uncertainty about the willingness of others to trade on certain terms and over transaction rights and obligations	Licensing fees, insurance premiums
Transfer costs	Legal or physical constraints on the movement or transfer of goods	Handling/storage costs, transport costs
Monitoring costs	Uncertainty of compliance with agreement and possible changes in quality of goods and services	Auditing fees, product inspection charges, investments for measuring devices
Enforcement costs	Uncertainty about level of damages/injury for problems arising from contractual non compliance, problems of enforcing penalties through bilateral and third party agreements	Arbitration, legal fees, cost to bring social pressure

Source: (Buzzell 1983, Williamson 1986)

Firms often wish to have control over their marketing channels so as to ensure delivery of service/outputs and to maximise profits which leads them to prefer vertical integration. However, this is not feasible unless associated fixed costs can be

spread over a large volume of business to take advantages of economies of scale. Furthermore as volume increases, firms are able to specialise in the performance of marketing distribution functions and take advantage of benefits of scalar economies (Schary 1994). Perhaps the most important reason for engaging or maintaining vertical integration is to protect the firm's core competencies, the fundamentals of what a firm can do better than anyone else, thereby giving it a strategic competitive advantage. The question is whether an organisation can achieve a strategic competitive advantage by performing an activity internally- cheaper, better and quicker on a continuous basis. Table 2.2 summarises the potential benefits and costs of vertical integration.

Table 2.2 Benefits and Costs of Vertical Integration

Benefits	Costs
<i>Economies</i>	
Reduction of transaction costs	High capital investment requirements
Technological economies	Unbalanced throughput because of differences in efficiency scales at each process stage
Improve co-ordination/internal control	Reduced flexibility to change partners
Ensure supply	Loss of specialisation
Reduce uncertainty	Dulled incentives/bureaucratic distortions
Achieve product differentiation	Differing managerial requirements
Economies of information	Cost of overcoming mobility barriers
<i>Market Power</i>	
Elevate entry and mobility barriers	High overall exit barriers
Raise rival costs by foreclosure	Foreclosure of access to supplier or buyer consumer research or know how
Offset bargaining power	
Defend against foreclosure	

Source: (Buzzell 1983, Williamson 1979)

2.6.2 Vertical Co-ordination

Vertical co-ordination can be viewed as a continuum of potential contracting situations from spot market transactions to full vertical integration. At the one extreme lie spot markets where goods are exchanged between multiple buyers and sellers in the current time period with price being the sole determinant in the final transaction i.e. the buyer either accepts the product in its current form or does not purchase it. For example: auction markets, stock markets and most consumer goods purchases. At the other end of the spectrum lies full vertical integration (described above) where products move between various stages of the production - processing-distribution chain as a result of within-firm management decisions and orders rather than direction of prices (Williamson 1979, Buzzell 1983, Hobbs 1996a, Hobbs 1996b Loader 1996). In between these two extremes lie a myriad of ways of co-ordinating economic activity from partnerships, strategic alliances to formal written contracts. Firms have to decide whether source from the market or whether to form strategic alliances by vertical integration or vertical co-operation. However, the overriding factor governing the choice is determined by the associated costs.

The potential cost and benefits of such a system may be great as compared to market exchange. However, the choice of market exchange or vertical exchange is not a black and white one. The possibility of gaining many of the advantages of vertical integration without incurring all of the costs and risks associated with the use of such a system may be gained by the use of *vertical co-operation*. This refers to the vertical relationships between two or more adjacent stages without full ownership or control in which partners fundamentally maintain their independence, but for example, share information or co-ordinate pricing (Buzzell 1983).

Control, of some, but not all aspects of production, distribution or marketing is transferred. Theoretically, in the case of market exchange, control is fully located at the differing marketing stages and co-ordinated solely by market prices. With full vertical integration control is completely shared or transferred to central management leaving the different marketing stages without separate control - vertical co-operation mixes the two extremes.

By and large, there are still a large number of channels throughout the world in which very few attempts are made to organise resources in a purposeful way. These channels tend to be piecemeal coalitions of independently owned firms or organisations that are only concerned with short term gains. Co-ordination amongst these members is achieved primarily by bargaining and negotiating over every transaction and as a result systemic economies are rarely achieved. These type of networks attract low member loyalty and relatively easy entry to the channels and thus tend to be relatively unstable with firms at each level only concerning themselves with the distribution of the product to the next adjacent level (Mallen 1976, Buzzell 1983) These channels are basically governed by the operation of prices, the benefits or incentives are tied to output and there is relatively little planning. Within these channels, members are preoccupied with decision making in relation to cost, volume, and investment relationships at only one stage of the marketing process in order to pursue their own goals.

Several modes of channel organisation have emerged as ways to eliminate or reduce the suboptimisation that frequently exists in freeform and loosely connected channels in order to improve channel efficiency and effectiveness, thus safeguarding against

market failure. The goal is to assure that the requirements of end users are met and that transaction costs are held to reasonable levels.

Administered vertical co-ordination co-ordinates successive stages of production and distribution not through common ownership but through the size and power of one of the parties. In such a system administered strategies are relied upon to obtain systemic economies. Decision-making takes place with the effective interaction of members without formally structured agreements to meet mutual goals. Successful administered systems are freeform channels in which the principles of effective inter organisational management to eliminate channel conflict has been applied (section 2.7).

Other organisations may desire to formulate relationships on a contractual basis thus establishing contractual vertical co-ordination. These can be viewed as networks in which members have disparate goals but where there exists a formal organisation for mutually inclusive goals. Decision-making is usually made at the top of the inclusive structure but subject to contractual ratification by its members. Since members are contractually bound, they are willing to give up some degree of autonomy to gain scale economies and market impact. By setting up such a system the organiser hopes to gain all of the benefits of full integration without sustaining all of the costs that may go with such a system. More importantly the organiser hopes to secure potential efficiencies, creativeness, market intelligence and energies of entrepreneurs and independent companies only available by dealing across markets. Co-ordination may be forward or backward depending on the organisations position in the supply chain and can take a variety of forms as illustrated in Table 2.3

Table 2.3 Forms of Contractual Co-ordination

Forward Integration	Backward Integration
Wholesaler sponsored groups	Retailer sponsored co-operative groups
Wholesaler sponsored franchise groups	Retailer/wholesaler sponsored buying groups
Supplier franchise for branded goods	Retailer sponsored promotional groups
Retail procurement contracts	Retail procurement contracts
Producer marketing co-operatives	Producer buying co-operatives

Adapted from Stern and El Ansary 1992

Vertical co-operation offers a way of broadening scope without having to broaden the firm.

2.6.3 Multi-channel systems

Multi-channel systems have emerged with the proliferation of customer segments and channel possibilities enabling a firm to utilise two or more marketing methods to reach one or more customer segments. By utilising more than one channel, firms can gain three important benefits: increase market coverage, lower channel costs by bypassing an intermediary and more customised selling (Stern and El-Ansary 1992). Each channel used will be subject to different modes of co-ordination thereby producing coexisting transactional forms to meet the needs of heterogeneous markets.

A major problem of these types of system, where differing forms of vertical co-ordination are employed, is the fact that channel conflict is likely to occur especially if the different channels compete for the same customer. These forms are reliant on three mechanisms - trust, authority and price. Without these mechanisms in place

transaction costs will rise and may lead to market failure (Hobbs 1996a, den Ouden *et al* 1996).

2.7 Channel Relationships: Conflicts and Co-operation

The roots of channel conflict lie in the inherent interdependence of channel members on each other. Channel members tend to specialise in certain functions e.g. manufacturers might specialise in production whilst retailers may specialise in merchandising and distribution. This specialisation induces interdependence and functional interdependence requires a minimum amount of co-ordination in order to complete the channel task. However, firms strain to maximise autonomy and therefore these interdependencies creates conflicts of interest.

In every marketing channel, the members that conduct business throughout the various functions (Figure 4.3) must have some kind of working relationship. This might be harmonious, acrimonious, misunderstood or mismanaged. A harmonious relationship or co-operation can be defined as the choice of policies, strategies and actions to achieve joint goals (Hogarth-Scott and Parkinson 1993). Partnership relationships require communication, co-operation, trust and commitment amongst members to achieve the strategic aim of increasing value for the channel or reducing costs to achieve mutual benefits (Mallen 1972, Morgan and Hunt 1994).

The way individual members of a channel co-ordinate their activities with the various intermediaries they deal with will determine the viability of one type of channel alignment versus another alignment made up of different institutions and agencies

handling similar goods. If members fail to cooperate or co-ordinate efficiently with members of the same network and choose to pursue their own goals and objectives then this in turn may lead to the demise of the channel alignment leading to suboptimisation of the chain as a whole (Gattorna 1978, Morgan and Hunt 1994).

The focus on channel commitment and trust is a realisation that some distribution channel structures exist somewhere on the continuum between spot market transactions and vertical integration, emerging as administered systems, strategic alliances, contractual systems or working partnerships.

Heide (1994) suggests that a relational exchange accounts for the historical and social context in which transactions take place and views enforcement of those obligations as following the mutuality of interest that exists between two parties. Concern for the long running benefit of a system serves as a restraint on individuals to pursue self-interest in an opportunistic way. This would appear to dilute Williamson's (1975) theory that firms will tend to act in an opportunistic way and thus undermine channel relationships.

Clearly, creating a channel relationship based on commitment and trust is important for the longevity of channel relationships. However, with the best will in the world channel conflicts can still arise. These conflicts can arise from three major sources:

- *divergent goals of channel members* - each channel member has a set of goals and these may often vary from other channel members' goals. These divergences can cause conflict, because they induce behaviour by one channel member that is inconsistent with the achievement of another channel member's goals. The

importance of this in terms of channel conflict in inhibiting channel co-ordination is a major tenet in transaction cost analysis.

- *from disagreements over the domain of action or responsibility within the channel* - channel conflicts can occur where there are differences in domain dissensus i.e. population to be served, territory to be covered, function or duties to be performed (in terms of the nine marketing functions) and technology to be employed.
- *differing perceptions of reality* - conflicts occur where channel members may react to situations in channels in differing ways or may misperceive the actions of a channel member in relation to the marketing function and conflict arises.

It should be noted that not all conflict is destructive, moderate conflict motivates the channel members to grow, adapt and react to change. However, where conflict may cause possible suboptimisation of the channel, conflict management must be introduced to overcome such problems. The management strategy employed will depend not only on the cause of the conflict but also on the weight of the power of the channel member seeking to manage the conflict.

Dant and Schul (1992) use a typology of conflict resolution processes to illustrate conflict management techniques based on strategies:

- *Information intensive* - this involves the open exchange of information in the conflict resolution process. Trust and co-operation are likely to be conditions for the application of this process. Some channels use management devices such as

the *exchange of persons* between two or more channel levels to raise trust and agreement on mutual goals. *Co-optation*, a persuasion oriented process of introducing channel members onto working parties, board of directors or policy determining structure of an organisation as a means of averting threats to its stability or existence. It allows the sharing of responsibility but at the same time carries the risk of compromising policy and plans in order to win support of a channel member. *Joint membership in trade associations*, this form of strategy may develop and encourage a common understanding of problems facing channel members and give the member the resolve to sort out possible conflicts.

- *Information protective* - here common goals are not expected by either party to resolve conflicts. The scope and nature of disagreements are viewed as chronic or acute and parties may have to resort to diplomacy, mediation or arbitration to resolve disputes. Given the potential conflicts in all channel arrangements, channel members would be wise to develop formal methods of resolving conflict prior to any contractual arrangement.

The characteristics of conflict i.e. the issues over which there is conflict, the relationship between members, the personality of the more powerful member, the environment and structure of the relationship will affect which strategy to adopt. However, using information intensive strategies would appear to be the most user-friendly approach because it is more likely to enhance the longevity and co-ordination of the marketing channel.

Power itself is frequently used as a conflict control mechanism, the fact that a channel member has power indicates that it has a potential for influence and as a

result this power can be used to shift the marketing flows amongst channel members (Howe 1990). When a channel member wants to change the behaviour of another it may employ a variety of influence strategies via: threats, promises, requests, recommendations, information exchange, or legalistic pleas (Frazier 1983). Clearly, controlling the conflict will be determined by the level of power a channel member has over another channel member.

In the absence of total agreement amongst channel members, it becomes necessary for a *channel leader* to emerge and use one or more of the influence strategies described above to influence the outcomes in the channel that further the aims of the channel as a whole. The use of these levers implies that power may be imbalanced within the channel potentially leading to conflict (Morgan and Hunt 1994). Studies in the US (Anderson and Weitz 1983, Bucklin and Sengupta 1993), suggest that imbalance leads to decreased continuity in channel relationship and that balanced relationships imply greater stability, however, stability is decreased where firms entered alliance on an unequal footing.

The ultimate goal in channel relationships is the creation and adoption of the main and mutual goals by all channel members. Successful co-ordination will assist in meeting the targets of the consumer whilst maximising the efficacy of the channel and profitability. Power, conflict and co-operation are the key issues focusing on the relationships of channel members. How channel members react to these issues will determine the effectiveness and success of the channel structure.

2.8 Vertical Co-ordination and Livestock Production

Product differentiation and added value activities have usually occurred in the final stages of the market channel for agricultural commodities (outlined in greater detail in Chapter 5). Recently, however, market forces have led to greater opportunities for product differentiation and added value at farm level. These opportunities have stemmed from: increased consumer demands regarding health, nutrition and convenience, efforts by food processors to improve their productivity and technological advances that enable producers to co-ordinate livestock production with the product attributes preferred by customers and processors (Barry, Sonka and Lajili 1992, Sporleder 1992, Royer, 1995). Vertical co-ordination, either through ownership or contractual arrangements is required to link production processes and products to the preferences of consumers, processors and retailers.

The need for farm level product differentiation has put pressure on open market relationships. This in turn may lead to vertical integration or contracting between key stages of the livestock marketing system. Vertical integration brings numerous management challenges and significant financial demands to the integrator. Contracting offers flexibility of control and risk sharing between contracting parties within the channel membership. However, contract co-ordination of inherently variable and fragmented livestock production is especially complex when numerous and diverse entities are involved in the marketing chain (Barry *et al* 1992, Sporleder 1992, King 1992).

Nonetheless, several emerging trends make different forms of vertical co-ordination likely. Farm-level product differentiation is driven by both demand and supply forces:

- *Demand* - increasingly diverse consumers are more demanding about nutrition, health, quality and traceability and the use of certain production and distribution practices. Other demand forces are driven by efficiency considerations and efforts by food processors to increase their productivity in their operations. Closer links with a small number of suppliers who provide such products with specific attributes (*e.g.* leaner carcasses) is one means of achieving greater efficiency (Barry *et al* 1992, Sporleder 1992, King 1992 Royer, 1995, den Ouden *et al* 1996).
- *Supply* - advances in the availability, transmission and capacity to use information technology have contributed greatly to the co-ordination of commodity production under various contractual arrangements (Sporleder 1992). A second supply factor is increasingly specific and knowledge based production for livestock systems. Improvements in production will allow closer co-ordination to meet the specific attributes sought by processors and ultimately the consumer (Barry *et al* 1992, Sporleder 1992, King 1992 Royer, 1995, den Ouden *et al* 1996).

According to Sporleder (1992), it is important to understand the alternatives for co-ordinating exchanges within the market channel, particularly at producer/handler level. In addition to affecting the efficiency of the marketing system and the competitive advantage of channel members within it, the exchange arrangement affects the various risks to which firms are exposed and the distribution of risks within the channel. At the producer/handler level, risks are involved in decisions concerning price, quantity and quality of supply, and the timing of delivery. In a contracting arrangement both the producer and integrator are able to decrease some risks although others may be increased:

- *Producer Risks* - the producer bears some production risks (*i.e.* he or she has to produce the livestock), but price risks and most variable inputs are transferred to the integrator. However, price risk is replaced by other risks such as problems with contract renewal, contract terms, contract negotiation and the problems of ensuring consistent quality and supply continuity (Sporleder 1984, Barkema and Drabentstott 1995, Royer, 1995, den Ouden *et al* 1996).
- *Integrator Risks* - contract integrators are exposed to risks from a producer's actions. For example, failure to meet carcass attributes and continuity of supply or contract cancellation. However, the overriding advantage is that whilst the processor is seeking to optimise the quality and continuity of supply by influencing co-ordination, the integrator avoids the risks and rigidity of employing the necessary inputs and additional management functions for the production of the commodity that would be unavoidable if a full vertical integration approach was undertaken (Sporleder 1984, Barkema and Drabentstott 1995, Royer, 1995, den Ouden *et al* 1996).

The emergence of group marketing systems in the form of retail-led livestock producer groups, independent producer group and agricultural co-operatives, may provide incentives for vertical co-ordination. They are typically involved at the first stage of marketing and processing activities as a result of their role as vertical extensions of the farming operations of their members (Foxall 1982, Sargent 1982, Royer 1995, Peterson and Anderson 1996). Consequently they would seem to be well positioned to co-ordinate product differentiation at farm level in order to satisfy the requirements of the processing/retail sector. Whilst they may be able to provide marketing services to their members (*i.e.* co-ordinating marketing and management advice and possibly reduce the transaction costs associated with co-ordination), due to the level of concentration within the food sector it is unlikely that they will be able

to exert any great degree of countervailing power because they usually have little market power and operate at low margins (Rogers and Marion 1990, Royer, 1995). If farmer groups found themselves in a position that they could apply a greater degree of pressure they might have the additional problem of multiples and processors attempting to negate the bargaining power by finding alternative ways of purchasing stock by developing relationships directly with alternative producers and other groups in order to maintain supply and margins. (LAA 1997a).

A myriad of alternative managerial choices are available ranging from full vertical integration to vertical co-ordination. Potential explanation of the forces that lead to different exchange mechanisms have been expanded through transaction cost and strategic alliance logic (McCammon 1971, Williamson 1975, 1979, 1986; Mallen 1976, Stern and El Ansary 1992, Kohls and Uhl 1990, Hobbs 1996a, 1996b; Loader 1996). However, the changing nature of the vertical dependency relationships within the livestock sector may be significant in understanding why transactions for some commodities are mostly spot market transaction whilst other are mostly contractual.

Historically, the fragmented nature of livestock production and the large number of farms involved in the production process has been a major reason for the dominance of open market spot transactions. However for the well organised, market orientated producers that are of sufficient scale to supply the high volume requirements of major buyers, there are significant opportunities to become the preferred supplier to major processors and retailers.

For example Hobbs' (1996a, 1996b) study of beef retailers concluded that retailers procuring beef tended to mitigate against short term supply relationships with producers since the resulting information costs (*e.g.* evaluation of the quality of a carcass) and monitoring costs (*e.g.* traceability and quality assurance) ensuring consistency were deemed to be too high. Instead long-term stable relationships were

sought by the retailer to reduce the transaction costs. This might take the form of strategic alliances with processors, the formation of producer marketing groups or the development of long term supply (contractual or informal) agreements.

In terms of livestock procurement, transaction costs are more than the monetary costs associated with the purchase and delivery of slaughter stock. They encompass all aspects of the transactional relationships between the economic actors in the supply chain. Table 2.4 illustrates the types of transaction costs associated with livestock procurement.

Table 2.4 Transaction Cost Sources and Forms

Type of Cost	Source of Cost	Form of Costs
Information	Lack of market intelligence about opportunities e.g. products, prices, demand, supply, market outlets	Information about prices, fatstock, suppliers, grading, food safety, production practices, animal welfare assurance
Negotiation	Uncertainty about reliability of potential suppliers/buyers and quality of goods/services offered	Initial costs of setting up strategic alliances in terms of time and resources, sourcing, animal welfare assurance.
Monitoring	Uncertainty of compliance with agreement and possible changes in quality of goods and services	Agreements are adhered to, production practices, consistency, quality assurance, traceability, animal welfare assurance.
Transfer	Legal, extra-legal or physical constraints on the movement/transfer of goods	Handling, transport costs, animal welfare assurance

Source: Adapted from Loader and Hobbs 1996

There is no doubt that systemic advantages may be gained by increased supply chain control via the emergence of strategic alliances. Indeed, as illustrated in Chapter 3, retail led producer club schemes the rules to which farmers must adhere are very prescriptive in attempt to reduce transactions costs. However, one of the fundamental arguments appears to be that animal welfare is improved via direct abattoirs sales.

It has been recognised that poor animal welfare is a source of disutility to consumers (Bennett 1995, 1996) but within long term supply relationships this negative external cost has become internalised to provide assurance of welfare standards at production level. If animal welfare assurances are to be given across an integrated supply chain then it must be recognised that these assurances are incorporated at transfer level.

Increased supply chain control via vertical co-ordination does not necessarily involve simple transfer processes from farm to abattoir. Increasing journey complexity, rather than specific routes to market, may have an increasingly deleterious effect on animal welfare suggesting that the perceived reduction in transaction costs associated with perceived improvements in animal welfare may be invalid and may increase both transfer and monitoring costs. Hobbs (1996a) has suggested that vertical co-ordination which involves an additional transportation leg, such as live auction markets, may increase this transfer cost. However, there would appear to be an almost implicit underlying assumption that the welfare of animals sold via livestock auction markets is poorer than that of those sold direct from farm to slaughter, with the assumption that direct sales to abattoirs and those via electronic auctions involve a single discrete journey (Hobbs 1996a). Murray, Davies, Cullinane, Eddison, and Kirk (1998) suggest that this is not necessarily the case and in many cases journeys from auction markets can often have a less deleterious effect, since in many cases, the

direct abattoir route is by no means as straight forward as it may seem as 22 different journey structures were identified.

Nevertheless, the retail/processing sector appears to have a jaundiced view of the farming industry; a survey of 100 top UK food buyers undertaken by ADAS (1993) suggested that many UK farmers do not fall into the well organised and market orientated category sought by major buyers. The study concluded that there was a widespread inability of farmers to meet buyer's needs in terms of price, quality assurance, presentation, marketing support and volume of supply; buyers felt that farmers do not understand or appreciate the business pressures with which food buyers must contend and there was tendency for farmers to see themselves working in isolation and displaying an "us against them attitude" towards retailers and processors (ADAS, 1993).

In light of the growing importance of alliances and partnerships, the consequence of retail concentration in the food industry is that the individual farm business must position itself so that it can access producer-supplier schemes/marketing groups in order to establish itself as a preferred supplier with major buyers. This can be achieved by providing consistency, quality assurance and volume or alternatively to forge independent alliances with other farmers. Other essential elements include: an integrated marketing channel linking the point of production with the point of final sale allowing the flow of information up and down the channel, and the adoption of market orientation strategies to satisfy consumer and buyer needs.

It is interesting to note that over thirty years ago Carpenter and Perkins (1967) stated that:

"Farmers are well aware that as independent producers they are small and part of a fragmented industry, that will be faced with fewer and larger buyers of their produce, and that these buyers will be dominated by large scale retailers for regular bulk quantities of produce of a specified quality. If farmers cannot organise themselves to offer what retailers want, they may be squeezed in the market by those who can and even lose independence."

2.9 Summary

This chapter has outlined the theoretical concepts underlying distribution and has highlighted the importance of supply chain economics within the process. This may become increasingly important due to the emergence of vertically co-coordinated producer club schemes and which further highlights the importance of transaction cost theory within the livestock distribution system (see Chapters 3 and 4). It is thus likely that transaction costs incurred across the livestock distribution system may play an influential role in aggregate livestock channel utilisation. The ability of a farm business to reduce transaction costs in order to attract potential buyers and utilise a range of alternative channels may be influenced by marketing and business competencies of that business.

CHAPTER 3 AGRICULTURE AND LIVESTOCK DISTRIBUTION IN THE FAR SOUTH WEST

3.0 Introduction

The purpose of this chapter is to illustrate the importance of ruminant livestock production within the far South West; to examine the livestock distribution structure and identify the complex and diverse problems facing the industry.

3.1 Agriculture and the Far South West

The South West region (see Appendix 1 for land use regional definitions) contains almost 20% of the agricultural land in England and is dominated by ruminant livestock and dairy production. The importance of agriculture to the far South West is highlighted in relation to the contribution to the regional economy, agricultural output, labour, land use and livestock numbers.

3.1.1 Contribution to the Regional Economy

In terms of regional Gross Domestic Product, agriculture in the South West contributed 2.2% of the regional GDP in 1997, 1.1 percentage points above the National average. (MAFF 1999). Table 3.1 indicates, comparatively, that this puts the South West region marginally ahead of the East Midlands and the Eastern region by 0.2 points and 0.3 points respectively.

Table 3.1 Percentage Contribution of Agriculture to Regional and National GDP in 1997

	1997
North East	0.4
North West and Merseyside	0.8
Yorkshire and Humberside	1.4
East Midlands	2.0
West Midlands	1.2
Eastern	1.9
South East & London	0.4
South West	2.2
England	1.3

Source: MAFF 1999

In 1997, gross agricultural output exceeded £15.3 billion. Total livestock and livestock products output⁵ accounted for over 58% and ruminant livestock and livestock products output⁶ over 41%, for the same year (Table 3.2).

Whilst national sector output figures are unavailable by region, the relative importance of livestock production in the South West, and in particular Devon and Cornwall, is evident from an analysis of holding type (Tables 3.3 and 3.4)

5 Includes finished cattle and calves, finished sheep and lambs, finished pigs, finished poultry, other livestock, milk, eggs, clip wool and other livestock products.

6 Includes finished cattle and calves, finished sheep and lambs, milk and clip wool.

Table 3.2 Industry Sector Output as a Percentage of Gross Agricultural Output at Current Prices. United Kingdom - 1997

	1997
Cereals	16.29
Other Crops	6.36
Horticulture and Potatoes	14.23
Finished Cattle and Calves	11.65
Finished Sheep and Lambs	6.97
Finished Pigs	7.13
Poultry	9.21
Other Livestock⁷	0.95
Milk	19.73
Eggs	2.74
Clip Wool	0.23
Other Livestock Products⁸	0.16
Other Direct Receipts⁹	4.12
Value of Physical Increase¹⁰	0

Source: MAFF 1999

Dairying and cattle and sheep holdings accounted for 40% of total holding numbers and 36% of total agricultural area in England in 1997. (MAFF 1998a; Tables 3.3 and 3.4). In the South West, for the same year, these holdings accounted for 53% of holding number and 55% of the total agricultural area. In Devon and Cornwall, dairying and cattle and sheep holdings accounted for 63% and of 54% holding

⁷ Horses, breeding livestock exported, rabbits and game, knacker animals, other minor livestock and guidance premium for beef and sheepmeat.

⁸ Honey, goats milk and minor livestock products.

⁹ Set-aside, milk quota cuts, milk outgoers, animal disease compensation payments, co-operative society dividends, payments for grazing of horses and non-marketing of milk. In 1997 also includes calf processing aid scheme, selective cull and over thirty months scheme.

¹⁰ Breeding and capital livestock, work-in-progress (non capital livestock) and output stocks (cereals, potatoes and some fruit).

number, respectively, and 60% and 69% of total agricultural area; thus illustrating the importance of ruminant livestock production in the far South West.

Table 3.3 Holding Number by Type in England, the South West, Cornwall and Devon 1997

	England Holdings (No.)	South West Holdings (No.)	Cornwall Holdings (No.)	Devon Holdings (No.)
Dairying	18,007	6,535	1,194	2,085
Cattle and Sheep	40,523	12,425	2,459	4,931
Cropping	32,781	3,305	523	678
Pigs and Poultry	5,347	1,096	170	364
Horticulture	8,566	1,559	403	362
Mixed and Other	39,553	10,683	1,984	3,227

Source: MAFF 1999

Table 3.4 Holding Area by Type in England, the South West, Cornwall and Devon 1997

	England Holdings (ha)	South West Holdings (ha)	Cornwall Holdings (ha)	Devon Holdings (ha)
Dairying	1,287,142	494,110	78,990	144,132
Cattle and Sheep	1,992,689	493,646	91,526	214,250
Cropping	4,144,579	372,534	36,148	48,449
Pigs and Poultry	85,150	17,790	1,822	5,945
Horticulture	103,116	17,528	5,636	3,677
Mixed and Other	1,610,641	406,158	58,072	99,146

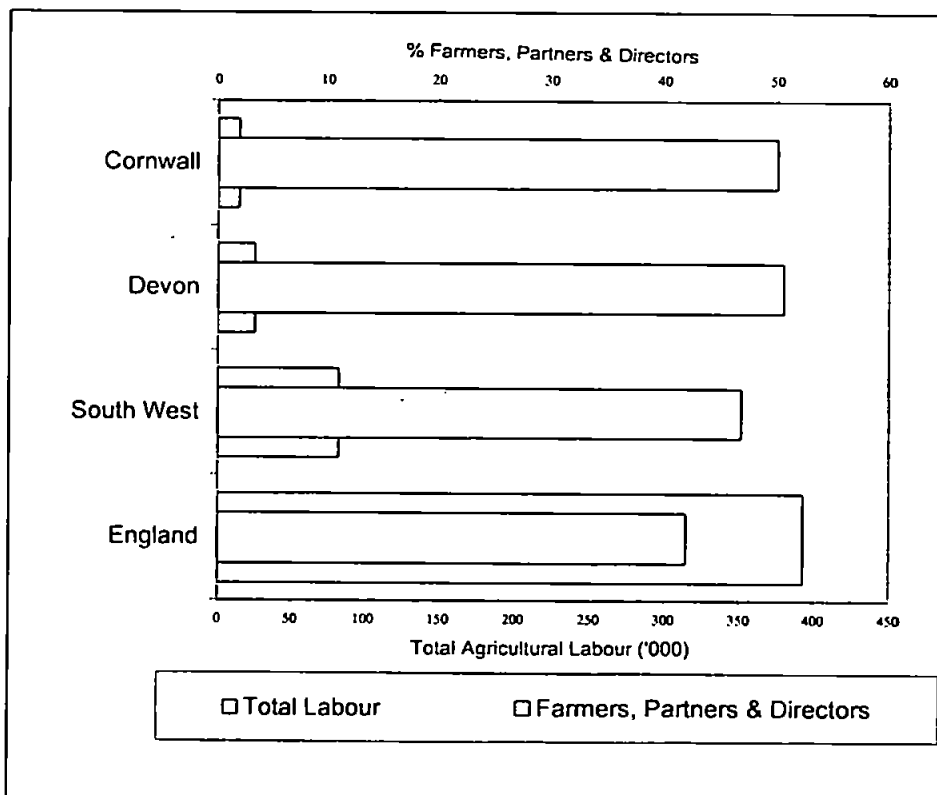
Source: MAFF 1999

3.1.2 Agricultural Labour

The changes in the size structure and number of farms has led to a reduction in the agricultural labour force. Ilbery (1992) reports that this fell by 36% in Great Britain between 1950 and 1987. For the South West, agricultural regional employment accounted for nearly 87,000 in 1994 representing 2.5% of the civilian population

with Devon and Cornwall representing 4.6% and 2.9% respectively, demonstrating that both counties surpass the national average of 2.2%. Between 1979 and 1994 there was an overall decline for the region of 13.5%, with Devon and Cornwall showing a decline of 9% and 12.9% for the same period (Pierpoint 1995). By 1997, the total agricultural labour force in England amounted to 393,105, of which 42% were farmers, partners and directors. In the South West, the total agricultural labour force was over 83,000 comprised of over 25,000 in Devon and 15,000 in Cornwall (MAFF 1998a; Figure 3.1), a fall of approximately 4,000 since 1994. Family labour, as defined by farmers, partners and directors, comprised approximately 50% of the total agricultural labour force in the two counties.

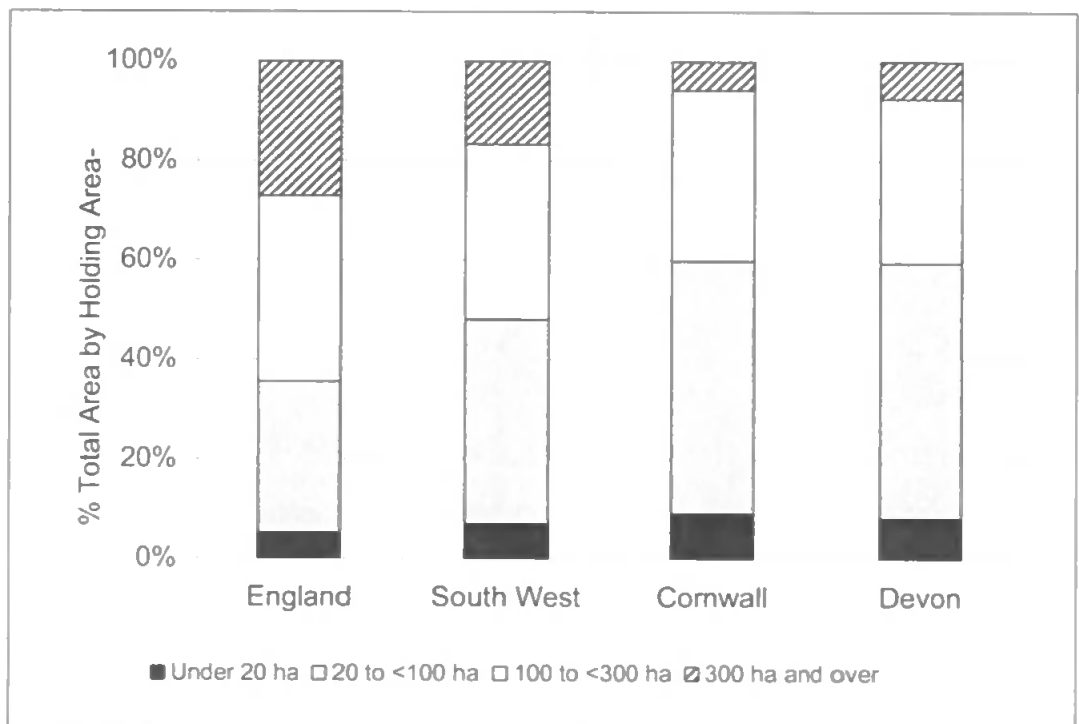
Figure 3.1 Total Agricultural Labour Force and Percentage Farmers, Partners and Directors England, the South West, Devon and Cornwall - 1997



Source: MAFF 1998a

Hodge and Monks (1991) suggest that in areas where holding sizes are large and a substantial proportion of the total area is under arable production such as the Eastern region, agricultural employment has been lost at a higher than average rate. Murray (2001) suggests that analysis of total labour force per 100ha of agricultural land indicates that employment in agriculture in the Eastern region was below the national average in 1997. In contrast, both Devon and Cornwall, which are associated with smaller farms, had higher than national and South West regional figures (Figure 3.2).

Figure 3.2 Total Labour, per 100ha Agricultural Land in England, the South West, Cornwall and Devon – 1997



Source: MAFF 1998a

3.1.3 Land Use

In 1997, land area for agriculture accounted for 76% in the South West, 5% points over the national average of 71%. By contrast the Eastern region extended to 77%, (MAFF 1998a). However, as Murray *et al* (1996) note:

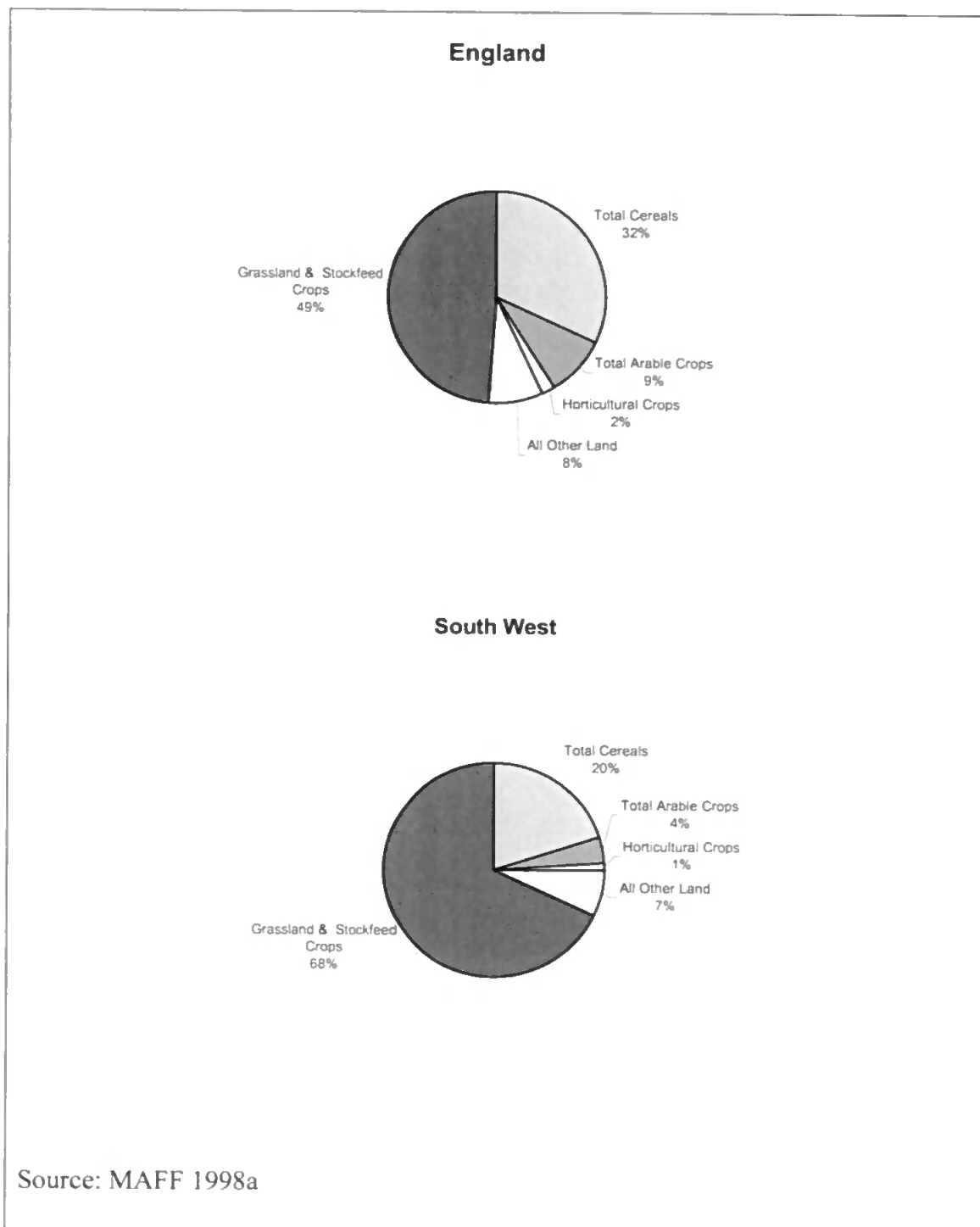
“comparison of the two regions exemplifies the east west divide in the country, with cereal production dominating in the Eastern region and dairying and beef and sheep production dominating in the South West”

Murray *et al* (1996), argue that this divide has been in evidence for many centuries but the post war drive for increased food production aggravated the effect of natural climatic and topographical factors resulting in a marked reduction in grassland¹¹. For example, grassland production, in terms of agricultural area for Cornwall and Devon increased by 10% from 1944 to 1997 to 66% and 76% respectively. In contrast, the Eastern region saw a decrease of 23% to 13% over the same period (Murray *et al* 1996). Nationally, the area of grassland fell by nearly 23% (Ministry of Agriculture and Fisheries 1947, MAFF 1998a). Addiscott (1988) reports that over 5,000ha of grassland was transferred to arable production during and immediately after World War II. In 1997, 50% of the total agricultural area in England was accounted for by grassland and crops grown mainly for stockfeed¹² with cereals occupying 32% (MAFF 1998a). Agricultural land utilisation for England, the South West, and Cornwall and Devon is illustrated in Figures 3.3 and 3.4.

¹¹ Excludes Common Rough Grazing

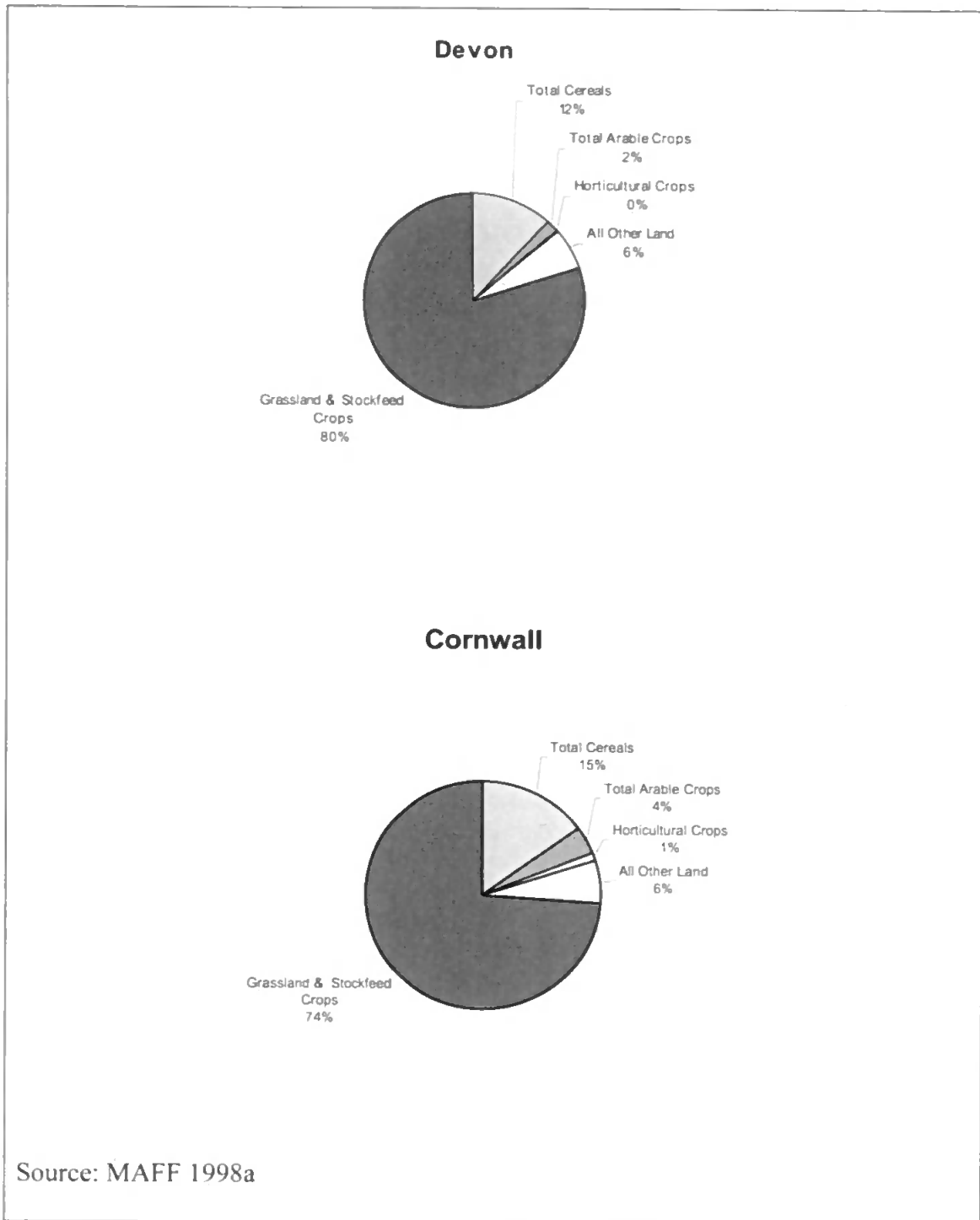
¹² Includes grassland (as defined above), turnips, swedes, kale, kohlrabi, cabbage, savoy, rape, field beans, peas for harvesting dry, maize, fodder beet, mangolds and other crops.

Figure 3.3 Agricultural Land Use in England the South West –1997



Source: MAFF 1998a

Figure 3.4 Agricultural Land Use in Cornwall and Devon 1997



3.1.4 Livestock Numbers

It is evident from the above that land use in Cornwall and Devon is dominated by grassland production and fodder crops, emphasising the importance of ruminant livestock production. In 1997, the dairy and beef breeding herds in the Devon and Cornwall accounted for approximately 15% of the national herds and the sheep breeding flock to 13.5% of the national flock. Pig production was far less important at approximately 4.5% of the national herd (Table 3.1; MAFF 1998a). Within the South West, the dairy breeding herd extended to over 605,000 head, accounting for over 35% of the national herd and the far South West accounted for 15.1%.

Table 3.5 Breeding Livestock Numbers for Dairy Cattle, Beef Cattle and Sheep in England, the South West, Cornwall and Devon 1997

	England	South West	Cornwall	Devon
Dairy Breeding Herd	1,700,250	605,263 (35.6%)	91,617 (5.4%)	165,629 (9.7%)
Beef Breeding Herd	789,993	199,302 (25.2%)	44,270 (5.6%)	73,474 (9.3%)
Sheep Breeding Flock	9,024,128	1,956,381 (21.7%)	308,799 (3.4%)	910,888 (10.1%)
Pig Breeding Herd	644,897	88,534 (13.7%)	7,876 (1.2%)	21,303 (3.3%)

Source: MAFF 1998a

A review of 1997 breeding livestock numbers per 100ha of land utilisation (Table 3.6; MAFF 1998a) identifies that, within the South West, ruminant livestock exceeded the national average across all species. However, breeding numbers for Devon and Cornwall, for beef, sheep and dairying, surpassed both the South West regional and national figures.

Table 3.6 Breeding Livestock Numbers per 100ha of Agricultural Land in England, the South West, Cornwall and Devon 1997

	England	South West	Cornwall	Devon
Dairy Breeding Herd	18	34	34	32
Beef Breeding Herd	9	11	16	14
Sheep Breeding Flock	98	109	113	177
Pig Breeding Herd	7	5	3	4

Source: MAFF 1998a

In summary, dairying, beef and sheep production are relatively more important than any other sectors within the industry. The far South West, is characterised by a larger number of smaller holdings with a larger labour force and farming activities are dominated by ruminant livestock.

3.2 Livestock Distribution Channels

The principal marketing channels from farm to slaughter in the UK, for cattle, sheep and pigs, are sales via livestock auction markets, those direct from farm to abattoir and those via electronic auction systems. Major changes taking place within all sectors of the livestock and meat producing industries have resulted in altered supply chain relationships which impinge on the distribution of animals both within and between channels. Aggregate channel usage levels for cattle, sheep and pigs, in the Great Britain in 1997, showed marked differences between pigs, with over 95% sold direct to abattoirs, and cattle and sheep, with over 46% and 60%, respectively, sold through livestock auction markets (Table 3.7).

There have been shifts in channel usage levels in recent years because of changes in the total number of animals slaughtered for human consumption between 1991 and 1997, percentage data are presented to illustrate market share of each of the livestock distribution channels.

Between 1991 and 1993 the percentage of cattle sold via livestock auction markets and electronic auctions increased, whilst direct sales to abattoirs decreased predominantly due to favourable currency exchange rates which saw an increase in export trade via livestock markets. Between 1993 and 1997 the situation was reversed and the percentage of cattle sold via livestock auction markets and electronic auctions decreased in favour of direct farm to abattoir sales. The percentage of sheep sold via livestock auction markets declined between 1991 and 1997 from 71.6% to 61.2% of the total. Direct farm to abattoir sales increased during

the period considered from 28.4% in 1991 to 35.4% in 1997. Sales via electronic auction increased from 2.0% in 1991 to 5.5% in 1995 and declined thereafter to 4.3% in 1997. The dominance of pig sales direct from farm to abattoir increased from 92% in 1991 to over 95% in 1997, with the remainder sold via livestock auction markets. The net result of these shifts between 1991 and 1997 were gains to direct farm to abattoir sales at the expense of both the other marketing channels.

Table 3.7 Slaughter Cattle, Sheep and Pigs Sold via Livestock Auction Markets, Direct from Farm to Abattoir and via Electronic Auctions Systems in Great Britain: 1991 - 1997

		Livestock Auction Markets	Direct Sales to Abattoirs	Electronic Auctions
Cattle	1991	55.0%	43.0%	2.0%
	1993	58.8%	37.4%	3.8%
	1995	56.0%	40.6%	3.4%
	1997	46.1%	52.4%	1.5%
Sheep	1991	71.6%	28.4%	2.0%
	1993	67.1%	29.1%	3.8%
	1995	64.8%	29.8%	5.5%
	1997	61.2%	35.4%	3.4%
Pigs	1991	8.0%	92.0%	<i>na</i>
	1993	5.5%	94.5%	<i>na</i>
	1995	5.3%	94.7%	<i>na</i>
	1997	4.6%	95.4%	<i>na</i>

Source: MLC 1996a and 2000a, *na* = not applicable

Major changes taking place within all sectors of the livestock and meat processing industries have resulted in altered supply chain relationships, which impinge on the distribution of animals both within and between livestock marketing channels.

These changes, which are interactive, emanate from legislative controls, technological advances, social and economic pressures affecting production, marketing and slaughter. This chapter continues with an overview of the three main livestock marketing channels, examines the factors effecting change.

3.2.1 Livestock Auction Market Sector

Livestock markets essentially gather vendors, livestock and purchasers to facilitate a channel of exchange for both store and fatstock (finished). The auctioneer acts on behalf of the vendor to sell stock by public auction on a liveweight basis and charges commission on a percentage of the value of stock (usually between 2-5%) (MLC 1980, Bullen 1984, Jones and Steele 1995, Jones 1997, MAFF 1997) The role of the auction is to redistribute stocks in larger and more homogenous lots (e.g. similar types and breeds of animals) as required by buyers. Sale days are arranged to cater for members of the vertical marketing channel (abattoirs and retailers) to meet processing and consumers demand (MLC 1994a).

The most essential element of the livestock market system is that it provides the price setting mechanism. Assuming a sufficient number of buyers are present during a sale, prices are determined competitively through open bidding. The market price information provided by the auction system reduces information costs for buyers and processors and facilitates competitive price determination providing a price benchmark for other forms of selling i.e. direct sales to abattoirs (Jones and Steele 1995, Hobbs 1996b, LAA 1997b). Deadweight and grade prices follow the price trends of the livestock markets giving the livestock market system countervailing

power against other members in the channel *i.e.* livestock markets set the baseline market price and as a result abattoirs must follow these prices thus the livestock hold countervailing power over processors and retailers in terms of pricing; however, in the event of the erosion of the livestock market system the countervailing power would also erode and thus create a thin market. This has been seen in the pig sector where there has been increased vertical co-ordination in recent years.

Although each individual market facilitates price determination of stock on a particular day, collectively the livestock market network is sensitive to changes in supply and demand and has the ability to always clear the market at a price *i.e.* there is always a price level, however low, for every animal providing the seller agrees to sell (Bullen 1984, Barker 1989, Hobbs 1996b, Hobbs 1997). There are, however, inherent disadvantages with this system. Price is dependent upon there being sufficient numbers of buyers and sellers and markets are not immune from traditional malpractice such as buyer rings and luck money which reduces the prices that sellers receive for stock. If poorer quality livestock is passed through the system then this in itself will erode the price mechanism for the whole procurement system.

The price information provided by the LAA and the Meat and Livestock Commission (MLC) provides a weekly update of market prices providing livestock producers, who choose to use them, additional market intelligence which may influence their marketing decisions. However, livestock market information with regard to quality and price are not taken up nationally and the LAA (1997b) is aware, in the light of increased competition from the abattoir sector, that they should become more pro-active with regard to this and traceability. For example, compared to deadweight selling (direct sales to abattoirs), the livestock marketing sector has always been a poor transmitter of reliable information from the final consumer back to the livestock producer via the retail and processing sector. Few producers know

the final destination of livestock sold and Bullen (1984) suggests that fewer still take an active interest in the comparison between livestock grade, quality and price of their carcasses on the hook. This would suggest that livestock producers fail to recognise the importance of the *marketing channel* and *marketing concept* i.e. viewing the channel as integrating the point of production to the point of sale.

Other perceived advantages exist, for example farmers enjoy the social interaction of attending market. For many farmers it is the only opportunity they have to get away from the farm providing a focal point of a contact network in the farming community. Livestock markets in many cases act as a *shop window*, offering services that farmers require such as advice and administrative support through auctioneers and agricultural suppliers (Bullen 1984, Brown 1994, Jones and Steele 1995).

The liveweight versus deadweight issue is a contentious one. The arguments for and against in the literature available (for example see Mitchell 1976, Bullen 1984, Barker 1989, Bromell 1994, Hobbs 1997) would suggest that the majority of livestock producers select channels predominantly on price and have little or no concern for the integration of point of sale to final consumption. There are, however, conflicting views that suggest that producers select channels according to the category of stock and the best price that they can achieve for that stock. However, there appears to be little evidence to suggest that price differentials between marketing channels are significant. In the light of recent changes in factors affecting channel utilisation, further research is required to understand choice criteria.

Traditionally, livestock were sold at weekly markets and seasonal and annual fairs all

over the country and in the early fourteenth century there may have been between 2,000 and 2,500 markets in England (Everitt 1967). More recently, the number of livestock markets has been in decline, so that by 1940 there were 554 in England and Wales, falling to 235 in 1993 (The Livestock Auctioneers' Association 1993, Jones and Steele 1995) and to 194 in 1998 (The Livestock Auctioneers' Association 1998). For prime stock, animals destined for slaughter and subsequent human consumption, 173 markets currently operate with the remainder used for sales of other classes of livestock. In England, 129 prime stock markets currently operate with an additional 17 markets for other classes of livestock. Within the South West, there are 31 prime stock markets and 5 others (Table 3.8 highlights regional differences).

Table 3.8 Number of Markets in the England Regions 1997

Region	Number of Livestock Market
East Midlands	14
Eastern	4
North East	13
North West	22
South East	12
South West	36
West Midlands	22
Yorkshire and the Humber	23

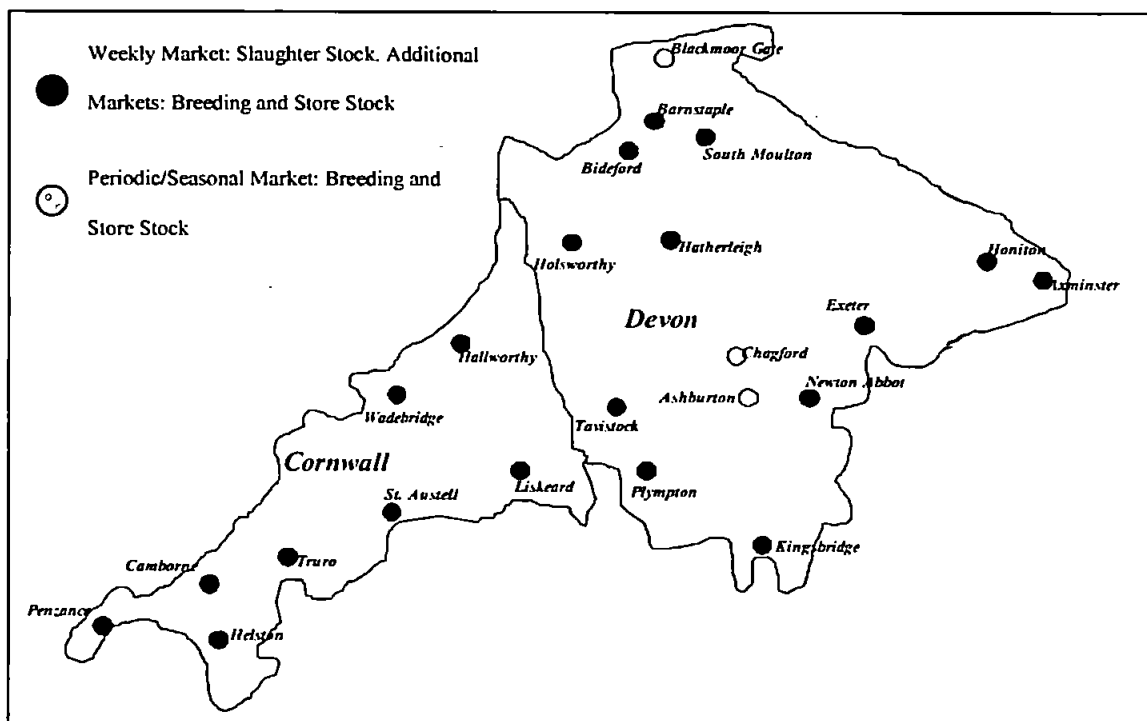
Source: Livestock Auctioneers' Association 1998

In 1997, the ratio of livestock area ('000ha) to livestock markets in Devon and Cornwall was 25:1 and 27:1, respectively, providing a higher concentration of markets than both the South West regional and National averages but lower than those of the West Midlands and Yorkshire & the Humber. Murray (2001) suggests

that the ratio of livestock area¹³ to markets indicates a uniform distribution suggesting a direct relationship between ruminant livestock production and livestock market provision.

In 1980 there were 30 livestock auction markets in Cornwall and Devon (Rosenthal 1981). By 1997 the number had declined to 23 comprising 8 in Cornwall and 15 in Devon, 3 of which were used for periodic or seasonal sales of breeding and/or store stock only (Figure 3.5).

Figure 3.5 Livestock Auction Markets in Devon and Cornwall in 1997



Source: Murray *et al* 1996, Livestock Auctioneers' Association 1998, Murray 2001

¹³ Area of grassland, sole right rough grazing and crops grown for livestock.

The number of livestock markets is in long term decline but, whilst their demise has been predicted Bullen (1984) and Jones and Steele (1995) report that rationalisation resulted in the closure of smaller inefficient markets and the establishment of larger more efficient markets on greenfield sites. Jones and Steele (1995), citing Brown (1994) and Smith (1994), report that estimates of the percentage of cattle and sheep sold through the livestock market sector increased between 1980 and 1993 (Table 3.9). However, this was not the case between 1993 and 1997 with the percentage of cattle sold via livestock markets declining by almost 13% and sheep by almost 6%. By 1997, sales of both ruminant species were below estimates for 1980.

Table 3.9 Estimates of the Percentage of Cattle and Sheep Sold via Livestock Auction Markets 1980,1993 and 1997

	Cattle	Sheep
Percentage Sold via Livestock Markets 1980	52	68
Percentage Sold via Livestock Markets 1993	57	72
Percentage Sold via Livestock Markets 1997	46	61

Source: Jones and Steele 1995, MLC 2000

The notable decline in cattle sales via livestock auction markets between 1995 and 1997 was worsened by the impact of the BSE 'crisis'¹⁴ in 1996. Jones (1997) reports that the introductory price mechanisms of the Over Thirty Months Slaughter scheme (OTMS) was initially biased in favour of deadweight sales and is reported to have diverted trade for both prime and OTMS cattle, away from livestock auction markets. While Jones (1997) reported that monthly livestock auction market throughputs

recovered in 1996 once the distortion in the price mechanism was rectified, the percentage of slaughter cattle sold via this channel continued to decline during 1997.

The Calf Processing Aid scheme (CPAS), introduced to counteract the anticipated supply surplus following the export ban of cattle from the UK, exceeded its targets and resulted in a reduction in supply of prime cattle after October 1997 (MLC 1997c). The pressures on livestock markets extend beyond the BSE 'crisis' through increased competition from direct sales to the abattoir sector (section 3.2.2), other forms of marketing such as electronic auctioning systems (section 3.2.3), agricultural policy (CAP reforms), animal welfare considerations and current and forthcoming transport legislation (Protection of Animals during Transit Regulations 95/29/EU), and changes in meat demand and retail procurement policies (see Chapter 4):

“...auction markets are in danger of being declared a "no buy" area by powerful supermarket companies as they prepare to meet supply chain audits demanded by the 1992 (*sic*) Food Act... Supermarket buyers say auction markets have a poor welfare image - but their biggest objection is the way animals sold under the hammer lose their identity” (Agra Europe 1991).

One supermarket buyer was quoted as saying:

“This means we have to know where our animals have come from and how they were managed. This cannot be done through the auction system. As soon as we can establish a network of three cornered quality assurance partnerships with farm-groups, abattoirs and ourselves, we will refuse to handle any auction animals” (Agra Europe 1991).

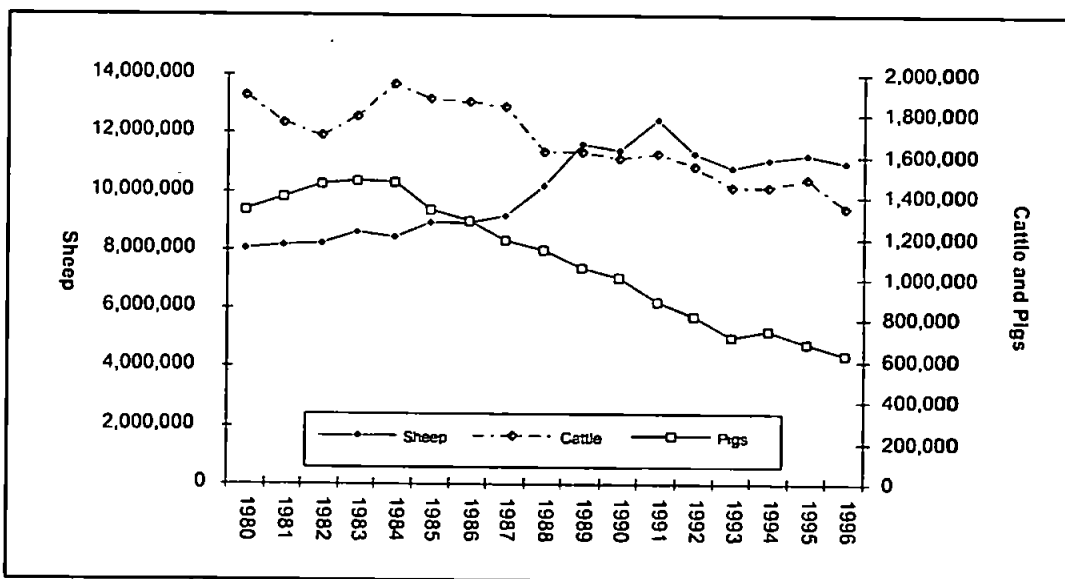
Both sheep and cattle populations have been closely linked to changes in agricultural policy over the past twenty years. This has in turn had a reciprocal effect on

¹⁴ Bovine Spongiform Encephalopathy 'crisis'. For a chronology of events, see MAFF 2000.

throughputs. For example, in Figure 3.6 there is a distinct break in the slope around 1984 for cattle throughputs and between 1989 and 1991 for sheep throughputs. Cattle populations have been in decline as a direct result of the introduction of milk quotas. The curve flattened out during the late 1980's illustrating a slower rate of decline corresponding to an increase in the beef herd as a direct result of the increase in headage payments. The national sheep flock increased steadily under a boost in margins provided by variable payment schemes. However, when these were phased out and replaced by direct headage payments the expansion stopped and throughputs started to decline. In the short term this is likely to continue albeit with the added complication of the BSE related effects (Jones 1996,1997).

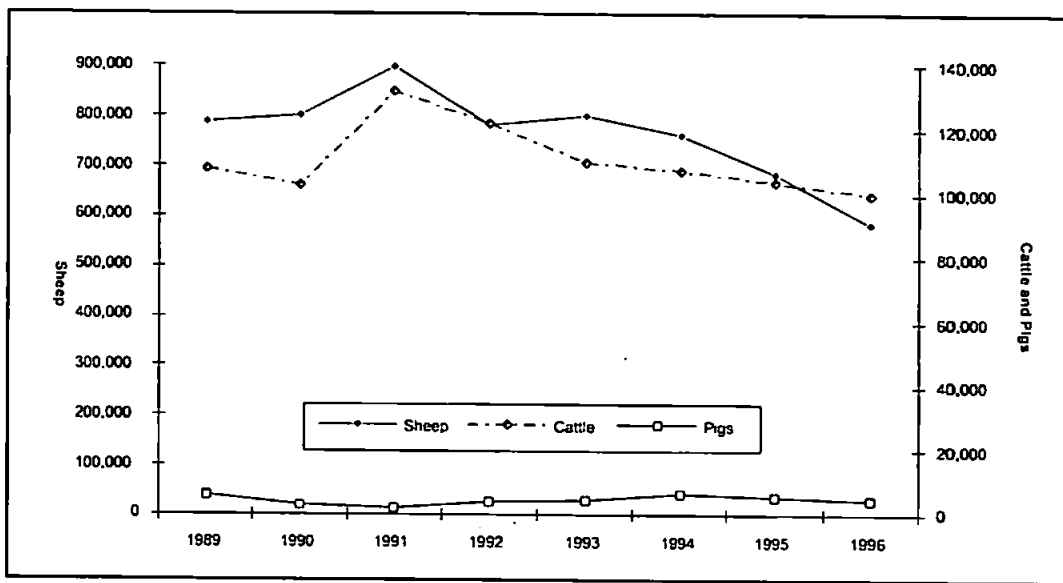
Devon and Cornwall throughputs (Figure 3.7) have followed the national trends for beef and pigs; however, sheep throughputs have shown a decline since 1993 against a slight increase in national trends (Figure 3.6).

Figure 3.6 Livestock throughputs for slaughterstock in England and Wales 1980-1996



Source: Livestock Auctioneers' Association 1997a, 1997b

Figure 3.7 Livestock throughputs for slaughter stock in Devon and Cornwall 1989-1996



Source: Livestock Auctioneers' Association 1997c

There have been increasing economic pressures due to increasing costs and income pressures i.e. a direct link between throughputs and overheads. These have been exacerbated by the requirement for additional capital expenditure to meet animal welfare, health and safety requirements and bad debt provision (LAA 1995, Jones and Steele 1995, Jones 1997). For example, Brown (1994) reported that in one market the extra administrative costs of handling Cattle Identification Documents was £60,000 per annum. There are now the additional complications of handling traceability codes with the prospect of greater compulsory traceability documentation (proposed National Cattle Database) as a result of the BSE crisis. Bad debt provision appears to be an increasing cost on auctioneers and the LAA (1995) reported that several firms experienced total bad debts of over £4 million from British beef in 1995.

The cost/revenue squeeze is likely to increase if throughputs continue to decline and may force further livestock markets to close (LAA 1995, Jones and Steele 1995, Jones 1996, 1997; LAA 1997b). For example, Bruton Knowles (Livestock Auctioneers) presently run six livestock markets in the South West. A viability study conducted by Millard (1997) concluded that if cattle throughputs continued to decline and increased the cost revenue squeeze, closures may be necessary.

There is a perception that the welfare of animals sold via this channel experience a greater number of handling operations and more complex transportation processes than animals sold direct to abattoirs and electronic auctions, and that as a result welfare is reduced (Knowles, Maunder and Warriss 1994, Baskerville 1996, RSPCA 1996a, 1996b, 1996c).

However, Murray (1997) identified two important gaps in current knowledge which may mean that these perceptions are invalid. Firstly, no studies have investigated journey nature and structure within channels and preliminary investigation have identified these as being complex and diverse. Secondly, whilst Evans, Sains, Corlett and Kilkenny (1987), Kenny and Tarrant and Murray *et al* (1996) have identified that a journey of increasing complexity may have an increasingly deleterious effect on animal welfare, the effect of journey complexity on animal welfare has not been thoroughly investigated, and further research is required. If research currently being conducted by Murray (1997) can dispel or alleviate animal welfare concerns with regard to livestock markets this may allow them a stronger bargaining position with regard to co-ordination with abattoirs and retailers. However, conversely it may provide an additional nail in the coffin emphasising the major criticism levelled against the auction market - that it is an unnecessary link in the supply chain between the producer and slaughterhouse.

Murray (2001) concluded that journey structure rather than the marketing channel appeared to have a more deleterious effect on animal welfare dispelling the retail led argument to a degree:

“.....there is a multiplicity of interactive factors within all sectors of the livestock and meat producing industries affecting the nature and structure of journeys experienced by lambs from farm to slaughter. Journeys experienced by slaughterweight lambs are diverse within all three distribution channels and, therefore, the relationship between channels and animal welfare cannot be clearly defined. It is, therefore, important to consider the nature and structure of journeys experienced from farm to slaughter rather than the distribution channel per se”.

At present, livestock sourced from auction markets are precluded from attaining Freedom Food Status under the RSPCA welfare codes (RSPCA 1996a, 1996b, 1996c) and retailers are using this as part of their argument against using livestock markets.

However, the animal welfare lobby, are totally against livestock auctions on other grounds as well as transport believing that there are high instances of brutal and often illegal treatment of livestock at auctions; claiming that cattle, sheep and pigs are kicked, beaten with sticks, prodded with electronic goads and held for hours in overcrowded pens without water, according to a report by Animal Aid (The Times, 1997).

EU legislation relating to the protection of animals will be implemented during 1997, setting limits for livestock journey duration, standards for transporting vehicles and could put increased pressure on channel selection, particularly for those markets that are not EU approved collection centres (EU 63/432). At present 71 markets are approved in England, six of which are in Cornwall but none at present in Devon. However, the LAA (1997b) do not envisage any problems with regard to achieving EU Collection status for the remaining markets in Devon and Cornwall.

The hidden costs of BSE has served to focus consumer attention on the hidden quality aspects of food production which relate to the conditions under which animals are produced, transported and slaughtered. The presence or absence of these hidden characteristics cannot be visually detected by consumers. Food firms must provide consumers with assurances as to quality and safety over the produce they consume. Thus the beef and sheep supply chain must take steps to reduce the current levels of uncertainty that pervade the supply chain in the quest to improve quality and traceability. This in turn will have a knock on effect on the livestock market sector.

For example, transaction cost theory suggests that a change in transaction costs will alter the vertical co-ordination in the supply chain thus eroding the exchange of slaughter stock through spot market transactions. Increased co-ordination may enable the beef and sheep sectors to become more responsive to consumers preferences along the marketing channel. The information flow between channel members would be improved, monitoring costs would be reduced if retailers and processors are dealing with preferred suppliers e.g. through farm assurance schemes. However, closer co-ordination will have a negative impact on throughputs and will reduce effectiveness of the price making mechanism. The hidden benefit of the price making mechanism would be lost if the beef and sheep supply chain moved further towards contractual and vertical alliance relationships.

Closer vertical co-ordination will undoubtedly erode the utilisation of livestock markets and diminish the countervailing power that the markets possess. The Livestock Auctioneers' Association (1997b) is painfully aware of the problems affecting the system, however, unless the market system can co-ordinate with abattoirs and multiple retailers to overcome channel conflicts it is likely that the trend will continue. The main problem would appear to be that (as seen above) multiples

do not want to procure livestock through the livestock auction system due to high transaction costs and the erosion of the price mechanism would be to their advantage.

Closer co-ordination may increase pressure on livestock producers to adopt the marketing concept to meet the needs of the abattoirs and retailers and ultimately the consumer. However, this presents additional problems to many livestock producers because many producers are limited by factors affecting production and may have no alternative but to utilise the livestock market system since the livestock produced fails to meet the required procurement standards. Producers as a result may be unwilling to risk price penalties on poor quality stock and choose instead to utilise spot market transactions to achieve a fair price.

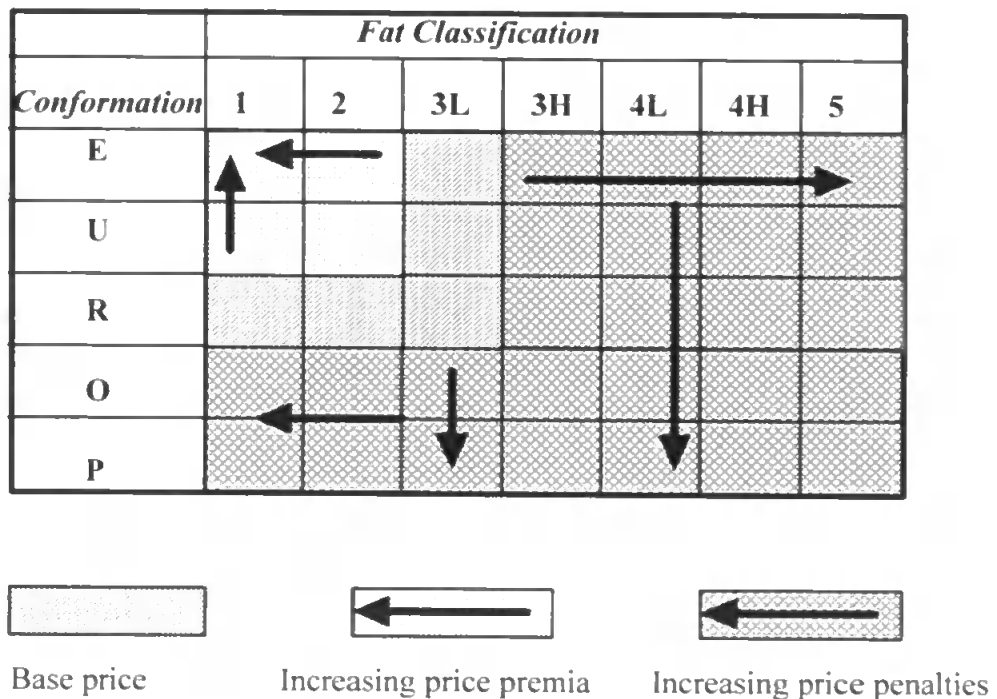
In light of the above, a two way system may emerge. Prime stock required by consumers may increasingly go through the direct sale system whilst poorer quality livestock may have no alternative but to go via the livestock market system. Whilst it is likely that further erosion of market channel utilisation is likely for prime stock, it is unlikely that unless other alternatives emerge for store stock that the sector will totally erode.

3.2.2 Abattoir Sector

The main alternative to the livestock auction system for marketing finished stock is to sell direct to abattoirs based on the dressed carcase weight (MLC 1980) Producers are paid on the deadweight price of the carcase/price per kilo which reflects the quality of the carcase according to acceptable levels of conformation and fat classification.

Figure 3.8, illustrates an example carcass conformation scale (EUROP where E is excellent and P is poor). The R conformation and 4L fat classification provides a base price for lambs, price premia are paid for higher quality and price penalties for lower quality. An upper carcass weight may be set to discourage production of heavy stock. Similar grids occur for the grading of clean cattle and pigs.

Figure 3.8 Conformation and Fat Classification Pricing Grid for Lambs



Ward (1987) describes price discovery as a two-stage process: the first stage involves finding and assessing the overall price level in terms of influences of supply and demand. The use of publicly available price information from livestock markets provides a price benchmark and reduces the cost of price discovery for processors; while the second stage involves adjusting the general price level for the characteristics of the animal based on carcass evaluation.

Procuring livestock through the livestock market system exposes processors to a degree of uncertainty because the animal may not "kill out" and grade as expected.

Liveweight sales offer buyers the least information about the livestock and direct sales provide the buyer with far more information. Price is based on the actual deadweight carcass grade and should more actually reflect the quality of the animal. Processors face less grade uncertainty because of the expertise of their procurement officers.

Fausti and Feuz (1993) show that (in the US), assuming buyers to be risk averse, average prices paid for cattle sold through livestock markets are lower than those in which a buyer has more information about the animal. At present there is little evidence to support this argument in the UK. However, erosion of the livestock market system is likely to affect the price making mechanism.

Conversely producers face greater uncertainty when selling stock deadweight because they incur the risk that animals will not grade as expected. However, different sellers will have different levels of risk aversion that will affect their preferences for channel choice. For example many producers may take the view that what they lose in price they can make up on volume i.e. dependent on the marketing strategy of the producer.

Direct sales from farm to abattoir are indicative of both vertical and horizontal linkages between producers, processors and retailers and therefore have been more prevalent in the pig and poultry sectors than in either ruminant sector (Gunthorpe *et al* 1995). There is now evidence that these linkages are developing in both the beef and sheep sectors with the emergence of producer clubs, assurance schemes and co-ordinated marketing groups (McEachern and Tregear 2000) as food retailers

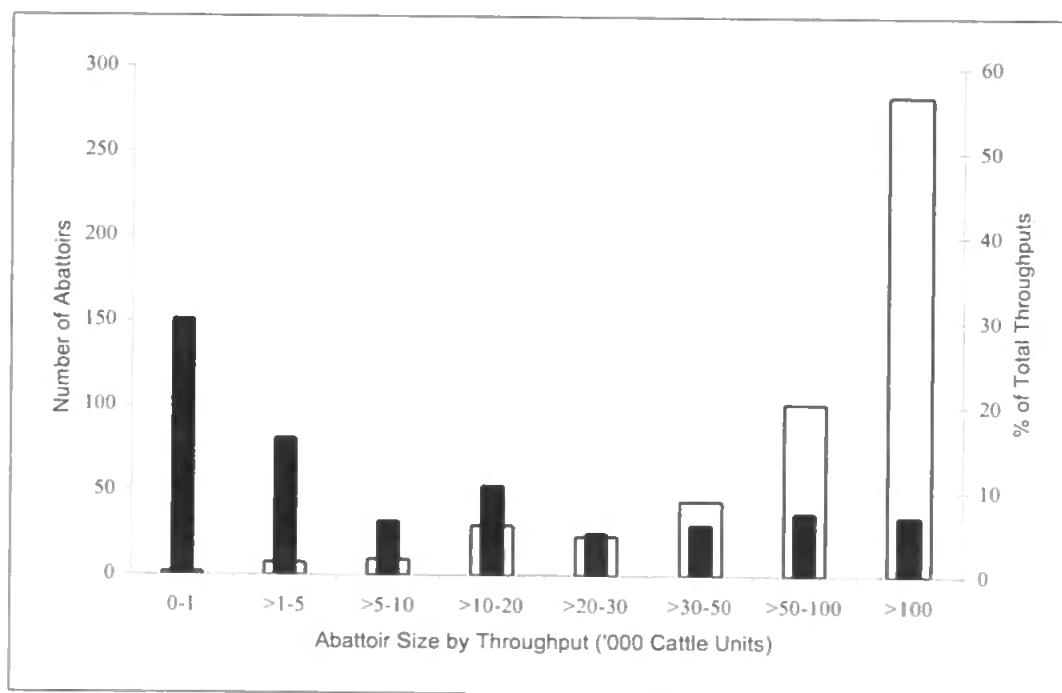
recognise the importance of providing consumers with quality assurances to reduce the levels of uncertainty within the supply chain (Loader and Hobbs 1996). This has largely been driven by the requirements of the Food Safety Act 1990 (GB Parliament 1990), under which retailers are obliged to demonstrate 'due diligence' in their procurement of livestock necessitating full traceability and quality assurance from farm to consumer.

The factors influencing this shift towards direct sales from farm to abattoir are intricately associated with changes in the nature of meat demand and changes within the retail sector (see Chapter 4). There have also been changes in the structure of the abattoir sector in recent years, which have impacted on the distribution of livestock from farm to abattoir.

Abattoir numbers have fallen substantially in recent years and by 1997, 458 remained in Great Britain - approximately 24% of the number in 1972 (MAFF 1997a,b,c; Meat Hygiene Service 1998, MLC 1999a, Scottish Office Agriculture, Environment and Fisheries Department 1998, Welsh Office Agriculture Department 1998). The MLC (1999a) reports that average abattoir throughputs increased from 6,600 to 29,002 cattle units¹⁵ within the same period, illustrating increasing concentration within the industry, with the closure of a high number of small plants. Recent concentration is reported by Key Note (1998) who indicate that between 1994 and 1996 the percentage of abattoir businesses with a turnover of £1m increased from 43% to 50.6%. In Great Britain in 1992, 129 abattoirs (those with throughputs greater than

30,000 Cattle Units pa; less than 11% of the total number) accounted for over 62% of total slaughterings of cattle, sheep and pigs. The larger number of smaller abattoirs (387; 54% of the total), with an annual throughput of less than 5,000 Cattle Units, accounted for 3% of slaughterings (MLC 1994a). By 1997/8, the number of abattoirs with throughputs of over 30,000 Cattle Units pa had declined to 102 accounting for almost 86% of total slaughterings. Small abattoirs with throughputs of less than 5,000 Cattle Units pa had also declined to 232 and accounted for less than 2% of total slaughterings (MLC 1999a; Figure 3.9)

Figure 3.9 Abattoir Numbers and Percentage Throughput in England in 1997/8 by Size of Abattoir

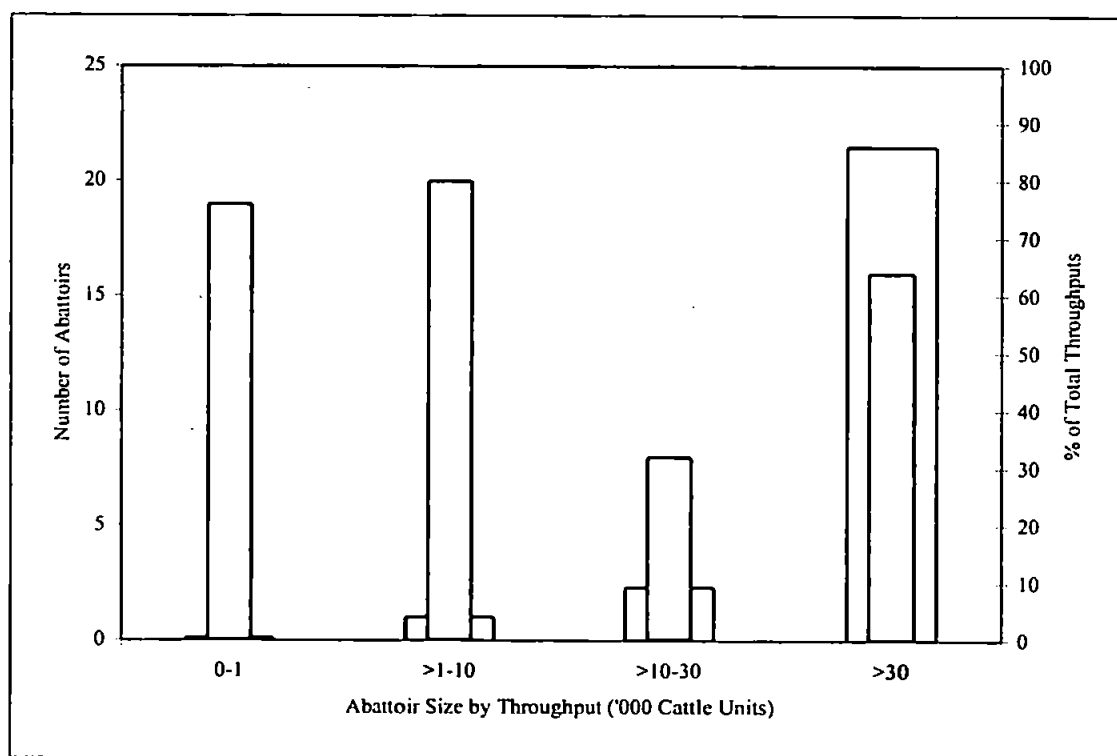


Source: MLC 1999a

¹⁵ 1 Cattle Unit = 1 bovine animal, or 5 sheep or 2 pigs. These data are illustrative only and not comparable with European Livestock Units (ELU).

In the South West in 1997/8, abattoirs with throughputs greater than 30,000 Cattle Units (25% of the total) accounted for 86% of total throughput, whilst small and medium sized plants (62% of the total number), with throughputs of less than 10,000 Cattle Units pa, accounted for just 4.6% of throughputs (Figure 3.10). In all English regions, small abattoirs only accounted for a small percentage of aggregate throughputs (MLC 1999a).

Figure 3.10 Abattoir Numbers and Percentage Throughput in the South West in 1997/8 by Size of Abattoir



Source: MLC 1999a

The concentration process within the abattoir sector has been evident since the mid 1950s (MLC 1980, 1994, Murray *et al* 1996) and the MLC (1999a) report that until the early 1990s, this was largely driven by market forces. However, EU wide

legislation governing abattoirs, which harmonised inspection, hygiene and structural standards throughout the European Union, has had a profound effect on the abattoir sector accompanied by the introduction of the Single European Market on 1st January 1993.

Legislative controls and the costs associated with compliance now exerted a strong influence on the structure of the abattoir sector. The legislation was applied in Great Britain by the Fresh Meat (Hygiene and Inspection) Regulations 1992 (GB Parliament 1992) and later replaced by the Fresh Meat (Hygiene and Inspection) Regulations 1995 (GB Parliament 1995). The deadline for compliance, under temporary derogations, was set at 1st January 1996 to give abattoirs time to undertake the plant modifications required. Permanent derogations to some of the structural components of the legislation were granted to small abattoirs that do not export either to other European states or third countries. Small abattoirs, identified as Low Throughput plants, are defined as those that slaughter less than 1,000 European Livestock Units¹⁶ (ELUs) per year at a rate not greater than 20 ELUs per week. Abattoirs slaughtering more than 1,000 ELUs per year, identified as Full Throughput plants, have no legislative restrictions on throughputs. The abattoir industry thus became formally polarised under this legislation with throughput restrictions on small plants. In 1997, the MLC (1998a) estimated that 69% of cattle, over 70% of sheep and almost 88% of pigs were slaughtered in Full Throughput abattoirs.

¹⁶ European Livestock Unit (ELU) means: 1 horse, 1 bovine animal over 300kgs liveweight, 2 other bovines, 10 sheep, 20 lambs, piglets or goats of less than 15kgs liveweight, 5 pigs of more than 100kgs liveweight, 7 pigs of between 15 and 100kgs liveweight, 10 goats, 3 farmed deer or 7 wild boar. ELUs are not comparable with Cattle Units used by the Meat and Livestock Commission (MLC 1994a and 1999a) and reported in this chapter.

Slaughterings in England in 1997 extended to 1.4 million cattle, 10.7 million sheep and 13.1 million pigs (MAFF 1998b).

Three hundred and twenty eight abattoirs were licensed to slaughter more than one species of livestock, whilst 47 were specialist single species plants. The MLC (1999) indicate that, in association with the decline in abattoir numbers, there has been a shift towards specialist single species plants, defined as plants licensed to slaughter only one species. In 1997 there were 21 specialist pig abattoirs, 16 specialist cattle abattoirs and 10 specialist sheep abattoirs (MAFF 1997a). Regional distribution of specialist abattoirs by species in England identifies that specialist ruminant abattoirs were largely located within the north and west of the country (Table 3.12). The number of Full and Low Throughput abattoirs in the England regions in 1997 is given in Table 3.10 and the regional distribution of abattoirs slaughtering cattle, sheep and pigs is given in Table 3.11

Table 3.10 Regional Distribution of Full and Low Throughput Approved Abattoirs in England - 1997

	Full Throughput	Low Throughput
East Midlands	21	42
Eastern	23	17
North East	10	13
North West	36	19
South East	13	6
South West	36	25
West Midlands	35	23
Yorkshire and the Humber	31	25
England Total	205	170

Source: MAFF 1997a and 1997c

Table 3.11 Regional Distribution of Full and Low Throughput Abattoirs Slaughtering Cattle, Sheep and Pigs – 1997

	Full Throughput			Low Throughput		
	Cattle	Sheep	Pigs	Cattle	Sheep	Pigs
East Midlands	17	15	15	42	40	19
Eastern	16	13	20	16	17	15
North East	9	9	9	13	13	8
North West	34	30	25	18	19	7
South East	11	12	9	6	6	5
South West	32	29	25	25	25	19
West Midlands	30	32	22	23	22	18
Yorkshire and the Humber	25	25	23	22	23	18
England Total	174	165	148	165	165	109

Source: MAFF 1997a and 1997c

Table 3.12 Regional Distribution of Specialist Abattoirs by Species in England - 1997

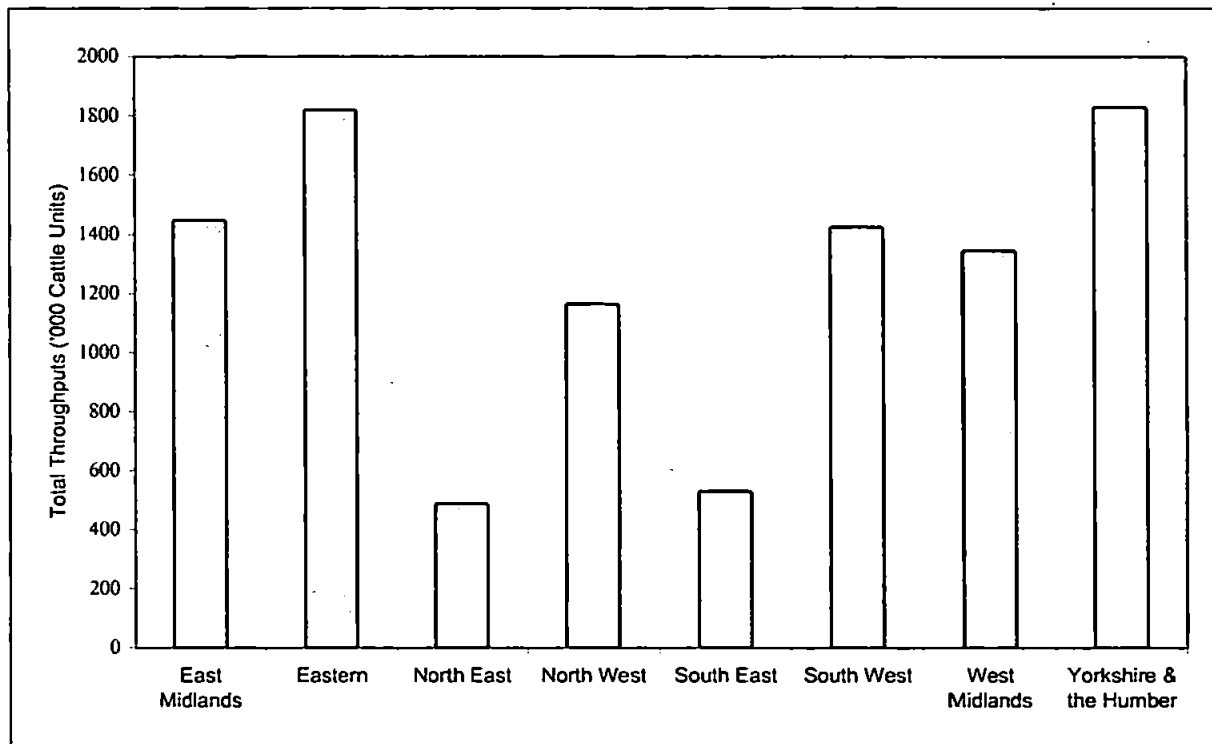
	Specialist Cattle Abattoirs	Specialist Sheep Abattoirs	Specialist Pig Abattoirs
East Midlands	4	1	3
Eastern	1	0	7
North East	0	0	1
North West	3	1	2
South East	0	1	1
South West	4	1	3
West Midlands	2	5	0
Yorkshire and the Humber	2	1	4

Source MAFF 1997a and 1997c

Provision was lowest within the South East and the North East and highest within the East Midlands and the South West (Table 3.10). Provision, in terms of total throughputs, was also lowest in the South East and North East in 1997 with 532,820 and 489,960 Cattle Units, respectively (Figure 3.11). However, highest total throughputs were in Yorkshire and the Humber and the Eastern region with

1,829,450 Cattle Units 1,821,150 Cattle Units, respectively (Figure 3.11).

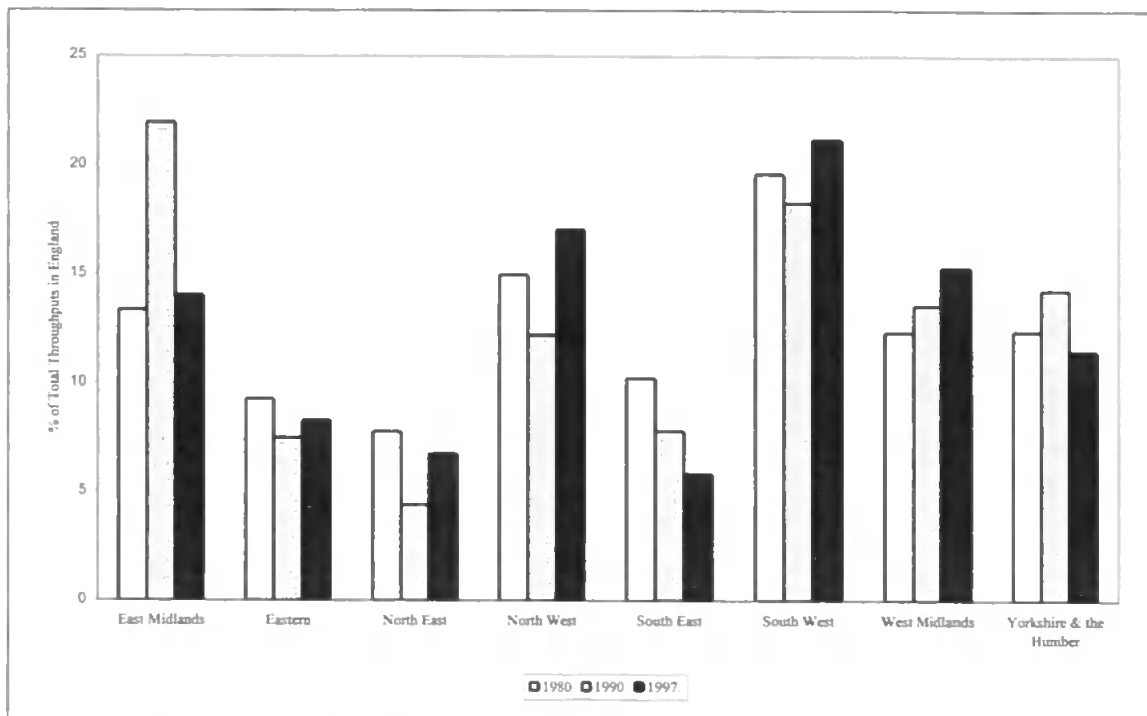
Figure 3.11 Total Regional Abattoir Throughputs (Cattle Units) –1997



Source: MAFF 1998b

Inreased concentration has resulted in shifts in the regional distribution of slaughter provision. In the cattle sector, between 1980 and 1990, the percentage slaughtered in the West Midlands, Yorkshire and the Humber and, particularly the East Midlands, increased at the expense of all other regions (Figure 3.12). However, by 1997, the dominance of the East Midlands region had declined and subsequent net gains were made in the North West, the South West, West Midlands and Eastern regions. By 1997, the South West accounted for 21% of the total cattle slaughterings in England.

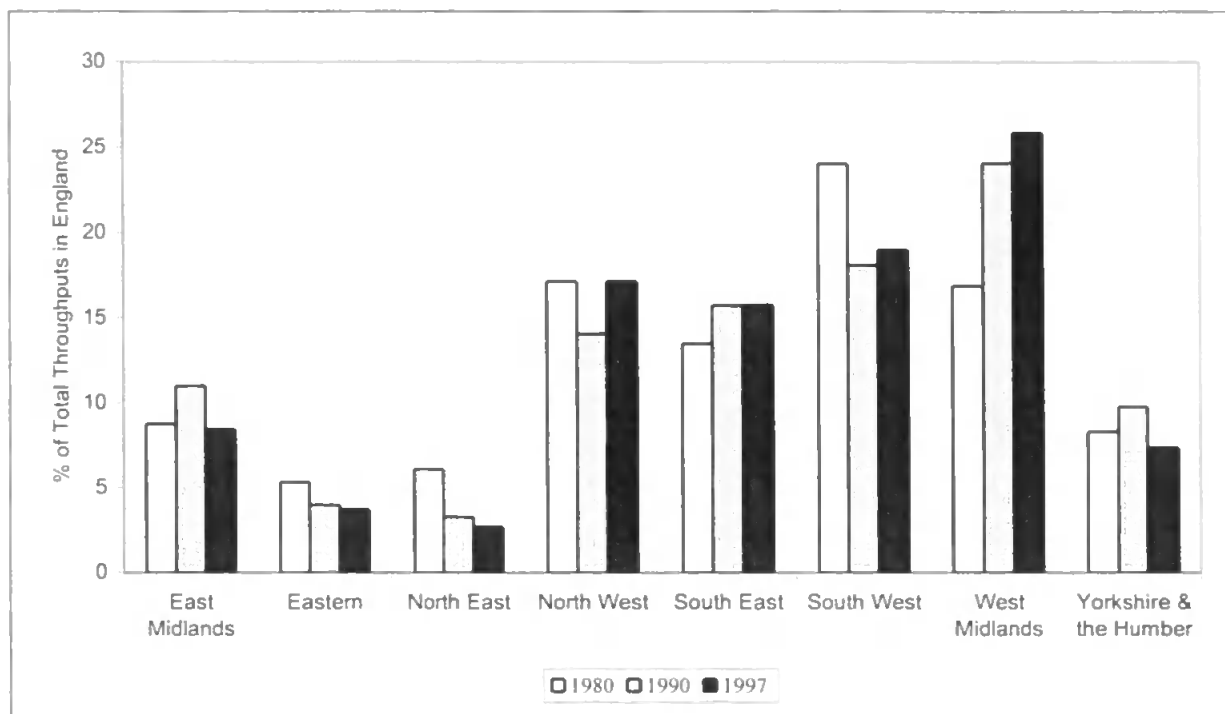
Figure 3.12 Regional Cattle Throughputs as a Percentage of Total Cattle Throughputs in England: 1980, 1990 and 1997



Sources: MLC 1981 and MAFF 1998b

In the sheep sector, between 1980 and 1990, the percentage of animals slaughtered increased in the East Midlands, the South East, the West Midlands and Yorkshire and the Humber. By 1997, the West Midlands further increased its share of national slaughterings and was the only region to show a net gain over the 27 year period. By 1997, the South West accounted for 19% of the total sheep slaughterings in England (Figure 3.13).

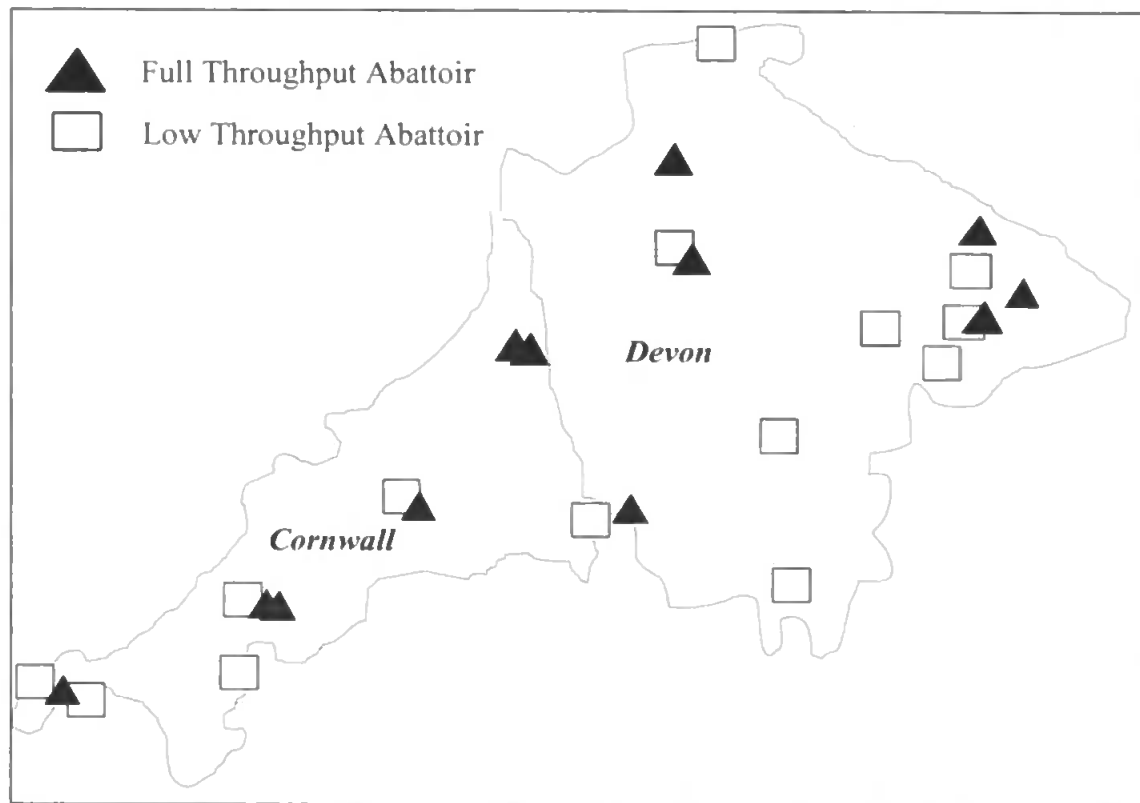
Figure 3.13 Regional Sheep Throughputs as a percentage of Total Sheep Throughputs in England: 1980, 1990 and 1997



Sources: MLC 1981, MAFF 1998b

By 1997, in Devon and Cornwall, 26 abattoirs remained, comprising 12 Full Throughput and 14 Low Throughput (Figure 3.14). Three abattoirs in Cornwall were specialist single species plants; one sheep and two cattle, whilst all abattoirs in Devon were licensed to slaughter more than one species (MAFF 1997a). One abattoir in Devon, however, was identified by the MLC (1999a) as a major sheep abattoir in the country; two were identified as major cattle abattoirs and one a major pig abattoir.

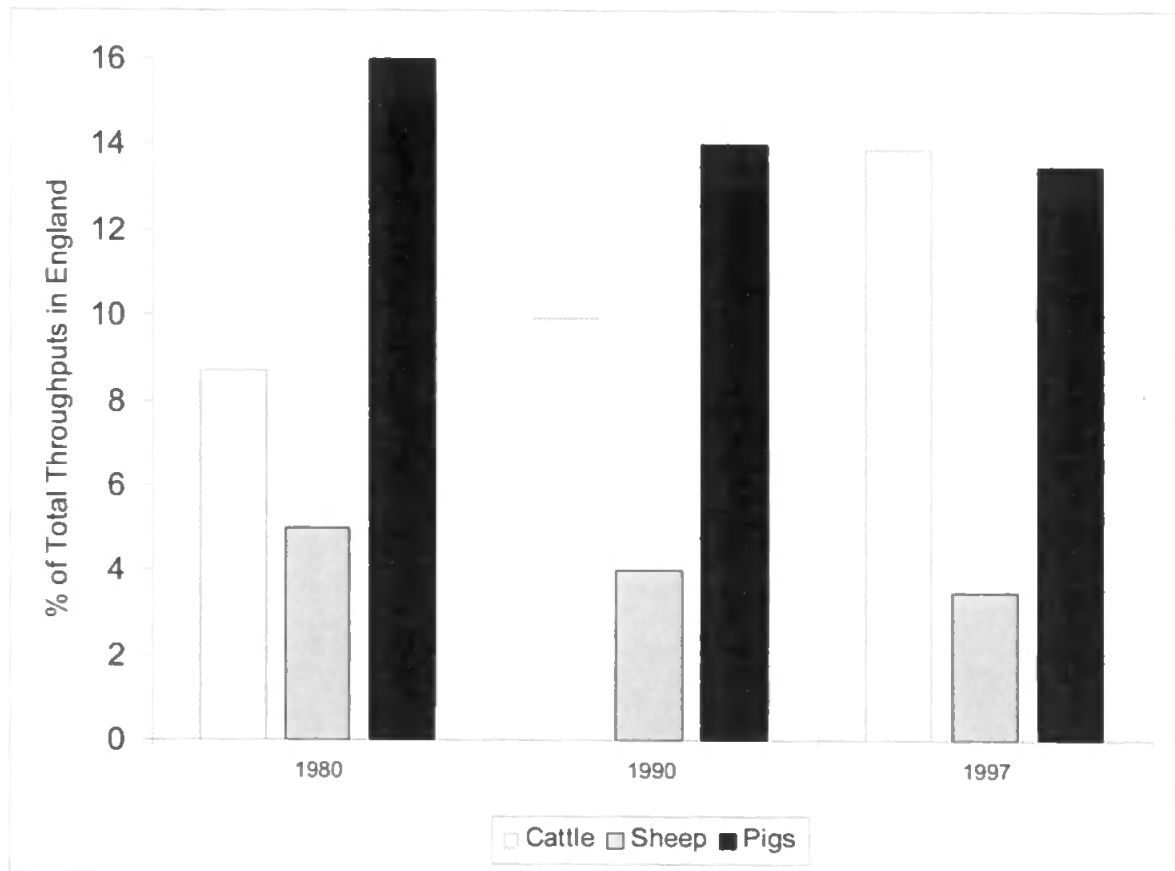
Figure 3.14 Abattoirs in Cornwall and Devon – 1997



Source: Murray *et al* 1996, Murray 2001

Aggregate cattle throughputs for the two counties (as a percentage of the English total) increased by 6% to almost 13% between 1980 and 1997 whilst those for pigs and sheep both declined by approximately 5% to 3% and over 15% to 12%, respectively (Figure 3.15).

Figure 3.15 Aggregate Slaughter Throughputs of Cattle, Pigs and Sheep ('000 head) in Cornwall and Devon: 1980, 1990 and 1997



Source: MAFF 1998b

The slaughtering industry is characterised by low margins and high volume (Key Note 1995) and the MLC (1994a and 1999a) have reported significant over capacity since the 1980s, which was exacerbated by abattoirs increasing capacity in the process of upgrading to meet EU wide legislative requirements. In January 1996 the MLC (1996b) suggested a managed programme of rationalisation designed to remove 1.8 million ELU of capacity by voluntary, compensated closures financed by levies paid by remaining abattoirs. However, the slaughter programmes introduced as a result of the BSE 'crisis', including the OTMS, CPAS and the Selective cull, provided some reprieve for the industry and no further action was taken.

The abattoir sector has become increasingly concentrated in recent years aggravated by the legislative requirements of the Single European Market. The dominance of the large Full Throughput plants, which accounted for 86% of all slaughterings in 1997/8 and shifts in the levels of slaughter provision within the country inevitably means that livestock distribution patterns from farm to slaughter have been affected.

The reduction in the number of abattoirs throughout the country has effectively reduced the number of livestock buyers, thus increasing the oligopsonistic (i.e. few buyers, many sellers) nature of meat procurement and impinging on the marketing of livestock through markets and electronic auctions.

Monitoring and enforcement costs have become more important in the food sector since the revisions to food safety standards embodied in the *Food Safety Act 1990* placed new legal responsibilities in the production, processing and distribution and retailing of food (Hobbs and Kerr 1992). Monitoring costs for members of the marketing channel have increased and have been highlighted due to the BSE crisis. This has two main implications for the abattoir sector. First, they must have procedures in place to monitor the quality and standards of their supplies. Second, abattoirs face increasing pressure from retailers to provide them with information on the traceability of livestock, including assurances about production practices from which the livestock originated. Traceability greatly reduces monitoring costs. Livestock procured via group marketing schemes (see Chapter 4) or direct from producers may be more easily traced than via livestock markets (Lesser 1993, Palmer 1997, Hobbs, 1996a, 1996b). Processors are facing increased pressure from multiples arising from animal welfare concerns in terms of transportation of animals and

welfare friendly production practices. Thus information, monitoring and negotiation costs will be reduced if they can establish preferred supply relationships with producers.

The increased handling of livestock can also impose monitoring costs i.e. increased handling carries a greater risk of carcass damage and weight loss due to stress which reduces the value (Lesser 1993, den Ouden *et al* 1996, Hobbs 1996a, 1996b.) Hobbs (1996a,b) argued that vertical co-ordination methods that involve an additional transport leg such as livestock markets may increase the transaction cost to the abattoir. However, Murray, Davies, Eddison, Cullinane and Kirk (1999) partially concede this argument but emphasise that additional journeys are also inherent within direct to abattoir sales and not just within livestock market journeys.

Transaction costs that arise from different supply channels do not provide the sole explanation for abattoirs choice of supply. Other important factors include technical innovations that generate economies of scale in meat processing. Structural changes within the sector have led to increased concentration and rationalisation that in turn generate economies in procurement. Longer term supply strategies are attractive to the abattoir because of the need to optimise capacity thereby reducing the low usage of expensive facilities (Buzzell 1983, den Ouden *et al* 1996, Hobbs, 1996b, Loader 1996, Loader and Hobbs 1996).

Many producers, however, still prefer liveweight payments systems and mistrust the system of deadweight grades when selling direct to abattoir. They cannot withdraw cattle if the price is unsatisfactory hence they face greater risks of uncertainty and they have to wait for payment. There is a likelihood that these producers may have difficulty in providing the type of carcass conformation that the abattoir sector

requires.

However, the trend of livestock moving towards direct sales is increasing. Increased vertical co-ordination is likely to exacerbate the decline of throughputs via livestock markets in favour of direct sales to abattoirs. However, livestock production in terms of quality should improve as producers meet the characteristics sought by the consumers and may, as discussed above, lead to a two way channel structure.

Building an integrated supply chain partnership requires producers, abattoirs and retailers to work together integrating the point of production to the point of consumption. The MLC (Palmer 1997) has been advising on over 40 collaborative initiatives aimed at developing better integration and partnership within the marketing sector. The collaborative message of these initiatives:

“... is that farmers should develop links with other sectors of the marketing chain, in order to supply the right and consistent quantity and quality of a differentiated product.” (Palmer, 1997)

In general terms the beef and sheep sectors have been slow to respond to or initiate collaborative developments. However, there are a plethora of schemes (Farm Assured British Lamb and Beef, retail led producer club schemes) available to initiate the process. If producers are willing to collaborate and integrate production by adopting a market orientated approach, the market channel as a whole would benefit and lead to greater product differentiation and market segmentation. The effectiveness of integration has been seen in both the pork and especially the poultry sector.

Whether it is livestock co-operatives, livestock producer groups, or individual

farmers coordinating with abattoirs and retailers, the key to developing effective business linkages is commitment to the idea, communication of the purpose and continuity of efforts. Whilst it may appear that collaborative arrangements seem to be of greater advantage to the abattoir and retailer, the success of vertical alliances will be dependent on channel members synergising their efforts to develop long term relationships and reduce channel conflicts.

3.2.2 Electronic Livestock Marketing

Marketing channels for slaughter livestock now include electronic auction systems, introduced into the UK in 1989 (Grega and Ray 1992), in addition to livestock auction markets and direct sales to abattoirs. They were introduced by a farmers' co-operative (Aberdeen Northern Marts Ltd) which also owned a livestock auction market in Aberdeenshire, in response to the increase in direct farm to abattoir sales (Grega and Ray 1992).

The co-operative bought the UK rights for a Canadian system which allowed real-time auctioning of sequential lots of animals (Graham 1997). Subsequently, a network of 11 franchises, operated by livestock auctioneers and known as EASE (Electronic Auction Systems Europe), was established to provide nationwide coverage (Grega and Ray 1992). By 1997, four organisations were participating in the UK electronic auctioneering market. These included EASE, LEAN (Lysis Electronic Auction Network), Direct, and Agvision, (Graham 1997).

Electronic auctions may employ a variety of technological mechanisms to link purchasers and vendors and Henderson (1984) defines electronic marketing as:

“...simultaneous trade negotiations among spatially separated buyers and sellers channelled into an interactive central market through electronic communications. Product movement occurs later. Neither traders nor products are physically assembled at a common location; products are sold by description rather than personal inspection by the buyer.”

The author identified five characteristics of electronic auctions: organised trading, centralised, competitive price negotiations, remote access through technological mechanisms, description selling and post sale product delivery. These characteristics are not all evident in livestock auction market transactions or direct sales from farm to abattoir.

Studies examining electronic livestock auction systems in the United States (Schrader 1984, Sporleder 1984, Bailey, Rhodus, Baldwin and Henderson 1989 and Peterson and Brorsen 1991) and the UK (Grega and Ray 1992) have identified the following factors influencing their adoption and sustainability:

There must be disadvantages or limitations in existing marketing systems. In the case of the UK, livestock auction markets were experiencing competition from direct farm to abattoir sales and electronic systems were adopted by livestock auctioneers to secure market share. Grega and Ray (1992) indicate that electronic auctions would attract more sellers from the livestock auction system than direct farm to abattoir sales and as Graham (1997) points out, this would put further

pressure on livestock auction market throughputs.

Electronic auctions increase the number of buyers. The number of buyers within an electronic auction system is higher than both the other systems (Grega and Ray 1992) attracting both regular and occasional buyers.

An increased number of buyers increases competition, thus reducing the extent to which a limited number of buyers can dominate a market.

Through increased competition, prices are increased. Purchasers either bid on a deadweight basis or liveweight and grade assessment with premia and deductions on slaughter. Price comparisons between direct farm to abattoir sales, live auction markets and electronic auctions, are therefore, confounded because electronic auction published prices may only identify the bid price and not necessarily the price paid. Grega and Ray (1992), however, report that there was only a small price advantage in selling stock via electronic auction as opposed to direct to the abattoir. The studies in the United States (Bailey *et al.* 1991, Rhodus *et al.* 1989, Schrader 1984 and Sporleder 1984) all identified some increase in price compared to livestock auction markets.

Marketing costs are reduced. The costs of transport and the time spent marketing decrease. Therefore, net returns to sellers are increased.

For buyers, procurement costs are reduced. Fieldsmen, employed by the electronic auction companies, assess livestock prior to sales to provide

classification and conformation information to buyers.

A sufficient volume of trade must be generated. Sustainability of an electronic auction system is dependent on sufficient turnover to balance supply and demand and maintain low commission charges, which is an important incentive to sellers (Grega and Ray 1992).

The penetration of electronic auctions in the UK was slow, remained limited and, by 1997, was in decline (see Table 3.8) despite what Graham (1997) refers to as persuasive "*economic logic for electronic auctions over physical auctions*". This 'economic logic' is judged to confer benefits to auctioneers, buyers and sellers. For example, since animals remain on the farm until being transferred to the abattoir, no capital investment for physical market sites is required by auctioneers. Livestock assessment is, however, required, incurring an additional labour cost. For buyers, trading time is reduced and the need to employ buyers to assess stock in the field is removed. For sellers, trading time and transport costs are reduced and, because competitive bidding is retained, the oligopsonistic power of the major abattoirs and multiple retailers is reduced.

Graham (1997) suggests a number of reasons for poor penetration. The entry of additional competing organisations into the market increased the costs of the system because each maintains a network of fieldsmen. The size of each market is also reduced and the low profits inhibit investment in system updating and development. The operational similarity between organisations enabled auctioneers and fieldsmen

to transfer allegiance taking their suppliers with them. This resulted in volatile swings in market share between organisations and reduced confidence of both sellers and buyers. For sellers the social interaction at livestock auction markets does not take place with the electronic auction system and buyers would be unlikely to relinquish established supply chain relationships with producers.

Austin (1993) reports that results of a survey commissioned by the *Farmers Weekly* indicated that lack of knowledge about electronic marketing systems, the effect on farmers' social lives and transport problems because of sourcing over greater distances were all factors inhibiting the adoption of electronic marketing by some sellers.

Exchanges, particularly on a sight unseen basis requires considerable trust when there is no direct contact between sellers and buyers and farmers' marketing preferences for the traditional livestock market would appear to be influenced by a desire for face to face selling and social interaction. The accuracy of the description becomes paramount to the buyer in the absence of a visual inspection. Descriptions can fail from either the lack of ability of the fieldsman or more likely the validity of the described characteristics of the animal and subsequent carcass grade.

Electronic marketing of cattle eroded the market share of direct farm to abattoir sales between 1991 and 1993 (Table 3.8), as did sales via livestock auction markets. However, after 1993 cattle sales via electronic auctions declined and fell below 1991 levels by 1997. Electronic sheep sales increased between 1991 and 1995 reaching

over 1 million head in that year. By 1997, however, these had also declined to below 1991 levels, in absolute terms. The electronic auction system introduced a new dimension in the transport of livestock from farm to abattoir and patterns of distribution will have been affected as a result.

Other factors influencing the use of electronic auction systems include the changes in the structure of the abattoir sector, effectively reducing the number of buyers for livestock, the introduction of legislation relating to the transport of animals, and changes in meat demand and the retail sector (Chapter 4).

3.4 Summary

This chapter has demonstrated the importance of ruminant livestock production within the far South West and, as such, provided an explanation as to why Devon and Cornwall is an appropriate geographical area to conduct a study that examines changes in livestock distribution. Furthermore, it provides an examination and baseline data of the livestock distribution structure and reasons for aggregate change. Further explanations in relation to changes meat demand, retail procurement and transaction costs (outlined in Chapter 2) are examined in Chapter 4; while agricultural marketing policy, strategies and adoptive practises are explored in Chapter 5.

CHAPTER 4 THE DEMAND FOR MEAT

4.0 Introduction

This chapter highlights the changes that have occurred in UK meat consumption in recent years; examines the determinants of these changes and suggest that there are potential influences on aggregate channel usage.

4.1 Meat Consumption

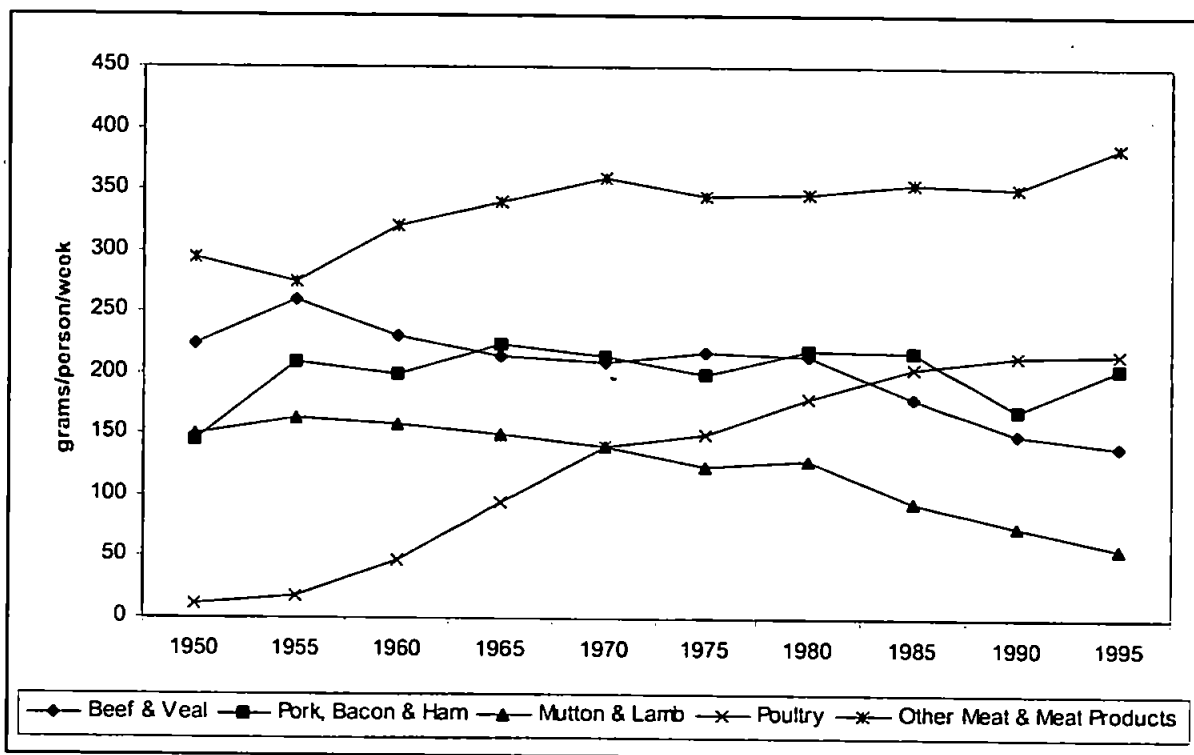
The meat market represents the largest consumer market in the UK with 97% of the population continuing to enjoy eating meat as part of their diet. With total sales estimated at £10.7 billion in 1993, it accounts for 21.7% of consumer expenditure on food and around 3% of total expenditure (Miller 1995, Gunthorpe *et al.* 1996).

In 1993 consumers spent almost £43 billion on food for consumption in the home. Between 1984 and 1993 expenditure rose by 13% equating to a 1% rise in real terms. This growth is against a 75% increase in overall consumer expenditure highlighting the income inelasticity of food demand. However, with an increase in food expenditure, overall expenditure for meat has declined by 1% between 1984 to 1993 (Miller 1995, Gunthorpe *et al.* 1996).

Household meat consumption in the UK rose from 819g per person per week in 1950 to 1126g by 1980, although consumption may have been artificially low due to post war rationing (Marks 1980, Bansback 1995). More recently, trends in total household meat consumption have shown a decline with average weekly household consumption per person falling from 1126g in 1980 to 943g in 1995. Figures 4.1 and

4.2 illustrate meat consumption trends between 1950-1995 and meat expenditure 1986-1995.

Figure 4.1 Average Weekly Household Consumption of Meat (g) per Head in the UK. 1950-1995

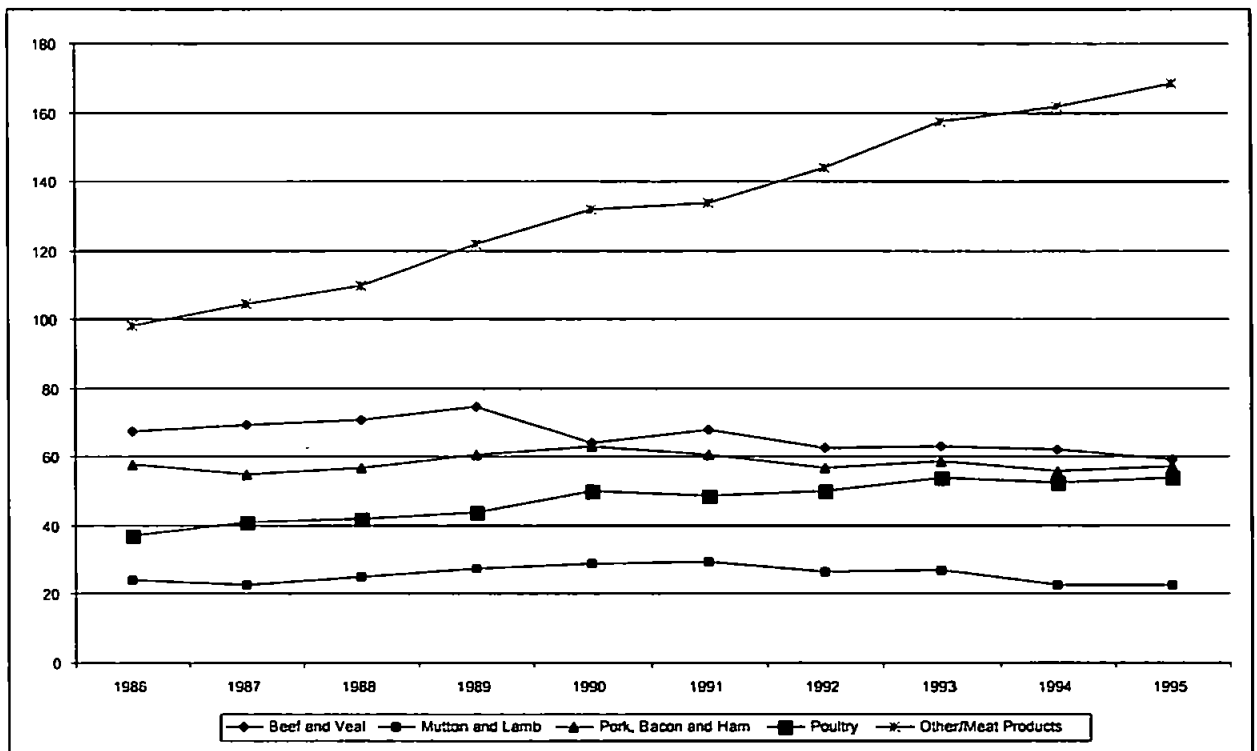


Source: Marks (1989), MAFF (1990, 1992b, 199b5, 1996)

During this period, consumption trends of different meat types showed marked contrast with increases in poultry, pork and other meat products but a decline in beef and veal and mutton and lamb. For example, poultry increased its market share by 15% between 1950-1980 whilst beef and veal has declined by 8% over the same period. By 1995, the market share for beef and veal and lamb and mutton has continued to decline to 13% and 5% respectively. Pork, bacon and ham both command approximately 21% of the market whilst meat and meat products command approximately 40%.

Figure 4.2

Average Weekly Expenditure Pence/Week for Meat Consumption. 1986 – 1995



Source: IGD (1996)

Some regional differences exist in household meat consumption in England. Whilst average weekly consumption has declined in all regions, the North recorded the highest figure of some 1056g and the lowest was recorded in East Anglia and the South West with 860g and 896g respectively in 1992/3 (CSO, 1995). These differences may result from demographic variation. For example the South West has the highest percentage of population over the age of 65 at 22% compared to the national average of 19% (Gripaios and Gripaios, 1994) suggesting perhaps that pensioners have less disposable income and clearly eat less meat.

By 1997 finished livestock accounted for approximately 35% of gross agricultural output in the UK. In the same year, the UK was over 100% self-sufficient in pork and below this level in all other sectors, particularly bacon and ham (51%). The effect of the BSE crisis was evident in the beef and veal sector where only 76% self-

sufficiency was attained in 1997 compared to 113% in 1995. Table 4.1 shows production and levels of self-sufficiency from 1993 - 1997.

Table 4.1 UK Meat Production ('000 tonnes). 1993 - 1997. Self-sufficiency in Parentheses.

	1993	1994	1995	1996	1997
Beef and Veal	881 (100%)	943 (112%)	996 (113%)	709 (87%)	697 (76%)
Mutton and Lamb	399 (115%)	391 (110%)	400 (112%)	379 (103%)	350 (94%)
Pork	802 (100%)	828 (104%)	786 (102%)	793 (98%)	882 (106%)
Bacon and Ham	216 (48%)	233 (52%)	245 (53%)	241 (48%)	241 (51%)
Poultry	1,289 (94%)	1,335 (93%)	1389 (96%)	1,451 (94%)	1,497 (96%)

Data Source: MAFF 1998a, MLC 1997c, 1998

Whilst annual total meat consumption has increased by over 550,000 tonnes since 1975 that for beef and lamb has declined by 460,000 tonnes and 113,000 tonnes, respectively (MLC 1998,1998c). Marks (1989) reports that this decline has been evident since the 1950s with market share being lost to pork, and more particularly, poultry - annual consumption of which has increased by 965,000 tonnes since 1975. Table 4.2 shows meat demand between 1992 and 1998, showing that these trends are still evident.

Table 4.2 UK Meat Consumption Trends ('000 tonnes) and Percentage Change in Market Share of Meat Types 1992-1998*

	1992	1994	1996	1998*	% Change in Market Share '92 - '98
Beef & Veal	994	948	739	859	- 4%
Mutton & Lamb	378	343	369	361	- 1%
Pork & Bacon	1192	1243	1245	1339	+ 2%
Poultry	1422	1561	1625	1637	+ 4%
Offal	207	184	157	166	- 1%

Data Source: MLC 1998

*Forecast

4.2 Factors Affecting Meat Demand

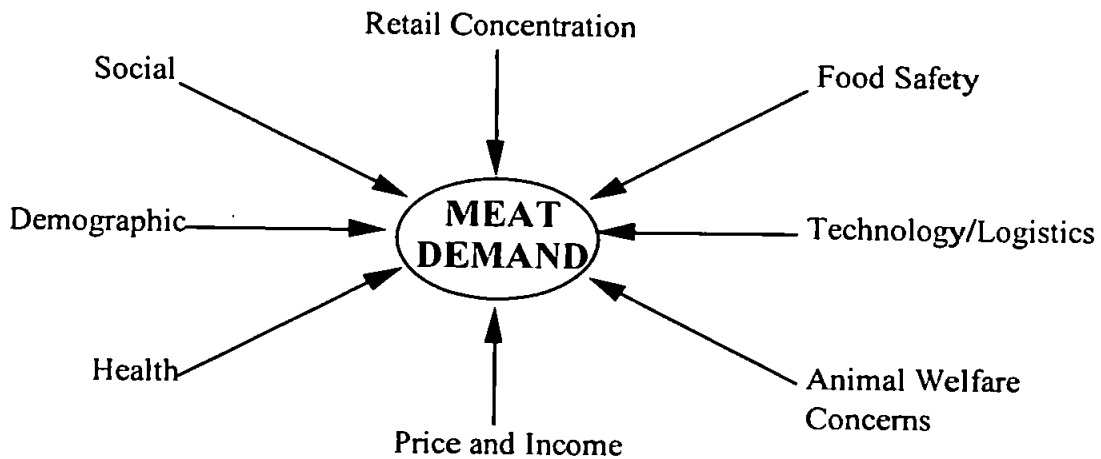
Historically, the market for meat was production driven, satisfying nutritional needs, but characteristics have changed to satisfy the needs, wants and desires of consumers in terms of quality, levels of processing and presentation to a market, that it is now *consumer* led (Gofton and Marshall 1989, Street 1990, Ritson and Hutchings 1991, Lamont and Ritson 1993 Murray, Cullinane, Eddison and Kirk 1996).

“The post war incentive of greater national food self sufficiency provided the agricultural industry with the criteria for success demand was production driven, with few penalties for poor quality and few premia for enhanced quality products. The increased productivity associated with government policy for cheap food, moved agricultural production from the satisfaction of nutritional needs to satisfaction of wants in terms of quality characteristics, degree of processing and presentation changing the market characteristics to one that is now *consumer* led.” (Murray *et al*, 1996)

Factors affecting meat demand are complex, numerous, diverse and dynamic. Over recent years there have been a significant number of changes that have affected meat consumption. These changes have not only affected the types of meat consumed (as seen above) but are also likely to affect channel utilisation as a result. Figure 4.3 illustrates these factors, which are discussed below.

Figure 4.3

Factors Affecting Meat demand



The conventional view that the British Consumer is some who will happily settle for “meat and two veg” is as Lamont and Ritson (1993) say an “anachronistic one”, as the past decade has seen revolutionary changes in the patterns of UK consumption. Ritson and Hutchings (1991) have coined the phrase “*the consumption revolution*” to describe the rapid and intense change in consumption patterns and argue that these are a result of fundamental changes in the attitudes and social behaviour of British households.

Ritson and Hutchings (1991) have also coined the phrase “the vintage effect” and argue that consumption variations can be determined by the stage in the family life cycle and can be attributed to the structure and age of the household, proportion of meals eaten outside the home and the income of the household.

“the vintage effect”.... has a profound influence on which products display rising, and which declining, underlying trends in demand.” (Ritson and Hutchings 1991)

They also argue that people form consumption habits as children and young adults and that these habits will stay with them as they grow older and influence

consumption to the next generation which Hughes (1994,1995) describes as the “gatekeeper” process.

The British National Food Survey provides clear evidence of changing meat demand which can be attributed to social and attitudinal changes in terms of changing household structures supporting the *vintage effect* as well as changing attitudes to healthier eating with a move away from red meat to white meat consumption. This was illustrated by establishing relationships between average consumption levels and changes in average prices and household incomes to estimate what proportion of purchases can be attributed to price and income factors. The residual underlying demand trends must therefore be attributable to some something else i.e. fundamental changes in social attitudes and preferences (Ritson and Hutchings 1991, Lamont and Ritson 1993).

This view is supported by a number of empirical studies:

A Harris Marketing International (The Grocer, 1985) survey conducted in 1985 stated that price considerations had declined from 55% in 1981 to 35% in 1985 with convenience increasing from 30% to 59% for the same period. The results indicated that between 1981 and 1985 only 28% of consumers made their selection because of price.

Woodward's (1988) survey on a structured sample of UK consumers ranked health concerns, with price, as being the main reasons explaining the behaviour of consumers who changed their meat consumption. This view was supported by Richardson, Macfie and Shepherd (1992) and Richardson, Shepherd, and Elliman (1993) although there also appeared to be additional concerns relating to ethical and animal welfare issues.

Gofton and Marshall (1989) reported from a food diary study that 94% of meals involved less than 10 minutes preparation time, 51% involved no preparation time at all, 61% of all meals involve no cooking time and only 7% involve more than 20 minutes. This study gave an indication of the extent to which the fast food or convenience culture has taken over within the British household.

Burton, Tomlison and Young (1993) analysis using Family Expenditure Survey (FES) data on single adult households reported that there is a significantly reduced probability of consuming meat in households where there is no female head of household, where no freezer is owned and where there are no children. Some significant results were also obtained for employment, age and class suggesting that changes in traditional family structures influence meat consumption.

The Goode, Beardsworth, Haslam, Keil and Sherratt (1995) study suggested that consumers have become increasingly aware of nutritional needs and health, exotic and ethnic foods, animal welfare concerns, changing lifestyles and a move towards convenience foods largely influenced by healthy eating campaigns.

Some approaches to analysing meat demand have concentrated purely on price and incomes factors, taking per head consumption and assuming no significant change in taste factors. Bansback (1995) suggests that this has been the case for three principal reasons:

“the limitations of some conventional demand analysis.....the fact that price and income can in any event explain most changes in consumption.....the difficulty of measuring other factors, except as a residual.”

Bansback (1995) analysed the effects of price and income on aggregate meat consumption and concluded that price and income factors accounted for a higher

proportion of changes in meat consumption between 1955-1979 than for the latter period of 1975-1994. The overall conclusion for his analysis was that:

“Price factors are still the most important determinants of meat consumption....the ability of the industry to reduce its costs relative to other competitors is getting more limited. Income effects...are also of less importance in influencing demand.....consumer attitude/preference issues are growing in importance..... it is important that these factors are understood so that the meat industry can take action through promotion schemes, quality assurance, quality development, product development all of which can influence consumption.” (Bansback, 1995)

Thus these other factors (discussed below) are increasingly becoming important in terms of factors affecting meat demand and channel utilisation.

There is no doubt that changing food prices will affect consumption, for example poultry has seen prices fall by two thirds in real terms since the 1950's and this may be an influencing factor explaining an increase in consumption. In contrast beef prices have increased in real terms and there has been a significant decrease in consumption. As seen in the recent BSE crisis, price can play an important factor in consumer demand, the demand for beef increased in conjunction with the fall in prices after the initial fall in demand.

Price has been identified as a major factor in falling demand for beef and sheep. This, in conjunction with other factors and recent CAP reform, has no doubt had an affect on distribution patterns i.e. falling throughputs in the livestock auction sector and rationalisation in the abattoir sector, as policies have been put in place to attempt to avoid over production and meet demand.

However, the illustrated studies suggests that there are factors other than price and income that affect meat consumption trends and they go some way to confirm Ritson and Hutchings (1990) argument of a “consumption revolution”. Interestingly these

other factors may well influence channel utilisation to a greater extent than price and income factors.

The outlined studies confirm that the convenience culture is now well established within the UK which affects demand for value added products and the form in which meat is presented. As price declines in importance, what influences begin to have an impact on meat consumption? There is no straightforward answer to this because no single influence can be identified - many different factors are emerging depending very much on the individual and his or her circumstances, attitudes and beliefs. Consumers are becoming more adventurous and horizons have been extended by media impact, foreign travel and a wide range of ethnic and exotic foods. At the same time, the food industry is willing to respond to new tastes and even to foster them.

Demographic and social changes have had an increasing effect on consumption with the increase of women in the workplace, an increase in the number of one person households leading to the decline in traditional family meals and an increase in demand for convenience food and snacks. The rise of vegetarianism and dietary awareness to reduce fat consumption are other factors, whilst changing attitudes towards cooking and preparing food have also led to the growing popularity of ethnic foods, all of which influence meat demand (Wheelock 1986a,b; Woodward 1988, Ritson and Hutchings 1991, Lamont and Ritson 1993, Richardson *et al.* 1993, Goode *at al.*, 1995, Hughes 1995). This has led to a shift in consumption away from traditional meat purchased as fresh or frozen to processed meat products and meat based convenience foods. This is likely to have the effect of reducing aggregate demand further and increasing demand for added value products (Gunthorpe *et al* 1996, Miller 1995). In summary, the willingness to "buy time" is one of the most important trends driving change in meat consumption. Increasingly livestock products are purchased in processed form often as prepared meals in the home and

experienced in the fast food culture outside the home. This trend has been facilitated by social and attitudinal changes and is likely to continue (Hughes 1994, 1995; Davies and Madran 1997).

In general the average consumer is significantly better educated now than two decades ago. For example, between 1970/71 and 1992/3 there was more than doubling of the number of students, annually, entering full or part-time education (CSO, 1995). Hughes (1994) argues that as a result consumers can make better and more informed decisions on the food that they and their families eat. Consumers will seek more information on nutritional content, how and where it is produced and the impact that the production, processing and merchandising has on the environment. This places pressures on all members of the marketing channel to respond to satisfy consumer requirements with regard to nutrition, production and food safety i.e. the adoption of the *societal marketing concept*.

There has been increasing concerns over recent years with regard to the impact of meat consumption on human health and physical appearance (e.g. desire to be thin). This factor has had a significant impact on the nature of the consumer's food intake especially for livestock products. Consumption of red meat (beef and lamb), as seen in Table 3.2, has been in decline resulting from cholesterol and health concerns and competition from more versatile and better value for money white meats such as pig and poultrymeat which are perceived to be healthier.

Wheelock (1986a, 1986b, 1990) suggests that consumer awareness in the relationship between food and health was raised due to the media attention given to the NACNE (National Advisory Committee on Nutrition and Education) report proposals for healthier eating and the Committee on Medical Aspects of Food Policy (COMA) report on diet in relation to cardio-vascular disease. Research undertaken by the

Fallows and Gosden (1985) supported the view that “everybody is a bit more health conscious these days.”

A Gallup survey (1995) on UK meat eating habits showed that 4.5 % of consumers are vegetarians and a further 7.3% deem themselves to be demi-vegetarian as they avoid red meat. In the female aged 16-24 category, 25% identified that they were vegetarians/vegan or avoided red meat - these are as Hughes (1994, 1995) describes, the food "gatekeepers" of the upcoming generation i.e. they will shape habits with regard to meat consumption of their families and as a result will influence the Ritson and Hutchings' (1990) vintage effect. The principal reason for these changes was cited as health with 45% of respondents selecting this factor. These findings confirmed the Richardson *et al* (1992, 1993) work which determined that the main factors influencing red meat consumption were on the grounds of health and ethical concerns. Interestingly, these factors mirrored research undertaken in the US where the principle reasons cited (for reduction in meat consumption) were health (65%), cruelty to animals (50%) and taste (15%) (Cooper, Wise and Mann 1985).

Consumer concerns with regard to animal welfare have increased in recent years (Bennet 1995, Eastwood 1995, Hughes 1995). Consumers not only want to be reassured about the safety of their food but also seek to remove or assuage guilt about how the food is produced and prepared for the table. A 1995 RSPCA survey was commissioned to investigate consumer attitudes towards animal welfare issues. The survey revealed that when buying livestock products consumers were particularly concerned about freshness, price and health with 29% of respondents specifically identifying animal welfare as a factor influencing their purchase decision. A further survey undertaken by the Cooperative Wholesale Society (1995) of 10,000 respondents reported that “consumers demand action on ethics” citing that 70% of respondents are concerned about animal welfare issues, 70% believe that the food industry has a duty to the environment, 66% want clearer and more informative

labelling of food products, 50% of consumers are more worried about ethical issues than five years ago and 60% are willing to pay up to 7.7p in the £ for products meeting ethical standards (CWS 1995).

Trends towards healthier eating habits and a decline in red meat consumption have led to a boom in sales of meat alternatives and white meat. For example, a report by Mintel in 1993, concluded that a third of adults claim to be reducing their red meat intake and a further 25% are eating more white meat. Mintel (1993) go on to report that the market for meat alternatives (soya based derivatives) has trebled in size from a base of £6.6m in 1988 to an estimated £25m in 1992 and concludes that the trend is likely to continue.

Increasing consumer awareness in respect of animal welfare concerns has and will continue to have major implications for production methods, slaughtering, and transportation. Changes in legislation have occurred in production and transportation as a result consumer concerns. For example in legislation such as the banning of growth hormones, Welfare of Pigs Regulations 1991 banning stall and tether systems for pregnant sows will be instigated from January 1999 (Gunthorpe *et al*, 1996). The introduction of the EU Directive on the Welfare of Animals in Transit 95/29 effective from July 1 1997 which sets legal limits on journey times will also have an effect. Responding to consumer concerns, and focusing on the transport of live animals, the RSPCA developed and launched their Freedom Food programme (RSPCA 1994) designed to allow farm animals to enjoy a decent life reflecting an existence as closely as possible to the Five Freedoms¹⁷ and is currently producing a wide range of products merchandised through Tesco and the Co-op. Consumer concerns about production methods, transportation systems and slaughtering operations have affected

¹⁷Freedom from: hunger and thirst; discomfort; pain, injury and disease; fear and distress; to express normal behaviour.

demand and dictated change within the livestock and meat production industries. For example, livestock sourced from auction markets are excluded from attaining Freedom Food status under the RSPCA welfare codes (RSPCA 1996a, 1996b, 1996c).

Food safety concerns have been a contributory factor in influencing demand in recent years. For example, in 1989, the problems associated with BSE resulted in decline for beef, driving an increase in demand for white meats. Following the 1996 announcement that there was a possible linkage between BSE in cattle and Creutzfeldt Jacob Disease in humans, demand fell by some 70% but has since returned to approximately 80% of pre-announced levels, equivalent to an annual consumption of 105,000 tonnes per annum (MLC, 1997b)

Further examples of the influence of food safety concerns include the 1997 *E. coli* 0157:H7 food poisoning outbreak in Scotland, the 1991 publicity about *Salmonella* in the national poultry flock and the precipitation of EU legislation banning of the use of growth promoting hormones in meat production.

The introduction of the Food Safety Act 1990 replaced and extended the provisions of the Food Act 1984 and placed particular emphasis on aspects of food safety. It covers all stages of commercial food manufacture and supply, food preparation, storage, labeling, processing, selling and transport. Its provisions control all businesses engaged in preparing, storing and handling food including retailers and caterers. It also facilitates the implementation of EU food legislation in the UK. Probably the most important element the Act introduces is the defence of "due diligence" into food law. This has prompted multiple retailers to introduce a 'due diligence' system and has been a major reason combined with recent food scares why many multiples are becoming increasingly concerned with traceability. This concern

is already having an effect on the structure of channel utilization (Gunthorpe *et al* 1996, Hobbs and Kerr 1992, Hobbs 1996a, 1996b).

As a result of the consumer led influences, outlined above, there has been a significant shift in the purchase of red meat, bacon and poultry by households in respect of the retail outlets from which meat is purchased. The main development has been the growing dominance of retail multiples to meet the consumers' needs, wants and desires. The move away from traditional loose cuts purchased from butchers to more convenience retailing has favoured larger retailers i.e. retailers are meeting the needs and desires of the consumer with regard to the type of products offered. In 1979 independent butchers accounted for around 47% of household meat purchases whilst supermarkets had a 27% share. The situation has now turned around. In 1992 butchers accounted for 27.8% and retail multiples increased their share to 50.1%; by 1996 the butchers share fell to 17.7% whilst retail multiples had increased their share to 67.5% at the expense of all other outlets (Table 4.3) (Miller 1995, Gunthorpe *et al* 1996, MLC 1997).

Table 4.3 Household Purchases of Meat by Volume (%) by Source of Purchase 1993-1997

	1993	1995	1997
Butchers	24.5	18.9	16.2
Co-ops	3.4	2.5	2.2
Supermarkets	55.3	65.1	69.9
Independent Grocers	2.2	1.4	1.0
Freezer Centres	6.7	5.7	5.2
Others	7.9	6.4	5.5

Source: Key Note 1995, 1998; MLC 1995, 1996b, 1998.

The shift to meat purchases from retail multiples has inevitably brought meat into closer competition with substitutes, value added products including ready made meals containing less meat as a component ingredient. The effect is likely to reduce

aggregate demand further (Bansback 1995). Gunthorpe *et al* (1995) suggest that this trend is likely to continue and the MLC (1997b) forecast that if this current trend is set to continue then multiple retailers will command 75% of the market by the year 2000. With multiples having stated their intention of withdrawing procurement of livestock via the livestock market, this is likely to have a further deleterious effect on the supply of livestock via this route (Agra Europe 1991, MacSkimming 1991, Hunt 1996). Due to the concentration of the industry together with vertical links with processors, retailers are in a strong position to procure meat from where they want to and are no longer dependent on the livestock market system. The effects of scale and concentration of retail market power brings with it the need to invest in increasingly complex logistical and distribution technologies to meet consumer needs and wants, with this comes an increase in financial exposure and risk (Howe 1990, Hogarth-Scott and Parkinson 1993). To offset this, the availability of continuous supplies of consistent quality and volume become prerequisites for success and it becomes essential for retailers to spread overheads, reduce unit costs, and to provide quality products which are cost competitive. In order to reduce these transaction costs retailers will resist procurement via unreliable spot market transactions and favour preferred supplier and vertical co-ordination relationships as sources of supply (Howe 1990, Street 1990, Hobbs 1996b).

Retail concentration and the introduction of the Food Safety Act 1990 has led the major multiples to provide more consistent quality, traceability and assurance for the consumer (Murray *et al* 1996; Gunthorpe *et al*, 1996). This has been highlighted by the recent BSE scare with many multiples introducing quality assurance schemes in conjunction with selected abattoirs and producers to guarantee quality (Hobbs and Kerr 1992, Hobbs 1996b).

The UK government has recognised consumer concerns with regard to meat safety and announced a new initiative in the form of Assured British Meat (ABM 1998) to provide consumers with the assurance that meat and meat products are safe and wholesome. The move came as the Government prepared to outline its plans for a new Food Standards Agency to parliament.

Commenting on the launch of ABM, the chairman, Lord Lindsay said:

“...the status quo is not an option for the meat industry. ABM is a bold, new initiative designed to get the industry to raise its sights in response to the overwhelming demand from consumers for higher safety standards.... we have set up the ambitious target of signing up 80% of the meat industry to our standards within three years...” (ABM 1998)

The aim of the scheme is to promote an internationally recognised accreditation system which covers food safety, animal welfare and environmental criteria to formulate an integrated supply chain for every stage of livestock production. The implication of this scheme may be to reduce transaction costs within the existing supply chain framework and force a greater degree of sectoral co-ordination within the beef and sheep industries. This in turn is likely to affect aggregate channel utilisation.

However, there has been little evidence until recently of horizontal or vertical linkages within in the beef and sheep sectors and this may be a reason as to why these sectors have failed to respond to changes in demand. There are inherent reasons for this in the beef sector since nearly 60% of beef produced in the UK (MLC 1996b, Allen 1990 and 1997) comes from the dairy sector and conformation standards to improve carcass quality and reduce fat levels are failing to be achieved. Gunthorpe *et al* (1995) reported in 1993 that over 50% of *clean cattle* were below standard conformation and 23% had unacceptably high fat levels. The removal of much of the dairy sector's contribution to beef supplies from March 1996 may result in improved

conformation and quality characteristics. Poor conformation in the sheep sector also accounts for falling demand. For example, the MLC (1994) reported that over 21% of all lambs in the South West in 1992 were of adequate conformation but had high fat levels and that consumers regard the fatness of lamb as a major negative factor of eating quality. A study by Murray, Eddison, Cullinane, Brooks and Kirk (1996) of 2,327 lambs arriving at an abattoir in Devon reported that whilst 27% of lambs were of acceptable conformation and fat classification, 29% were of poor conformation and 14% were too fat.

In contrast the pig and poultry sectors have responded to changes in demand having introduced breeding programmes that produce consistent quality carcasses and by influencing demand through the introduction of added-value products and effective marketing strategies (Benninck 1995, den Ouden *et al* 1996).

In simple terms, the implications of the “consumer revolution” are clear for those involved at the supply end of the marketing chain. For the food retailer the objectives must be increasingly to adopt a *societal marketing concept* to ensure that they are able to provide consumers with appropriately convenient, healthy and increasingly exotic foods. Manufacturers (e.g. abattoirs and food processors) face the task of sourcing the appropriate livestock products that are required by food retailers in terms of quality, quantity and production characteristics. Farmers, now more than ever, must ensure that the enterprise selection, production methods and distribution methods meet with the specified demands of the retail multiple sector.

As a result there has been an increase in the establishment of three way partnerships between retailers, abattoirs and farms with the aim of integrating supply chain control in order to reduce the transaction costs associated with livestock procurement (outlined in greater detail in section 4.8). This will further reduce throughputs via livestock auction markets (Barry *et al.* 1992, Sporleder 1992). Increasing consumer

concerns about quality assurance and traceability have resulted in new forms of producer groups emerging via partnerships between the producer, abattoir and multiple retailer. For example, Heritage Meat (Safeway), Traditional Beef (Sainsbury's) and Farmhouse Lamb (Waitrose) These schemes are becoming increasingly more important as retailers develop integrated links in the distribution chain to guarantee supply, quality, traceability and product differentiation. For example, St Merryn Meats in conjunction with Tesco sought an additional 3,500 livestock producers to become their preferred suppliers in the South West (Tesco 1997, Western Morning News 1997) and Sainsbury's indicate that they now have some 18,500 producers nationally linked to their scheme (Sainsbury 1998).

However, livestock producers joining such schemes are required to adhere to prescriptive practices which cover all aspects of production i.e. animal welfare, feeding regimes, carcass attributes and housing. Retail multiples insist that producers are members of farm assured schemes and many have gone a step further by implementing their own welfare codes and practices.

Table 4.4 (below) illustrates the typical prescriptions of producer club schemes introduced by major retail multiples in order to reduce the costs associated with livestock procurement, similar prescriptions are required according to species.

Table 4.4 Typical Prescriptions for Retail Producer Club Schemes for Lamb

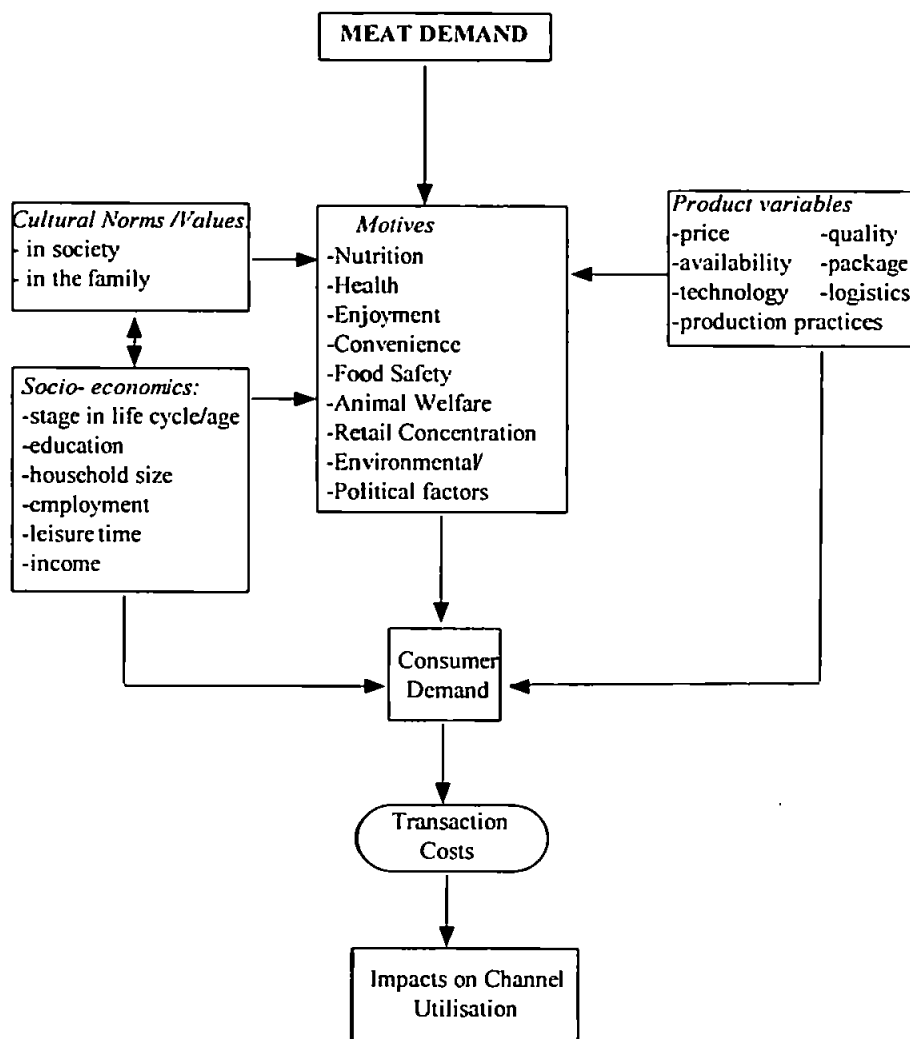
<i>Carcass Specification</i>	Weight: 18-20kg Fat Class and Conformation: E1-R3H
<i>Banned Feeds</i>	No growth promoters or enhancers
<i>Farm Assurance</i>	Farm Assured British Beef and Lamb In House Schemes RSPCA Freedom Food Assured British Meat Accreditation
<i>Audits/Inspection</i>	Inspection by processors Inspection by retail fields man Random Inspection by ADAS
<i>Traceability</i>	Database of all scheme producers All animals traced back to farm of origin Tagging schemes
<i>Financial Bonuses/Penalties</i>	Based on Weight, Fat Classification and Conformation

There seems little doubt that factors such as animal welfare, health concerns, quality assurance have, and will continue to have, major impacts on channel utilisation. As a result primary channel utilisation is increasingly moving away from the livestock auction sector towards direct sales to abattoirs via a whole range of preferred supplier relationship schemes. This has and will continue to have major implications for the beef and sheep sectors.

4.3 Summary

It has been identified in this chapter that factors affecting meat demand are complex, numerous, diverse and dynamic. Figure 4.4 illustrates the complex and dynamic nature of the relationships affecting meat demand.

Figure 4.4 Summary of Factors Determining Meat Demand



It would appear that the transaction costs (outlined in Chapter 2) associated with livestock procurement are likely to be affected as a result of consumer aspirations *i.e.* the need for quality and traceability. Furthermore, it would also appear to beg the question as to whether farm businesses are able to meet the prescriptive practices that

are being laid down by both retailers and government supported schemes (*e.g.* Farm Assured British Lamb and Beef, Assured British Meat) to meet consumer requirements. In other words, are farmers able to adopt or adapt to a more marketing orientated approach, and if so, is this likely to affect channel utilisation. An in depth examination of marketing and agricultural marketing strategy is explored in greater detail in Chapter 5.

CHAPTER 5 MARKETING AND AGRICULTURE

5.0 Introduction

Marketing management on the basis of customer orientation has become the basic approach to marketing of goods and services. This is not the case in agricultural marketing discipline, as Muelenberg (1986) points out:

“...since the 1950's general marketing and agricultural marketing theory seem different branches of marketing... this divergence is not fruitful for agricultural marketing.”

In this chapter, the role of marketing management in agricultural marketing theory and practice is described in order to discover whether there is indeed a convergence of business and agricultural marketing in light of changes in the food marketing sector, as outlined in Chapter 4.

5.1 Definitions of Marketing

There is no universally accepted definition of marketing; it is open to many interpretations. Oliver (1980) offers a very broad definition of marketing as:

“ ...marketing is the process in a society by which the demand for economic goods and services is anticipated or enlarged, and satisfied through the conception, physical distribution and exchange of such goods and services.”

This definition implies that, within any individual company which is attempting to satisfy demand, there must always be a marketing process. The success of an enterprise will depend on the ability to give satisfaction and to make a profit. Kotler (1994) defines marketing as:

“... the analysing, organising, planning and controlling of the firm's customer impinging resources, policies and activities with a view to satisfying the needs and wants of customer chosen groups at a profit.”

This definition suggests that marketing is oriented towards the activities of firms, not governments; that satisfying the needs of consumers are a necessary condition for the firm to achieve maximum profits. The firm tries to satisfy the needs of chosen groups in terms of product, price, promotion and place. Marketing is concerned with the collection and analysis of data, decision making and control, and not merely concerned with advertising or sales promotion (Bateman 1976, Kotler 1994, Ritson 1997a).

Four philosophies can guide organisations in carrying out their marketing function:

- The *production concept* - consumers will favour products that are affordable and available and therefore the task of organisation is to improve production and distribution efficiency in order to bring down prices.
- The *product concept* - consumers favour quality products that are reasonably priced and therefore little promotional effort is required.
- The *selling concept* - consumers will not buy enough of the company's products unless they are stimulated through substantial selling and promotional effort.
- The *marketing concept* - the main task of the organisation is to determine the needs, wants and preferences of a target group of customers and to deliver the desired satisfactions. Its four principles are the target market, customer needs, co-ordinated marketing and profitability.

Levitt (1960) drew a perceptive contrast between selling and marketing concepts:

“ Selling focuses on the needs of the seller, marketing on the needs of the buyer. Selling is preoccupied with the seller's need to convert his product into cash; marketing with the idea of satisfying the needs of the customer by means of the product and the whole cluster of things associated with creating, delivering and finally consuming it.”

Where technological change and lower costs for larger operations are prevalent, the urge to produce more and more proves irresistible. Firms become product, rather than consumer-orientated, substituting their judgement of what the consumer wants for the consumer's true needs and desires (Lesser 1993). Levitt (1960) describes this as “marketing myopia” and the resolution of this dilemma is the adoption of the *marketing concept*. Thus, successful marketing might be seen as the effective deployment of marketing mix variables to organisational goals that meet the needs and wants of target markets, delivering the desired satisfactions more effectively and efficiently than competitors, *i.e.* through the adoption of the *marketing concept* - the utilisation of the optimum marketing mix (Bateman 1976, Meulenbergh 1986, Ritson 1997a, 1997b).

In recent years, there has been a re-emergence of the view that marketing is not merely concerned with the managerial activities of the firm. Rather that the subject of marketing extends into broader social and economic factors, *i.e.* the marketing function is influenced by external factors that encompass physical, economic, social and cultural influences that may impose constraints in satisfying the needs and wants of consumers' and society in the long term (Webster 1992, Kotler 1994, Ritson 1997a)

Thus, marketing must be viewed as a strategic process within an international, national and the industry environment, *i.e.* marketing decisions are interdependent

within the environment in which a firm operates (*q.v.* section 4.4 and Figure 4.4 in relation to marketing channels).

Marketeers have questioned whether the *marketing concept* is an appropriate philosophy in an age of environmental deterioration, depletion of resources, unemployment, population growth and neglected social services (Houston 1986), and suggested that there is a need to enlarge the concept to include these factors.

“It is unlikely that government legislation can be expected to deal adequately with the public interest of marketing and that a new concept to include these issues should be defined.” (Houston 1986)

Kotler (1994) suggested that the marketing concept side-steps the potential conflicts between consumer wants, consumer interest and long run societal welfare by defining a fifth concept as:

“ The *societal or green marketing concept* - the organisation's task is to determine the needs, wants and interest of target markets and to deliver desired satisfactions more effectively than other competitors in a way that preserves or enhances the consumer's and society's well being”.

The underlying arguments are that consumers' wants do not always coincide with their long term or society's' long term interests and as a result they will tend to favour organisations that meet these long-term aspirations. The organisation's task is to serve target markets in a way that produces not only satisfaction but also long term individual and social benefit as the key to attracting customer loyalty (Kotler 1994).

Industry is full of examples where the successful adoption of the marketing concept may not be serving the wider interests of society. For example, there is a growing concern over the relationship between food consumption, health and diet. In some ways the reaction of the food industry is consistent with the *marketing concept* to

meet the needs of changing consumption pattern (Oliver 1980, Kotler 1994, Ritson 1997b) e.g. the introduction of retail led producer club schemes to ensure carcass requirements are met. However, the *societal concept* is also evident as retailers and manufacturers have been making attempts to provide better nutritional information to consumers for food product purchases.

5.2 Agricultural Marketing

Whilst business marketing has developed as a business and management philosophy (*i.e.* concerned primarily with business decisions, objectives and business orientations), agricultural marketing has developed as the study of the economic structure, efficiency of the agricultural marketing sector and the government's intervention role to improve the performance of agricultural products and increasing the share of expenditure on food received from farming (Bateman 1976, Barker 1989, Ritson 1985, Ritson 1997b).

Agricultural marketing in Britain derived much of its impetus between the wars from the problem of low farm prices, and these were believed to be associated with inefficiencies in the distribution of agricultural produce from farm to consumer. Solutions were considered to lie in the hands of the government rather than the farmers themselves. Marketing Boards were introduced (although many have been disbanded) as an institutional solution to the problem of providing a means of countervailing power and were strongly orientated towards logistics and policy (Breiymmer 1973, Bateman 1976, Ritson 1997a). As a result, agricultural economists have traditionally taken the view that marketing is a process that occurs after the product leaves the farm gate or with change of ownership. A typical agricultural definition is given by Sheperd and Futrell (1982) who stated:

“... in physical terms, agricultural marketing begins when the product is loaded at the farm gate and ends when the goods reaches the consumers' table. It is concerned with physical things as trucks and packing plants and also with technological developments in preservation and packaging.”

The context implied by this definition is restrictive as it limits farmers' marketing activities to sales tactics for goods already produced and thus production planning is excluded from the marketing process.

Since the 1950's general marketing (*i.e.* based on the marketing concept) and agricultural marketing theories (*i.e.* based on policy) have been seen to be different branches of marketing. However, in the past twenty years various agricultural economists have partially incorporated the marketing management approach into agricultural marketing theory and have suggested that better co-ordination between general marketing theory and agricultural marketing as a discipline is advantageous to agricultural marketing theory (Breiymmer 1973, Bateman 1976, Meulenberg 1986, Ritson, 1997a,b).

Agricultural marketing does not have an extensive literature like that of business marketing. The most comprehensive reviews remain those by Breiymmer (1973) and Bateman (1976). More recent reviews include Muelenberg (1986) and Ritson (1985, 1997a,b) who identify similar themes.

Breiymmer (1973) identified three distinctive approaches to agricultural marketing. The first takes a simplistic and conventional view: marketing is all that happens to produce after it leaves the farm gate, *i.e.* production is on the farm, with marketing envisaged to incorporate everything that happens between the farm and the consumer.

However, the second and third approaches suggest that this is inappropriate. The second focuses on co-ordinating the role of marketing. It is perceived that marketing

occurs wherever identity transformations take place, and that marketing should be considered as a co-ordinator of economic activity. Price is seen to play the most important role in co-ordination of these activities, which may explain the considerable emphasis placed on price analysis and the efficiency of marketing activities.

The third approach views marketing as a form of market development. In this approach, attention is focused on cultivating demand and generating purchasing power by consumers by differentiating and promoting products. This would appear to be the closest to business marketing as it focuses on consumption and consumer behaviour and seeks to eliminate the demarcation between the production and marketing of farm product. It suggests an interaction between members of the supply chain.

Bateman (1976) reviewed the scope of agricultural marketing and detailed the role which alternative marketing frameworks (social agricultural marketing, agricultural policy and agri-business marketing) have in agricultural marketing research. He claimed that agricultural marketing theory focuses on macro issues and government policy concerning the distribution and processing of farm produce from the farm gate. Bateman concluded that whilst agricultural marketing has traditionally been viewed as a policy subject, studies of the objectives and decisions confronting individual businesses central to business marketing theory should be applied to agricultural marketing. Therefore he asserted that the subject area may also be able to be viewed as an aspect of both business and social marketing.

Muelenberg (1986) noted that agricultural marketing theory has not adopted the marketing management approach of business marketing theory or examined competitive strategy in the same way as business literature. According to Richardson (1986) the marketing management approach (which he calls the *agribusiness*

concept), has gained very little acceptance, with no significant analytical or research results. However, it would appear that parts of agricultural marketing theory seem to be moving towards the marketing management approach. Muelenberg (1986) pointed out that a number of studies (*e.g.* Bresch 1976, Yon 1976) have partially incorporated the marketing management approach, but mainly focus on the behaviour of agribusiness companies rather than individual farm businesses.

Ritson (1985) argued that agricultural marketing theory should focus on government policy because, in European agriculture, parts of the marketing mix that would normally be undertaken by individual businesses are controlled by the government. He identified four features of agriculture which have led to the detached and individual nature of the subject:

- The structure of farming - many thousands of small businesses supply agricultural commodity markets. Farming is unusual in that the structure of production is not market related in the sense that farming is a land based function separated from the requirement of being located near to the customer. However, it could be argued that farming is not unique in this respect.
- Farming products are perceived to be undifferentiated and homogenous, *i.e.* in most cases the output of one farm is much the same as that of others (*e.g.* beef is beef and lamb is lamb). However, product differentiation is an important part of the marketing process, and differentiation is increasing due to increased sectoral developments.
- The remoteness of the farmer from the final consumer. The added value of farm produce more than doubles between farm gate and the final consumer, during which the process is controlled by businesses in the supply chain independent of the farmer.

- Government intervention (*i.e.* the CAP) could be interpreted as the manipulation of marketing mix variables and has understandably a major impact of agricultural production.

The first two features might, at the outset, suggest that the effective utilisation of the marketing concept has little relevance to farmers due the homogenous nature of agricultural commodities and lack of differentiation. However, marketing advantages do exist through the effective utilisation of marketing channels, which encapsulate general marketing and distribution theories (for example, quality control, regional branding, packaging, producer groups). This has become increasingly important due to the changing nature of the food sector and the increased use of vertical co-ordination within the agricultural marketing sector.

As Ritson (1997b) subsequently argued, the subject of agricultural marketing has developed as a result of increasing significance of the food marketing sector, expressing the view that many of the problems confronting farmers originate from that sector. Taking into account the above factors, Ritson (1997a, 1997b), classified the subject of agro-food marketing (Table 5.1) to encapsulating the traditional subjects of agricultural marketing and general marketing, thereby demonstrating that there is a convergence of the two.

Table 5.1 Agro-Food Marketing - A Classification of Subject Areas

	Positive	Normative
Micro	<p>The behaviour of food consumers.</p> <p>Study of marketing behaviour of firms in the agro-food sector.</p>	<p>Application of marketing principles in the food marketing sector.</p> <p>Farmer marketing (including co-operative marketing). Government marketing initiatives on behalf of farmers.</p>
Macro	<p>The behaviour of agricultural and food markets, marketing margin analysis, price analysis, effect of agricultural policies.</p>	<p>Application of structure/conduct/performance approach to the agro-food sector.</p> <p>Public interest aspects of agricultural policies. "Green Marketing". Food and nutrition policy.</p>

Source: Ritson (1997a, 1997b)

Thus agricultural marketing has many faces. It may be thought of as the connecting link between food producers and the consumer in terms of both physical distribution and an economic link designed to facilitate the exchange of commodities from farm to consumer (Bateman 1976, Kohls and Uhl 1990). As Polopolus (1982) notes:

“There are more arguments that marketing agricultural products is not an isolated but an integrated operation”.

Kohls and Uhl (1990) suggest a definition applicable to agriculture as:

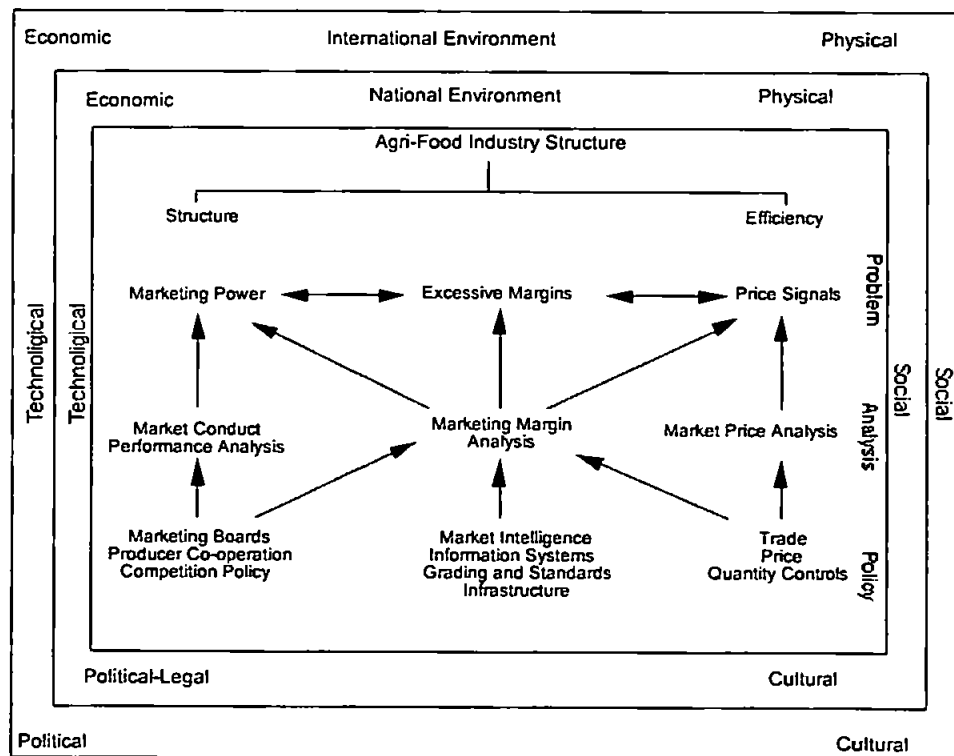
“...the performance of all business activities involved in the flow of food products and services from the point of initial agricultural production until they are in the hands of the consumer.”

This suggests that the various groups included within the definition, (*i.e.* producers, livestock markets, abattoirs, and retailers) should view the marketing function as a progression along the marketing channel. However, channel conflicts may arise since each group may have different goals and objectives. For example consumers will be interested in purchasing quality produce at the lowest possible prices whilst the

farmer will be interested in gaining the highest possible returns from the sale of his or her products. This may suggest that there is a mutual interdependence in the food production process between farmers, food marketing middlemen, processors, retailers and ultimately the consumer. This interdependence gives rise to conflicts of interest demanding continual solutions which gives marketing its dynamic character.

Figure 5.1 illustrates a schematic categorisation of issues in agricultural marketing. The diagram has been adapted to illustrate that the problems and issues facing the agri-food sector are influenced not only at industry level, but also by factors and considerations on a global scale (Schroder, Wallace and Mavondo 1993). In other words, it encompasses not only agricultural policy but also agri-business and social marketing. This illustrates that agricultural marketing is concerned with not only the economics of agriculture, but also introduces the influence of food marketing and, in addition, adds a behavioural function to the picture.

Figure 5.1 A Categorisation of Agricultural marketing



Source: Adapted from Ritson, (1997a, 1997b)

5.3 Marketing and the Livestock Producer

As seen in section 5.1, the word “marketing” is technically a management function of identifying, anticipating and satisfying consumer requirements profitably. Whilst this definition is very relevant to the business world, the MLC (1980) suggest it is unlikely that many livestock producers would view their businesses in these terms, and rather view the marketing function primarily as a method of sale.

However, livestock production involves decisions on type of stock, husbandry methods, method and timing of sales, price and payment. Production and marketing policies need to be integrated to maximise the margin between costs and returns. Marketing decisions must take account of the need to produce livestock which yields carcasses of weights and qualities preferred by buyers. Producers have to balance the potential of improving market returns against the possibility of increased production and marketing costs. Production can be planned to take advantage of seasonal peaks in prices; conversely, selling when prices are seasonally low may be justified by savings in production costs. The need to maintain a steady cashflow by regular marketing throughout the year may be a major factor, particularly for intensive livestock enterprises. Additional feed costs and marketing specifications for stock or carcasses within certain weight ranges limit the time stock can be retained on the farm (MLC, 1980, Bullen 1984). Some producers avoid commitments that predetermine the method and time of selling, preferring the flexibility to feed livestock for early slaughter or hold them back to heavier weights and choose the method of sale nearer the time of slaughter. There may also be additional costs that farmers may take into account, *e.g.* time, social and opportunity costs. This would suggest that farmer marketing decisions should not merely be limited to sales decisions but should encompass the marketing process.

Mitchell (1976) suggested that the way farmer's view their businesses depends on their personal aspirations, objectives and goals, and producer's decisions are influenced by the relative importance they attach to their selling and producing roles; a view supported by the MLC (1980). Two extreme positions were identified: the *production-orientated* farmer and the *marketing-orientated* farmer.

The production-orientated farmer regards the major part of his business as being concerned with the product he or she wishes to produce and believes that most profit accrues from time devoted to production, seeking simplicity in marketing arrangements, *i.e.* selling the produce at the end. In contrast, the marketing-orientated farmer will endeavour to produce products that can be sold profitably giving due consideration to the likelihood of profit before production is undertaken (Mitchell 1976, MLC 1980, Barker 1989).

This view may well be outdated: for whilst the *marketing concept* as suggested may not be embraced by the majority of livestock producers, there is an increasing awareness by many producers that strategic planning is necessary for the survival of the business. Marketing can be seen to have increasing relevance to many livestock producers involved in vertically co-ordinated activities as a result of changes in the food sector. This may well provide opportunities for farmers to adopt the marketing concept (Royer 1995, Ritson, 1997a, McLeay and Zwart 1993, McLeay, Martin and Zwart 1996). There is evidence that producers, whether they are aware of it or not, actually embrace the *societal concept*. For example, BSE has forced producers to think about quality, traceability and animal welfare issues in general, encouraging many farmers to join farm assurance schemes. They view such schemes as marketing tools to overcome traceability difficulties in order to sell their stock and farmers are becoming increasingly aware of the need to differentiate their produce. Haines (1997) suggested that:

“ Unlike many new skills which farmers have had to master, marketing is not a radically new departure requiring radically new techniques. It is simply a management re-orientation which ensures that business activity is *demand-led* not *production-driven*..... it simply shifts the management focus by insisting that planning and production be guided primarily by *marketing* objectives and requirements.”

Traditional agricultural marketing theory does not recognise the complex array of marketing management decisions which modern farmers encounter, especially in light of changes in the livestock sector. Relatively homogeneous farm produce and the small scale nature of farm businesses are perceived to limit the applicability of marketing management principles to farmers (Mcleay and Zwart 1993, Bateman 1976, Ritson 1997b). Government regulations, some of which empower statutory organisations, are often presumed to control the farmers marketing mix. If these regulations are not present, economic arguments may suggest that producers should persuade government to introduce controls and encourage farmers to group together to form co-operatives which control their marketing activities. Mcleay and Zwart (1993) suggest that this is possibly one of the reasons why the agricultural marketing literature limits the farm business marketing process to sales activities which occur with change of ownership. However, Hanf and Kuhl (1986) suggested that any farm may use a number of marketing activities to improve performance by reducing input prices and/or increasing farm gate output prices.

Mcleay and Zwart (1993) further argued that farmers are more actively involved with marketing than agricultural marketing theory recognises and suggested:

“....the traditional view which sees agricultural firms as thousands of small businesses producing a uniform product, acting as price takers, and facing only limited marketing alternatives, is an oversimplification.”

This would suggest that whilst government intervention may limit the marketing options open to individual farm businesses, these businesses still have some control over their marketing mix and production decisions. Therefore the presence of government intervention or marketing activity does not preclude or excuse individual

farm businesses from any marketing activity or strategic process associated with the market place.

This view was supported by an examination of twenty four empirical studies undertaken between 1985 and 1990 concerned with choice of sales outlets, timing and methods of sales. This investigation highlighted that these studies revealed that farmers typically use much more sophisticated marketing strategies than are recognised in the literature (Mcleay and Zwart 1993).

It could be argued that changes in farm business operating environments have led to calls for active utilisation of principles of marketing management by farmers, and that the future prosperity of the agricultural sector is dependent on adopting the marketing concept (Ritson 1997b). In making this suggestion, it is usually recognised that farmers have difficulty in implementing marketing management concepts (Blight 1984, Barker 1989). There is, however, evidence to suggest that the level of education achieved by farmers affects not only farmer's behaviour but also the use of information sources which may in turn influence their marketing orientations (Gasson 1997, 1998). For example, Feame and Ritson (1989), Corcocan and Dent (1994) and Bryden (1997) suggested that farmers who have attended agricultural college or university are more likely to seek professional advice, to use extension services, to grasp training opportunities and to use formal or informal sources of information. Farmers with qualifications show themselves more ready to use business advice to develop their business skills and view this as supplementary to formal qualifications rather than as an alternative. Thus farmers with higher levels of education tend to be more proactive in managing the farm business and recognise the need for change and planning for changes in the marketplace (Jones 1963, Warren 1989, Warren and Hoggard 1990, Errington and Tranter 1991, Gasson 1997, 1998).

Interestingly, regional variations have been observed. In general, there would appear to be higher attainment levels in the arable east and south compared to the north and west. For example, Warren and Hoggard (1990) noted that more farm families had acquired management skills through further and higher education in Oxfordshire and Gloucestershire (47%) than in Devon and Cornwall (28%). The NatWest (1992) national farm survey revealed similar results, with the east and south reaching high levels of attainment whilst the South West recorded the lowest level (44%). In a similar vein, Curry (1995) found that arable, pig and mixed farmers in England and Wales were the best qualified, with only 55% having no formal qualifications; whereas 80% of livestock farmers had none. This may suggest that livestock farmers' behaviour in the far South West is limited to management skills and knowledge gained through practical experience, rather than formal training that may in turn affect the marketing behaviour of the farm business. This view is supported by a recent farm survey of the South West (NFU 1998), which showed that 66% of respondents had no formal industry qualifications and few had any business qualifications at any level.

With regard to agricultural market research, most (UK) detailed studies (outlined below) have only examined individual elements of the marketing process, such as timing and methods of sale and have assumed that farmers should follow one particular pattern of strategic behaviour. Farm management specialists often view production as the cornerstone of farm management, with supporting functions of record keeping, financial analysis and planning. This assumes that farm management has evolved from production economics with a financial support function. Marketing decisions are excluded from the process as is a mechanism to facilitate an interactive strategic approach to managing a farm business (den Ouden, *et al* 1996, McLeay, Martin and Zwart 1996, Royer 1995)

Mitchell (1976) studied the extent to which market intelligence influenced livestock marketing decisions by conducting a random survey of 87 producers in South West England. The study revealed that 26% of producers used more than one marketing method with preference given to livestock markets for beef and sheep and direct abattoir sales for pigs. Two general conclusions were reached about the marketing behaviour of farmers. First, farmers' actions with regard to marketing are generally a result of long term policy decisions and, as such, are not subject to review every time the farmer wished to sell. Second, when marketing decisions are of a short term nature, they will be influenced by many factors that do not fall within the view of conventional market intelligence. Typical factors quoted were prices, price expectations, selling policy, convenience and social influences. Farmers had a tendency to seek long term solutions to marketing and, that when short term decisions were taken, they were often influenced by non-economic factors. The consequence of this attitude was that short term market intelligence was of limited interest to many farmers and was not consciously utilised by them in arriving at market decisions. As a result Mitchell, as previously mentioned, concluded that farmers fall into two defined categories: *marketing orientated and production orientated*. A similar view was supported by Haines (1999) who defined production versus marketing orientation management (Table 5.2).

Table 5.2 Production versus Marketing Orientated Business

Production Orientated Business	Marketing Orientated Business
Marketing means disposing of what happens to be produced	The focus is on the marketplace: customers, competitors and distribution
Products are 'over engineered' to satisfy own standards, regardless of customer requirements or willingness to pay	Monitoring of the market is a routine part of the business
Marketing research and planning are almost non-existent	Change is recognised as inevitable and manageable
Price tends to be cost based, with value and competitive considerations largely ignored	Management is committed to strategic business and marketing planning and creative product planning
Cost reduction efforts dominate, and may sacrifice product quality and customer service	The emphasis is on profit - not volume, with profit and growth kept in balance
Instead of adapting to customer needs, other buyers are sought for the same products	

Source: Haines (1999)

Whilst similarities exist between Mitchell's' typologies and Haines' categorisation, the latter allows for the possibility of product differentiation which may be increasingly important as producers attempt to meet the needs of the marketplace. However, these typologies suggest that farmers must fall into these two extremes and thus adopt relatively homogeneous patterns of behaviour.

There has only been a limited amount of work undertaken on choice criteria and orientations of farmers. Grieve and Young (1973) cited price, convenience and buyer competition as being the major considerations for channel selection, a view supported by Barker (1989). Hobbs (1997) echoed the same considerations but identified a greater shift towards dead weight sales, thus grading and abattoir relationships were deemed to be of additional importance.

Crabbs (1993) concluded that there were no significant financial gains from selling via a particular marketing system. Whilst Jack, McErlean and Anderson (1999) suggested that channel selection may be determined by the level of risk aversion i.e. those farmers who cannot accurately identify carcass conformation characteristics are more likely to utilise the livestock market sector whilst farmers who have good carcass knowledge are more likely to utilise the abattoir sector.

It should be noted that these studies appear to take the traditional viewpoint that marketing means sales and limits analysis to the determination of optimal combinations of a small number of sales or disposal variables. These marketing variables include market outlet utilised, timing of sale and amount of produce to sell. However, farm businesses differ in more ways than this, there must be other factors or a set of strategic dimensions that may influence or predict the outcome of any marketing strategy that a farm business may undertake.

5.4 Strategic Typologies and Taxonomies

In business literature, the different strategies businesses should follow have been classified in studies of strategic taxonomies and typologies. The two most widely referenced typologies are Porter's generic strategies (Porter 1980) and Miles and Snow's typologies (Miles and Snow 1978). Porter (1980) outlined three conceptual typologies that firms may use to gain a sustainable competitive advantage:

- *Cost leadership* strategies requiring firms to produce low cost, standardised products in order to attract price sensitive buyers.
- *Differentiation* strategies to provide products that appeal to buyers who are interested in elements other than price.

- *Focus* strategies that attempt to fulfil the needs of a particular market segment by either *cost leadership* or *differentiation*.

Porter (1980) suggested that any of the three generic strategies might be successful depending on the resources available to the business, the business' distinctive competencies and non-controllable environmental factors.

Miles and Snow (1978) categorised firms into four broad types that differ on the basis of adaptive behaviour and general strategic orientation. The four types are: *defenders*, businesses who engage in little or no product market development, competing primarily on the basis of price, quality delivery or service; *prospectors*, who pioneer new products or market development; *analysers* who make fewer innovations than *prospectors* but are more dynamic than *defenders*. These three are expected to enjoy success whilst *reactors*, who do not develop a stable coherent strategy are perceived to be failures. The key dimension underling the typology is thus the degree of innovation in product or market development.

These concepts have been clearly defined in the business literature but have not been widely used in agricultural marketing research. Strategic typologies and taxonomies have been derived from theoretical reasoning and empirical observation. They suggest that firms in a particular industry will pursue different strategies which maintain a competitive position and profitability.

Strategic taxonomies are derived by empirically measuring the strategic focus of firms, the most widely used approach forming these taxonomies involves identifying strategic groups. The concepts of strategic group research were originally developed from industrial organisation economics.

Hunt (1972) first coined the phrase strategic groups and defined them as:

“...a group of firms within an industry that are highly symmetric with respect to cost structure, the degree of vertical integration, and the degree of product differentiation, formal organisation, control systems and management rewards and punishment. and the personal views and preferences for various possible outcomes.”

Porter (1985) provides an accepted definition of strategic groups as:

“A strategic group is a group of firms in an industry following the same or a similar strategy along a set of strategic dimensions.... usually, however, there are a small number of strategic groups which capture the essential strategic differences among firms in industry.”

More recently, strategic management and organisational behaviour literature has subdivided industries into groups that follow similar strategies of strategic behaviour and competition. The means by which firms gain competitive advantage have been empirically classified often when little *a priori* evidence exists about how many strategic groups exist or how many members they have. Groups are formed where members make similar decisions with respect to key strategic variables, but patterns of behaviour differ from group to group. Galbraith and Schendel (1983) provided an extensive list of strategic variables by which strategic groups may be defined on the basis of controllable variables (*e.g.* marketing, production and investment) and non-controllable variables (*e.g.* macro-economy, legal structures, technology and environmental changes). Comprehensive reviews of the theory of strategic groups are given by Cool and Schendel (1987); McGee and Thomas (1986); Fiegenbaum, McGee and Thomas (1987); Thomas and Venkatraman (1988) and Douglas and Rhee (1989).

The nature of farm firms and the environment in which they operate means that existing typologies are unlikely to be able to describe the strategic behaviour of farm businesses adequately. For example, it could be argued that the nature of commodity goods makes it difficult for agricultural producers to differentiate their products,

while the small scale and often fragmented nature of farming enterprises impedes the acquisition of economies of scale required for overall *cost leadership*. However, a number of hypothetical strategies may exist. For example, some farmers may use a cost minimisation strategy to produce maximum output at the lowest possible cost. Another group of farmers may follow a quality driven strategy focusing on quality and price premia that meet market requirements, and thus attract higher returns per unit of output. Other farmers may employ a differentiation strategy, have high commitment to marketing, and sell niche goods directly to supermarkets.

That research opportunities exist for identifying strategic groups within the agribusiness sector in relation to competitive performance and characteristics of these groups has been suggested by various authors (Marion 1986, Westgren, Sonka and Litzenberg 1988, Dobson and Akridge 1989, Sonka and Hudson 1990). Most farm level studies of strategic management have attempted to prescribe formal strategic planning models similar to those of large businesses when there is little evidence to suggest that these techniques will assist farmers to satisfy their objectives (Harling and Quail, 1990; Mcleay and Zwart 1993; McLeay *et al* 1996; Marion 1986). While it is often considered that strategy is a hierarchical process, the strategic management process at farm level may follow a more entrepreneurial mode. Little is known about the strategic management process of farmers, in particular strategic decisions or strategic alternatives in relation to livestock marketing and channels of distribution.

Mcleay, Martin and Zwart (1996) conducted an empirical study of intensive New Zealand crop farmers to identify strategic groups and their marketing implications at farm level. The study used strategic group analysis by measuring the differences between producers over a number of strategic variables. They categorised farmers into groups on the basis of similarities and differences in the variables in order to develop profiles of strategic group members by statistical analysis. Results of the survey identified five strategic groups:

- *Production/Production Flexibility Strategy* - farmers following this strategy gain advantage by addressing production rather than sales concerns. They focus on the production side of their business; have a flexible production mix; and utilise market information relating to production concerns and management practices, rather than marketing activities associated with distribution channels.
- *Stability Strategy* - farmers in this category consistently grew crops that provided good yields on their farm; they are likely to operate with a simple financial focus, do not require a great deal of market intelligence and are unlikely to change their crop mix. They view the farm as the boundary of the farm business seeking simplicity in their marketing arrangements.
- *Production/Market Outlet Focus Strategy* - these farmers placed an emphasis on their production activities but sold to a large number of different agents and outlets and were continually searching for new market opportunities and were likely to weigh up the costs and returns of selling via different distribution channels.
- *Differentiation Strategy* - these farmers had high levels of market knowledge and were more likely to differentiate their product by growing niche crops, further processing and marketing, or involvement in other added value activities. Differentiators are likely to be more selective in channel selection depending on the crop produced and are more likely to be involved in vertical co-ordination activities.
- *Arbitrage Strategy* - these farmers are characterised by their high level of sales activities and are more likely to sell on the free market rather than by contract. These farmers focus on short-term returns and investment returns rather than production concerns tending to store crops and waiting for prices to improve.

The study revealed each strategic group appeared to operate their businesses in a discrete way and follow defined, but seemingly different, business strategies. The results indicated that for New Zealand arable farmers, marketing is much more than an activity that takes place after the product leaves the farm gate, suggesting that the marketing approach and marketing mix utilised by each strategic group interacts with the market in different ways. Since each of the identified strategies appear to be successful, the strategy most suitable for a particular business is likely to be the one that aligns the distinctive competencies, resources, and objectives of a business with the environmental opportunities and threats.

Very few agricultural strategic group studies appear to have been undertaken in Europe. Kuhl and Kuhl (1990) clustered German farmers into groups who have changed their product line, farm areas and work force over a ten year period, Feka, Xouris and Tsiotras (1997) clustered agri-business companies in the Greek dairy industry based on competitive strategies and Ohlmer, Olson and Brehmer (1998) clustered Swedish farmers in relation to their decision making processes. However, these studies did not attempt to operationalise the components of the farm business strategy process or examine the implications of strategic groups at farm business level. As a consequence, further research is necessary to investigate the strategic dimensions underlying farm business strategy and to identify and categorise the different strategies that farmers follow. Such investigations would enhance the understanding of farm business marketing and the impacts on channel utilisation. This type of approach may be useful in determining the marketing orientations of farmers in the UK livestock sector, and enable a better understanding of the reasons why farmers select the channels utilised, especially in light of changes in the livestock sector in recent years.

As it was suggested in Chapter 4, due the increasing growing importance of alliances in a concentrated industry, individual farm businesses should position themselves to take advantage of the opportunities of preferred supplier relationships.

5.5 Summary

This chapter has illustrated that while, traditionally, agricultural marketing (based on policy) has deemed marketing to occur after the product leaves the farm gate in recent years this view has changed to incorporate the business marketing philosophy partially due to changes in the food industry; and has identified that research opportunities exist in determining farm marketing behaviour. As outlined in the conceptual model (Appendix 2), the business decisions of farmers are influenced not only by their core competencies but also as a result of socio-economic, political, legal, cultural changes and technological development on a local, national and global scale. It could be argued that changes in farmers operating environments have led to calls for farmers to more actively utilise principles of marketing management especially if these farmers are actively involved in vertical co-ordination activities. It may follow that differences in marketing behaviour may in turn influence aggregate channel utilisation.

6.0 Introduction

The aim of this chapter is to, first, conceptualise the area of enquiry identified by the literature review, and second to operationalise the research in order that a suitable and satisfactory methodology can be designed to meet the research objectives. As Frankfort-Nachmias and Nachmias (1992) note *'at this stage such concepts are in effect theories that require transformation into hypotheses to be tested. and are thus seen, in many instances, as the point of departure for social research'* In order to clarify and synthesise the literature in the context of the research aims a conceptual model was developed from which conceptual hypotheses were subsequently developed together with an operationalisation model to take the research forward.

6.1 The Conceptual Model

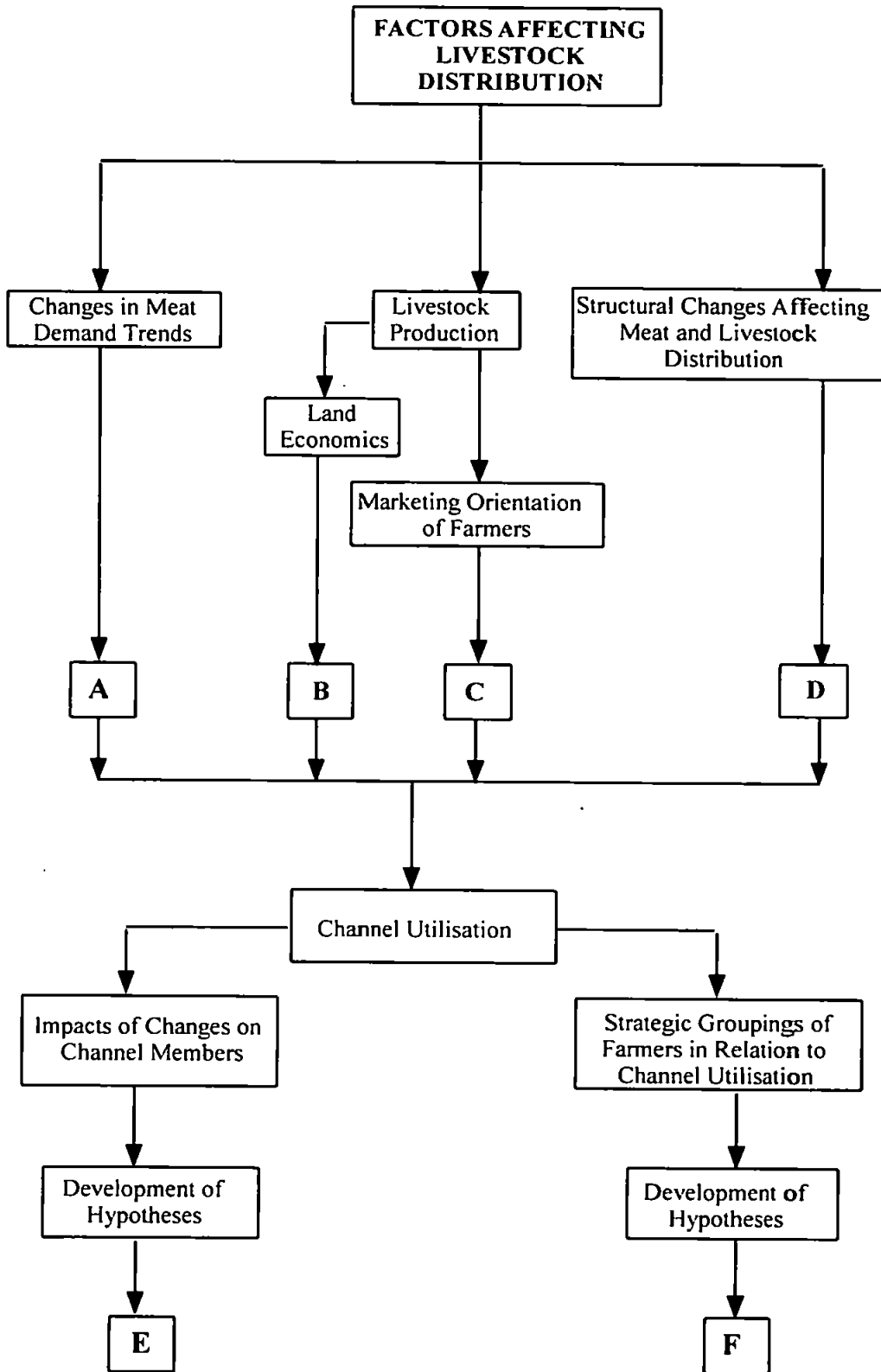
Agricultural marketing literature (outlined in Chapter 5) does not consider the farm business marketing process as part of an integrated strategic operation with interfunctional relationships between many business activities. Furthermore, farmers' are often implicitly assumed to follow relatively homogenous patterns of strategic behaviour. Mitchell's (1976) study determined two typologies based on the use of market intelligence, but he did not probe deeper into the strategic dimensions that may influence marketing behaviour. Moreover, the farm management literature tends not to include the marketing behaviour of farms within its domain. This contrasts

with the generic business literature (for example see Miles and Snow 1978, Porter 1980, Fiegenbaum, McGee and Thomas 1986, Cool and Schendel 1987, McGee and Thomas 1987, Douglas and Rhee 1989) which suggests that marketing and strategic management processes are complex and that businesses may use a variety of strategies to gain competitive advantage. As a consequence of the limited understanding of the dimensions underlying farm business strategy, this present study is therefore, empirically rather than conceptually, based: It examines strategic groups and the marketing processes at farm level.

Essentially the literature review has provided a number of concepts that require clarification through targeted research. Various authors describe a concept as an abstract idea that can be used to describe various situations, events and individuals, and assist in developing ideas and thought (for example see Chadwick, Bahr and Albrecht 1984; Frankfort-Nachmias and Nachmias 1992, Oppenheim 1992). However, arguably the most useful definition for this study is de Vaus' definition (1991) "*that concepts are abstract summaries of a whole set of behaviours, attitudes and characteristics which we see as having something in common.*" The definition implies that all concepts have relationships that lead to a common end. De Vaus (1991) goes on to suggest that what is needed is a conceptual organisation of these relationships which in turn will assist in identifying exactly what needs to be tested in the subsequent stages of the research process. Frankfort-Nachmias and Nachmias (1992) note that the idea of conceptual organisation is often attempted by models, which make explicit the significant relationships among aspects relevant to the enquiry, and enable the formulation of empirically testable propositions with regard to the nature of these relationships. Thus a conceptual model aims to place the key concepts outlined in the literature review into a clear identifiable framework whereby

“descriptive categories can be systematically placed into a broad structure of explicit, assumed propositions” (Frankfort-Nachmias and Nachmias 1992). A summary of the conceptual model is outlined in Figure 6.1 while the full version may be viewed in Appendix 2. The model attempts to illustrate and highlight the inter-relationships between the identified socio-economic, technological, legislative changes. Conceptual hypotheses are then developed out of the further proposition that there are variances in channel utilisation attributable to the highlighted factors.

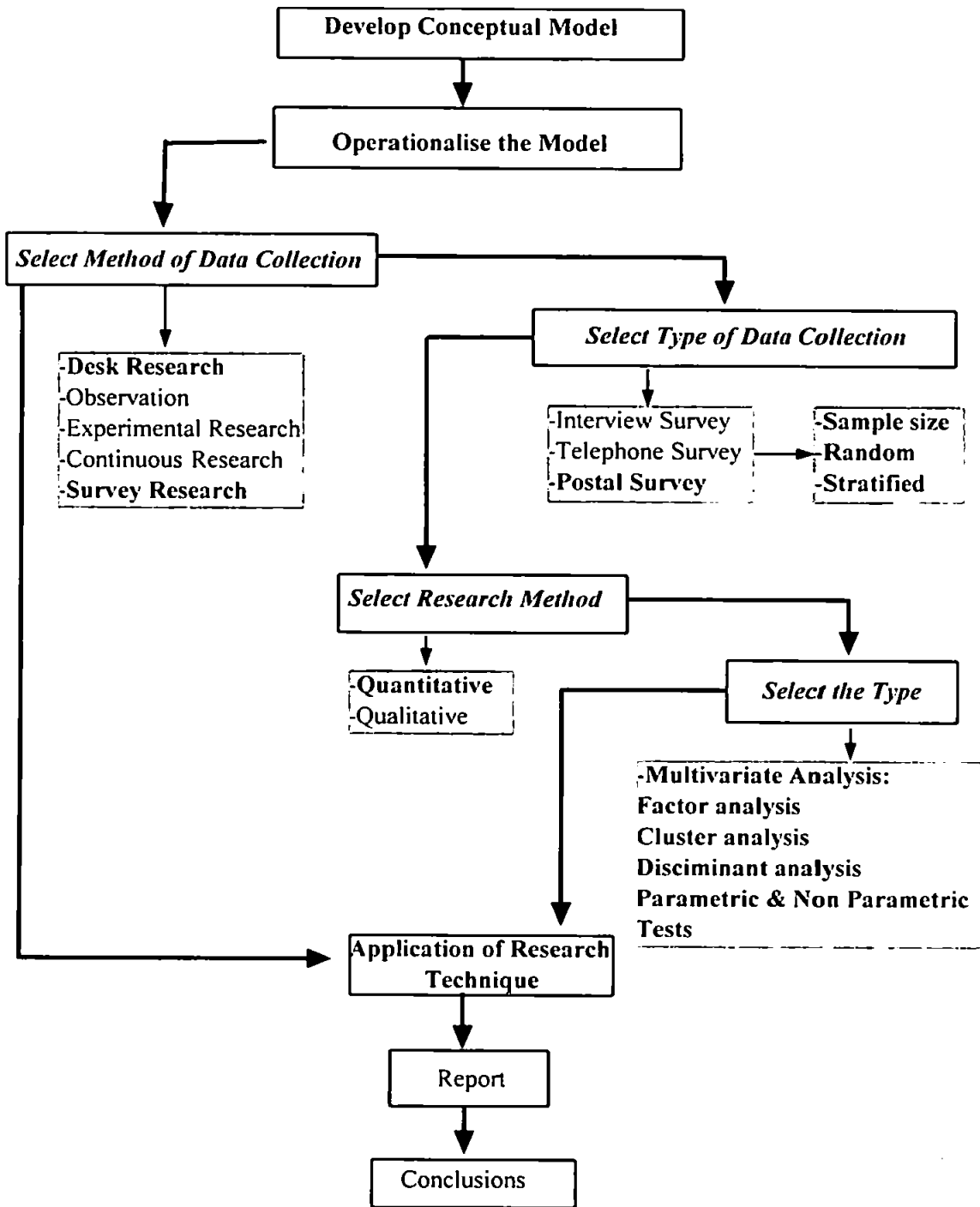
Figure 6.1 Summary of the Conceptual Model



6.2 Hypotheses Development and Operationalisation

As Frankfort-Nachmias and Nachmias (1992) and Bouma and Atkinson (1995) note, a hypothesis is a statement that asserts a relationship between two or more concepts and is developed in order to focus the aims of the research. A hypothesis can be stated in both the conceptual (theoretical) and operational (empirical) level. At the conceptual levels, a hypothesis asserts a relationship between concepts and at the operational level between variables. Thus, a hypothesis is a tentative answer to a research problem expressed in the form of a relationship between independent and dependent variables. The tentative nature of the hypothesis can only be verified after they have been empirically tested (Frankfort Nachmias and Nachmias 1992). The relevant concepts (hypotheses) of this study are presented in the final two sections of the conceptual model (Appendix 2, Sections E and F) and relate to interaction of strategic groups of farmers in relation to channel utilisation and the impacts of changes of channel utilisation on channel members i.e. they propose a relationship between concepts identified by the literature review which have implications for the subject area under study. Operationalising the conceptual model is the activity of finding measurable variables for that will enable the relationships asserted by the hypotheses to be tested empirically. As a guide to the operationalisation procedure, a model was devised to assist in the research process and is outlined in Figure 6.2 below.

Figure 6.2 Operationalisation Model¹



¹ Typeface in **Bold** denotes methods used

6.3 Research Methodology

In order to explore the relationship between various contextual variables and the marketing orientations of farm businesses it was necessary to undertake a survey of sample farms to gather the appropriate data. In the design and conduct of such a survey, Errington (1984) notes that many choices have to be made:

“ What should be the unit of study ? What sampling frame should be used ? Is random or purposive sampling appropriate? What should be the area of study? Are personal interviews essential or would a postal survey gather the appropriate data ? Is some form of activity or observational sampling necessary ? What questions should be asked ? How should they be worded ?”

Many of these issues are interrelated. For example, the suitability of a postal survey depends on the type of information to be collected; the possibility of surveying a random sample of units depends on the availability of a suitable sampling frame. Though there may be one ideal approach to data collection for a particular research problem, this ideal is rarely attained and is often limited by financial and time constraints. In the event a compromise has to be made.

The purpose of this section is to describe and explain the methodological approach and the main choices made in this study with respect to data collection and subsequent analysis.

6.3.1 Postal Survey or Field Interviews ?

The advantages and disadvantages of postal survey, listed below, as against field surveys are well documented in the literature on survey techniques (see, for example Kish 1965, Moser and Kalton 1971, Barnett 1991, Oppenheim 1992, Frankfort-Nachmias and Nachmias 1996). They include the following:

Main advantages of postal survey are as follows:

- Low cost of data collection - data can be collected from a large number of respondents over a wide geographical area relatively cheaply and reasonably quickly.
- Low cost of data processing - coding schedules for such surveys are less problematic and data are easily inputted.
- If the sample is randomly selected and the respondents are representative of the sample as a whole, reliable generalisations can be made about a large population.
- Avoidance of interview bias.
- It can be completed at the respondents' convenience.

Main disadvantages of the postal survey:

- It gives no opportunity to elaborate on, or to explain to the respondent what is meant by a particular question (although this can be overcome to a certain degree by rigorous pre-testing and pilot survey work).
- It provides only a limited opportunity to probe responses further.
- It is more difficult to sell the survey and persuade the respondent to complete the questionnaire (although measures can be taken to try and increase the response rate)
- It is difficult to assess, and take into account, non-response bias when analysing completed questionnaires.
- Low response rates

The main advantages of field interviews are:

- It allows the interviewer to clarify questions.
- It allows the interviewer to probe responses more comprehensively.
- It provides an opportunity for the interviewer to sell the survey and thus reduce non-response.
- It allows the interviewer to capture the way in which respondents express their views and opinions and allow the inclusion of verbatim quotations.

The main disadvantages of field interviews are:

- They have high costs in time of time and finance - time may be an important constraint for both interviewer and respondent.
- The in-built desire to be empathetic with the interviewer may bias the respondents response (albeit subtly) to that which he/she believes will gain the greatest approval from the interviewer.
- The immediacy of the interview situation may not allow the respondent sufficient time to reflect on his/her answer and thus give a considered reply.
- Interview technique- the interviewer may not put a question to each respondent in an identical manner e.g. there may be difference in the wording or emphasis on the question asked.
- The way in which respondents answer may be influenced by the way in which questions are posed.

There are many ways in which the disadvantages of a particular approach may be overcome and much of the skill in the design and execution of surveys involve finding ways of minimising the disadvantages of a chosen approach.

It was decided to gather the data for the present study through a postal survey. The main reasons were twofold. First, the data analysis methods to be adopted (described in section 6.5) requires a great deal of data if the statistical tests (factor, cluster and discriminant analysis) are to be used successfully in developing marketing profiles. Second, the costs of interviewing large sample to develop typologies were considered prohibitive. It was also felt that the disadvantages of the postal survey could be reduced by ensuring that the questionnaire design was wholly appropriate for the methodology used (i.e. the adaptation of Mcleay *et al's* (1996) approach) and rigorously pre-tested and piloted. To sell the survey it was proposed to enclose letters of support and a stratified sampling frame could be used to detect any non-response bias, i.e. a comparison against actual respondents and response rates within the sampling frame to determine whether a particular category was over or under-represented.

6.3.2 The Area and Unit of Study

Devon and Cornwall (defined as the *far Southwest*), as previously mentioned in Chapter 3, is dominated by ruminant livestock production and as such appeared to be a wholly appropriate area to study in terms of changes in livestock distribution. With regard to the unit of study, it was decided to concentrate on lowland livestock production since the study was primarily associated with the distribution of slaughterstock. Thus farm businesses associated with finished beef and sheep production were subsequently identified.

6.3.3 The Sampling Frame

Ideally, researchers use sample frames which mirror the population in which they are interested. When the ideal sample frame is not available, alternatives are sought. These will have their disadvantages, a good understanding of which improves the researcher's ability to use them to the best effect.

The population with which any research project is concerned will be defined by the unit into which the research is being carried out (for example farm businesses, landowners or agricultural holdings), and further by the characteristics of these units which are of interest (for example farm size, headage of livestock). Sampling frames are rarely complete catalogues of the units contained in the population, but are used as a source from which to draw a sample for study (Emerson and MacFarlane 1995). A survey of sample farms is likely to be a central feature of any study which seeks to test hypotheses about the behaviour of farmers.

If the researcher is to generalise his findings to a larger population than the farms from which the data has been collected, then steps must be taken to ensure that the

sample is representative of that population. Social science literature (for example Kish 1965, Moser and Kalton 1971, Errington 1985, Oppenheim 1992, Frankfort-Nachmias and Nachmias 1996, Barnett 1991, Emerson and MacFarlane 1995, Burton and Wilson 1998) identifies three potential sources of bias in the sampling, survey procedure and execution processes:

- *The Sampling Frame:* In order to identify members of the population who are targeted for the survey, a comprehensive catalogue of the population is required. Suitable catalogues are often confidential, expensive, incomplete or otherwise unsatisfactory.
- *The Sampling Procedure:* Having obtained a sample frame for the population, the accepted method of ensuring representativeness is random selection. Ensuring representativeness is often problematic especially in view of the limited number of available and feasible sampling frames for farm surveys.
- *Rate of Response:* Although the sample itself may be representative, non-response may not be randomly distributed and certain types of respondent categories may be over or under represented.

Errington (1985) asserts that the problem of non-respondents as a source of bias far outweighs the potential bias on most accepted sampling frames. Emerson and MacFarlane (1995) argue that an inadequate sampling frame is the first source of bias in the sampling and survey procedure and such bias is likely to be propagated during sampling. Thus an informed choice in the initial selection of a suitable sampling frame is essential.

A number of potential sampling frame inadequacies, or sources of bias have been identified (Kish 1965, Errington 1985, Oppenheim 1992, Emerson and MacFarlane 1995, Frankfort-Nachmias and Nachmias 1996, Burton and Wilson 1998):

- *Inaccuracies (factual)* : these tend to be occasional rather than systematic e.g. an incomplete address or wrong geographic location.
- *Missing Elements:* A sampling frame may be either inadequate or incomplete and may not be representative of the population as a result therein.

- *Clusters of Elements:* A number of subjects may be grouped together under one entry in the sample frame listing e.g. as one business. However, if the farm business is the subject of the research then this will be irrelevant.
- *Foreign Elements:* A common problem is that objects which are not members of the population appear.
- *Duplicate Listings:* The subject may be listed more than once, perhaps under different categories.

In the light of these possible sources of bias a sampling frame had to be chosen which would be the best possible fit for the research objectives. Four options presented themselves. First, the MAFF lists of registered holdings was considered. These lists hold the most comprehensive sampling frame for British agriculture. But, as Harrison (1975) and Errington (1985) point out, the lists take holdings rather than businesses as the basic unit and one farm business may (and frequently does) comprise several registered holdings which may thus tend to over represent large businesses. A further problem is that these listings are not generally available to researchers not working on MAFF sponsored projects.

Second, the Yellow Pages of local phone directories can provide a useful source of lists of local farmers. However, the use of such lists for the random selection has been much criticised. It is argued that not all farmers have a telephone and even some of those who do may be ex-directory. Errington (1985) and Burton and Wilson (1998) argue that some of these criticisms may be misplaced. However, on examination of the local Yellow Pages it was extremely difficult to define beef and sheep finishers specifically.

Third, Clark and Gordon (1980) proposed the use of spatially based sampling frames in farm research. This method based on the generation of random numbers on an Ordnance Survey grid, the points nearest to that randomly generated point then being sampled. This again proved inappropriate since the author had no idea of the type of business which was being selected.

Fourth, the National Farmers Union database of the South West could be used. Whilst there are some criticisms of such a sampling frame (e.g. not all farmers are members and there may be regional variations), Emerson and MacFarlane's (1995) comparative farm survey study revealed that NFU membership lists would appear to be the most representative of farm businesses by area of farmland.

The NFU database was selected for two reasons. First, the database enabled the author to identify farmers that had an interest in beef and sheep production and, second, it was possible to select a stratified sampling frame based on herd and flock sizes. This was important because it meant that small, medium and large farms could be selected on a headage basis. Whilst the author had to accept that not all farmers would be included, it was decided that the possibility of identifying beef and sheep producers was most important. In addition, it also provided the opportunity to obtain meaningful industry support to enhance the response rate.

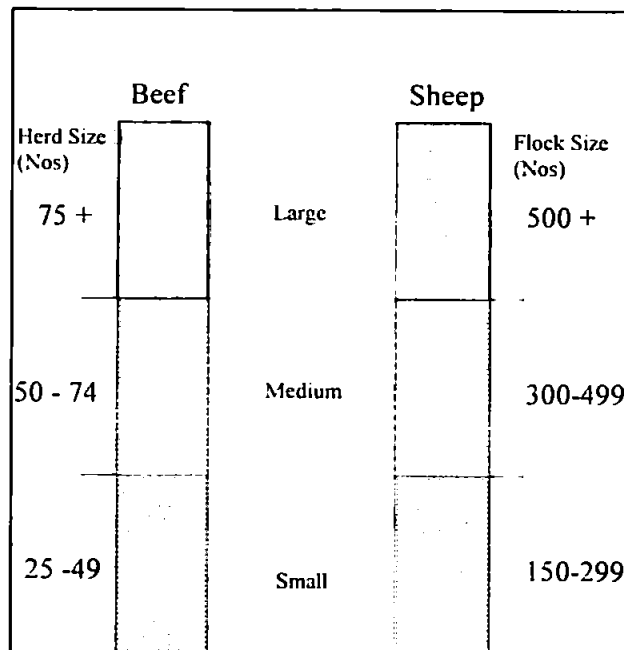
6.3.4 Selection of the Sampling Frame

Discussions were held with the Computer Department of the NFU South West Region to determine the type of information that could be identified from the membership database prior to deciding upon a selected sample. The NFU were not able to identify whether members were finishers; but they were able to identify members with an interest in beef and sheep on a headage basis. However, it was first necessary to determine whether to select the whole sample for each category i.e. a census or target a stratified sampling frame. The latter was chosen due to cost constraints.

A stratified random sample of small, medium and large farms was selected based on headage. The strata determined by comparing Grazing Livestock Units (GLU's) were of differing farm types (e.g. lowland cattle and sheep: 40 hectares, 80 hectares; mainly dairy \pm 100 hectares) from the University of Exeter's Farm Business Survey (1997) which collected data from farms in Devon, Cornwall, Somerset and Dorset.

Samples were thus generated for both species on the basis of small, medium and large herd and flock sizes from the NFU database i.e. 75+ animals, 50-74, 25-49 and 500+, 300-499, 150-299 for beef and sheep producers respectively. The stratified sampling frame is illustrated in Figure 6.3.

Figure 6.3 Stratified Sampling Frame



Based on the sampling frame above, samples were generated for beef and sheep producers. The total derived samples are detailed in Tables 6.1 and 6.2.

Table 6.1 Total Sample of Beef Producers in Devon and Cornwall

<i>Beef</i>	<i>Devon</i>	<i>Cornwall</i>	<i>Total</i>
<i>Herd Size</i>			
25-49	627	238	865
49-74	497	212	709
75+	829	467	1296
<i>Total</i>	1953	917	2870

Table 6.2 Total Sample of Sheep Producers in Devon and Cornwall

<i>Sheep</i>	<i>Devon</i>	<i>Cornwall</i>	<i>Total</i>
<i>Flock Size</i>			
150-299	560	176	736
300-499	357	107	464
500+	302	80	382
<i>Total</i>	1219	363	1582

Having received the total sample, the samples were refined by removing farms in Less Favoured Areas since the study was concerned with lowland finished production. Duplicate listings and incorrect geographical locations (e.g. eleven farms in Somerset) were also removed. The final sampling frames for both species are detailed in Tables 6.3 and 6.4.

Table 6.3 Net Beef Sample (Lowland Farms)

<i>Beef</i>	<i>Devon</i>	<i>Cornwall</i>	<i>Total</i>	<i>%</i>
<i>Herd Size</i>				
25-49	430	146	576	29.93
49-74	361	134	495	25.72
75+	556	297	853	44.35
Total	1347	577	1924	100

Table 6.4 Net Sheep Sample (Lowland Farms)

<i>Sheep</i>	<i>Devon</i>	<i>Cornwall</i>	<i>Total</i>	<i>%</i>
<i>Flock Size</i>				
150-299	411	132	543	50.23
300-499	248	75	323	29.88
500+	166	49	215	19.89
Total	825	256	1081	100

Examination of Small Area MAFF statistics (1996) for Devon and Cornwall revealed 4715 lowland cattle and sheep farms. Thus the sample accounted for approximately 63.7% of the total population.

6.4 Postal Survey Procedure

6.4.1 Pre-testing

The survey was initially pre-tested on farm management and business strategy academics and Chartered Surveyors (Rural Division) before pre-testing on twelve farmers; six lamb and six beef finishers in Devon. As a result, minor alterations were made to the questionnaire prior to the pilot.

6.4.2 Pilot Survey

The pilot was despatched in November 1997 to 60 farmers comprising 30 for each species which were subdivided equally between the stratified sampling frame and each county i.e. 10 in each stratification and 5 in county. Farmers were selected by using random numbers generated by SPSS v.6.1 (SPSS 1996).

In an attempt to increase the response rate, both the NFU and Livestock Auctioneers' Association provided supporting letters which were photocopied onto the back of the covering letter and reminder. Furthermore, the surveys were funded by the Royal Institution of Chartered Surveyors (RICS) via an Education Trust Grant. In addition all three organisations gave permission for their corporate logos to accompany the survey.

The purpose of the pilot was to test and validate the questionnaire design, and to assess a response rate for the main survey. The response rate for the pilot survey achieved 45% usable responses after one reminder, it was not felt that any further changes were required for the main survey.

6.4.3 Main Survey

Due to cost constraints, it was decided to select 50% of both sheep and beef samples using a systematic sampling method of one in two. As with the pilot survey the corporate logos of the NFU, LAA and RICS were included on the survey and supporting letters photocopied on to the back of the accompanying letter. A small incentive (a £25 Marks and Spencer voucher) was also offered as a prize draw, to assist in increasing response rates. In addition, the NFU Magazine carried an article in the Winter 1998 edition promoting the survey, articles were carried in the Mid Devon Advertiser and Cornish Times and two interviews were held on Radio Devon and Gemini Radio promoting the survey; the press release may be viewed in Appendix 3 and the covering letters and survey instruments in Appendices 4 and 5 respectively.

The survey was despatched in January 1998 to 1502 farmers comprising 962 beef finishers and 540 sheep finishers. The response rate achieved pre-reminder was 25% and increased to 32.15% post-reminder. A usable response rate of 30.76% was achieved comprising 29.41% of the beef and 33.15% of the sheep samples.

Comparisons were made to recent UK postal farm survey study response rates, for example: Hobbs (1996b) 28%, Talling and Warren (1997) 43%, Neve, Putwain and Mortimer (1998) 18% and NFU (1998) 28%. It was therefore decided due to cost constraints not to despatch a second reminder as it was unlikely that the response rate would be significantly increased and it was felt that the usable response was sufficient to meet the research objectives.

Tables 6.5 and 6.6 illustrate the response rates as percentages of responses received within the stratified sampling frame.

Table 6.5 Lowland Beef Farm Response Rates: Actual % of Farmers within the Stratified Sampling Frame Against Responses received

<i>Beef</i>	<i>Actual %</i>	<i>Response %</i>	<i>± %</i>
<i>Herd Size</i>			
25-49	29.93	31.10 (88) ¹	+ 1.17
49-74	25.72	22.26 (63)	- 3.46
75+	44.35	46.64 (132)	+ 2.25
Total	100	100 (283)	

¹ Actual numbers of responses in each category in parentheses

Table 6.6 Lowland Sheep Farm Response Rates: Actual % of Farmers within the Stratified Sampling Frame Against Responses received

<i>Sheep</i>	<i>Actual %</i>	<i>Response %</i>	<i>± %</i>
<i>Flock Size</i>			
150-299	50.23	49.72 (88) ¹	- 0.51
300-499	29.88	26.26 (47)	- 3.62
500+	19.89	24.02 (43)	+ 4.13
Total	100	100 (178)	

¹ Actual numbers of responses in each category in parentheses

Comparison of the actual percentages within the stratified sampling frame with the percentages of responses received within the stratified framework, showed there was little deviation between the actual and achieved responses, except in the largest categories. This suggests that the NFU database was reasonably up to date. It was thus felt that the achieved response rate reflected a representative sample population accounting for approximately 9.77% of the MAFF Small Area statistics for lowland cattle and sheep farms.

6.4.4 Questionnaire Design

Marketing and strategic variables were identified after surveying literature from the business and agricultural marketing, farm management, agricultural economics and strategic management disciplines. Attention was given to existing conceptually based frameworks including Porter's (1980) generic strategies and Miles and Snow's (1978) strategic typologies, and special attention was given to Mitchell's (1976) livestock and McLeay *et al's* (1996) arable typologies as a starting point for identifying appropriate variables. Taxonomic classifications of strategy including strategic group studies were also reviewed. This was followed by informal interviews with farm management academics, farmers, and rural surveyors in order to gain a detailed knowledge of the industry prior to selecting the appropriate variables.

The eight page questionnaires (Appendix 5) were specifically designed to allow the use of the statistical approach (described in section 6.5) to meet the research objectives outlined in Chapter 1:

- To identify and quantify the criteria that beef and lamb finishers in Devon and Cornwall use to select marketing channels.
- To examine the links between farmer/farm types in relation to their business and marketing orientations in order to model farm marketing behaviour.
- To determine whether farm marketing behaviour influences market channel utilisation.

To meet the research objectives the questionnaires were designed in five parts:

- Part 1 - Choice criteria for selecting marketing channels: comprised 7 questions which related to marketing channels used, choice criteria, group marketing membership, distance to channel used, carcass grading and prices achieved. This section would be used to determine aggregate channel utilisation after subsequent

multivariate analyses and to discover if intergroup differences exist between, for example, carcass attributes and choice criteria.

- Part 2 - Management activities and attitudes: comprised 44 attitudinal statements on a 5 point Likert scale relating to marketing and business orientations. These included questions to cover areas such as non-controllable factors, marketing activities, consumer/buyer orientation, production planning and budgetary control. This part of the survey was of particular importance because the attitude variables would be used to derive a set of strategic dimensions from which the typologies would be modelled and predicted.
- Part 3 - Information sources and types: comprised 18 information sources and 10 information types used as source of marketing intelligence. Responses based on a 5 point Likert scale. The use of market information may be of particular relevance in the way in which farmers make their marketing decisions; and again would be used to discover if intergroup differences exist.
- Part 4 - Marketing or added value questions relating to differentiation. This part was important in respect of whether farmers perceived themselves to be differentiators.
- Part 5 - General farm and farm characteristics: comprised 15 questions related to areas such as farm size, areas farmed, income, age and education. This was of particular relevance with regard to profiling the derived typologies after the multi-variate procedures.

6.5 The Methodological Approach

The aim of this research, as previously mentioned, was to identify and describe strategic groups of beef and sheep finishers in Devon and Cornwall and evaluate the marketing implications in relation to channel utilisation.

In order to conduct an empirical analysis, it is first necessary to collect primary data on the attitudes of the individual farmer towards strategic and marketing variables. An approach to strategic group analysis which is well developed in strategic management and marketing literature involves identifying strategic groups by:

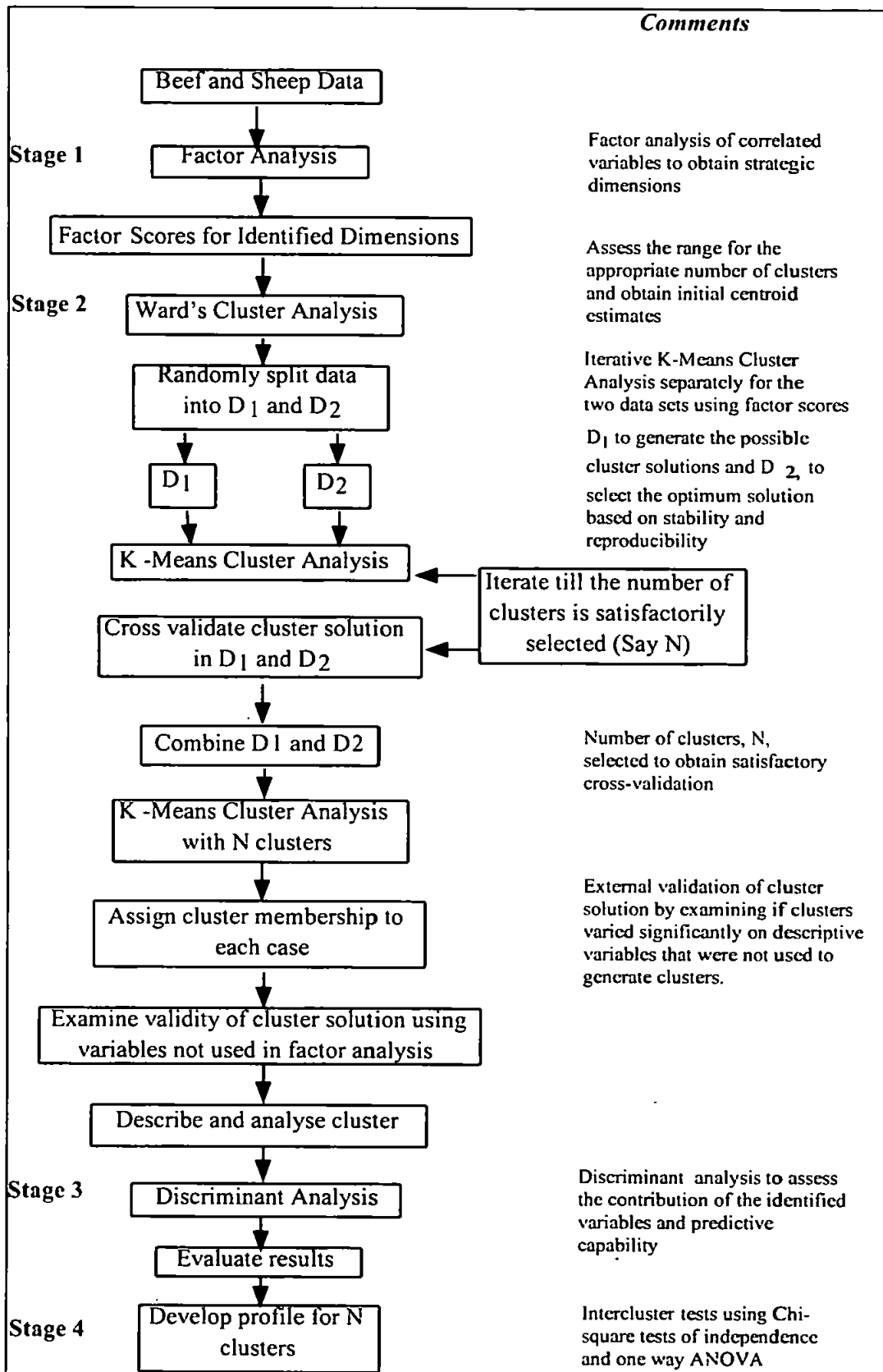
- measuring the firm's relative business position over a number of strategic variables
- categorising businesses into each group and using statistical tests to assist in developing profiles of group members.

Alternative techniques have been used to identify strategic groups and categorise firms in each group. These include the rule of thumb *ad hoc* procedures which place businesses into *a priori* determined groups on the basis of a limited number of strategic dimensions. However, because the theoretical constructs for the *a priori* determination of strategic groups at farm level are not well established, this study used factor analysis to reduce strategic variables to a smaller more focused set of strategic dimensions (Tabachnick and Fidell 1989, Malhotra 1993, Hair, Anderson, Tatham and Black 1998). Factor scores were then subjected to cluster analysis (hierarchical and non hierarchical methods) in order to group farm businesses with similar patterns of strategic behaviour (Hartigan 1975, Punj and Stewart 1983, Helsen and Green 1991). Discriminant analysis was then performed to predict cluster membership and to assess if reasonable discrimination had been achieved between

the identified groups whilst providing additional cross validation (Morrison 1969, Crask and Perreault 1977, Daniels and Darcy 1983). Finally one-way analysis of variance and chi-square tests of independence were used to identify inter-cluster differences and develop group profiles (Hair *et al* 1998).

The use of strategic group analysis to establish typologies of farmers is becoming increasingly well established in the agricultural economics/farm management literature (for example Kuhl and Kuhl 1990, McLeay *et al* 1996, Feka, Xouris and Tsioris 1997, Ohlmer, Olson and Brehmer 1998, Martin and McLeay 1998, Shucksmith 1999). The stages of the methodological approach are described below and illustrated in Figure 6.4.

Figure 6.4 Method of Analysis for the Development of Beef and Sheep Marketing Typologies



Adapted from Punj and Stewart (1983)

6.5.1 Stage 1 - Factor Analysis: Derivation of Underlying Strategic Variables

Factor analysis is a generic name given to a number of multivariate statistical methods (Principle Components Analysis and Common Factor Analysis) whose primary aim is to define the underlying structure in a data matrix for the purpose of either data summarisation or data reduction in an exploratory or confirmatory role. It addresses the problems of analysing the structure of the interrelationships (correlations) among a large number of variables by defining a set of common underlying dimensions known as factors; and thus provides a direct insight into the interrelationships among variables or respondents and empirical support for addressing conceptual issues relating to the underlying structure of the data (Stevens 1986, Cliff 1987, Tabachnick and Fidell 1989, Child 1990, Malhotra 1993 Hair *et al* 1998).

The goal of a successful factor analysis solution is to represent relationships amongst a set of variables parsimoniously by explaining the observed correlations using as few principle components as simply and as interpretable as possible. Thus it provides new insights into the research problem.

Since there is very little prior knowledge about the strategic dimensions underlying farmer's strategic behaviour, factor analysis was used as an exploratory tool to reduce a number of marketing and business attitudes to a more focused set of strategic dimensions that could then be used for subsequent analysis.

The starting point was to find a way to summarise the information contained in a number of original variables into a smaller set of new, parsimonious groups of strategic dimensions with a minimum loss of information. This was achieved through the use of principle components analysis (a data reduction technique) using the attitude scores (Likert scale) of the business and marketing attitudes of farmers

(contained in Part 2 of the questionnaires, Appendix 5). This technique can be used whenever uncorrelated linear combinations of the observed variables are desired by transforming a set of correlated variables to a set of uncorrelated variables i.e. principle components (Child 1990, Tabachnick and Fidell 1989, Hair *et al* 1998).

The first step of the analysis was to compute a correlation matrix for all the variables having taken into account linearity, homoscedacity and normality. The purpose of the analysis was to link correlated marketing and business attitude variables into principle components (underlying strategic dimensions). These variables must be correlated to one another and therefore should have correlation coefficients greater than ± 0.3 (Child 1990, Hair *et al* 1998). Any variables showing no substantial correlations were removed before the analysis procedure was undertaken. Furthermore, as a general rule, the minimum requirement of responses (cases) to variables (attitude variables used) should be a ratio of at least five to one (Tabachnick and Fidell 1989, Malhotra 1993, Hair *et al* 1998). If unstable factor loadings were present they would represent a methodological weakness in the study. However, the ratio of both samples exceeded this criterion and, therefore, should not present a limitation.

In the second step, factor extraction was computed from the correlation matrix. The number of factors to be extracted was evaluated by three criteria (Tabachnick and Fidell 1989, Child 1990, Malhotra 1993, Hair *et al* 1998)

- Latent Root Criterion - the rationale is that any individual factor should account for the variance of a single variable if it is to be retained for interpretation. Thus only the factors having latent roots (eigenvalues) greater than 1 are considered significant, all factors under 1 are disregarded. This method is recommended for establishing a cut off when the number of variables is between 20 and 50.

- Percentage of Variance Criterion - is an approach based on achieving a specified cumulative percentage of total variance extracted from successive factors. No absolute thresholds have been adopted; however, Lorr (1983) and Hair *et al* (1998) suggest it is satisfactory to consider a solution that accounts for a minimum of 60% of the total variance in social science research.
- Scree Test Criterion - is used to identify the optimum number of factors by plotting the number of latent roots against the number of factors in their order of extraction. As a general rule the test results in at least one or more factors being considered for inclusion that had not been selected using the latent criterion.

Validation to determine satisfactory model fits was also undertaken by examining the reproduced correlation matrix residuals (i.e. the differences between the observed correlations as given in the input correlation matrix and the reproduced correlations as estimated from the factor matrix); low percentages of residuals (e.g. < 40%) would indicate an acceptable model fit (Child 1990, Hair *et al* 1998). In addition the models were also validated by using three diagnostic tests:

- Bartlett's Test of Sphericity was used to test the hypothesis that the correlation matrix is an identity matrix i.e. to test the overall significance of all correlations within the matrix. This test showed that the overall significance of the correlation matrix was significant ($P < 0.0001$).
- Kaiser- Meyer-Olkin Measure of Sampling Adequacy is a statistical measure calculated for both the entire correlation matrix and each individual variable, evaluating the appropriateness of applying the analytical technique. Values above 0.5 indicate an acceptable model fit. Kaiser (1974) characterised measures in the 0.9s as marvellous, in the 0.8s as meritorious and in the 0.7s as adequate.

- Determinant of Correlation Matrix tested the correlation matrix for multicollinearity and singularity; adequacy is assured if the determinant is larger than 0.00001.

The third step (having computed the factor extraction) was factor rotation. Specifically, the reference axes of the factors are rotated about the origin until some other position has been reached to uncorrelate the variables into a parsimonious set of dimensions. The ultimate effect is to rotate the initial factor matrix to redistribute the variance from the earlier factors to later ones in order to achieve a simpler and more interpretable factor pattern. Such a rotation does not affect the goodness of fit of the model. The simplest case of rotation is an orthogonal rotation, the most commonly used method being the *varimax* method which attempts to minimise the number of variables that have high loadings on a factor and leads to a clearer separation of the factors (Tabachnick and Fidell 1989, Hair *et al* 1998).

Having rotated the factor matrix with a varimax rotation, the resulting principle components factor loading scores of the underlying dimensions were interpreted and named. Tabachnick and Fidell (1989) suggest that loadings in excess of 0.55 as good, 0.60 as very good and those over 0.71 as excellent. The factor scores (mean 0, standard deviation 1) were then saved for subsequent cluster and discriminant analyses.

6.5.4 Stage 2 - Cluster Analysis: Categorisation of Strategic Groups

Cluster analysis is a name for a group of multivariate techniques (hierarchical and non-hierarchical procedures) whose primary aim is to group objects on the characteristics they possess. However, these procedures are not based on probabilistic statistics and as a result there is often no single best solution to a clustering problem.

The resulting clusters should exhibit high internal (within cluster) homogeneity and high external (between cluster) heterogeneity (Lorr 1983).

The objectives were twofold; first to develop proposed classifications of farmers using cluster analysis, and second to identify the relationship of the derived strategic dimensions to cluster membership which could be subsequently tested with discriminant analysis.

Hierarchical procedures involve the construction of a hierarchy treelike construction (dendrogram). In agglomerative methods (used in this study), each object or observation starts out as its own cluster. In subsequent steps, the two closest clusters are combined into a new aggregate cluster, thus reducing the number of clusters by one in each step until eventually all individual observations are grouped into one cluster. An important characteristic of the procedure is that the results at an earlier stage are always nested within the results at a later stage, creating a similarity to a tree.

In contrast non-hierarchical procedures (frequently referred as *K-means* clustering) do not involve the tree like structure process. Instead, they assign objects into clusters once the number of clusters to be formed are specified.

The approach used in this study was to use both the outlined methods as recommended by Hartigan (1975), Milligan (1980) Punj and Stewart (1983), Harrigan (1985) Helsen and Green (1991). A hierarchic technique was used to establish the number of clusters, profile the cluster centres and identify any obvious outliers. Then *K-means* was used to cluster the results with the cluster centroids from the hierarchical results as the initial seed points. In this way the advantages of hierarchical methods (i.e. identifying the number of clusters) were complemented by the ability of *K-means* to “fine tune” the results.

The first step was to ascertain the optimal number of clusters (n) based on iterative (*K-means*) cluster analysis and internal validation of the cluster solution using the identified orthogonal standardised factor scores (mean 0, standard deviation 1) of the beef and sheep respondents. This was consistent with Bailey's (1974) recommendations that factor scores rather than raw variables should be used as an input into cluster analysis. This is because raw variables contain interdependencies (i.e. which reflect the number of variables in each dimension and their intercorrelations) that are likely to bias cluster analysis results. By contrast, the use of latent root variables via a varimax solution removes such interdependencies by representing a relatively independent and parsimonious set of factors, this reduces potential problems of noise due to interdependence of input data (Lorr 1983, Hair *et al* 1998). Whilst this may result in some loss of information, it nonetheless has the advantage of generating orthogonal dimensions for subsequent analysis. This type of application has often been recommended and used in marketing studies (for example Douglas and Rhee 1989, Lawless and Finch 1989, Kuhl and Kuhl 1990, Helsen and Green 1991, Mcleay *et al* 1996)

In accordance with the procedure recommended by Punj and Stewart (1983), the beef and sheep cases were randomly split into two data sets: D_1 was the test and D_2 the internal validation sample. The test sample was used to generate the possible alternative cluster solutions to the classification problem. The internal validation sample was then used to select the optimum solution based on its stability and reproducibility. Because the strategic dimensions are not expected to be nested in each other, a non-hierarchic approach (*K-means*) was selected. However, the use of *K-means* requires an *a priori* specification of the numbers of clusters to be extracted as well as their centroids and identification of any outliers. The *K-means* procedure is known to be sensitive to this *a priori* specification (Hartigan 1975, Everitt 1980, Milligan 1980, Lorr 1983, Punj and Stewart 1983, Aldenderfer and Blashfield 1984,

Helsen and Green 1991). Thus to obtain some idea about the numbers of clusters that exist prior to partitioning in *K-means* a hierarchical method was first employed.

Ward's minimum clustering algorithm, using the squared Euclidean distance measure of inter-object similarity, was used to determine the initial clustering solution. This method is one of the most popular procedures used in selecting initial cluster seeds as it avoids problems with chaining of observations (Stevens 1986, Tabachnick and Fidell 1989, Helsen and Green 1991, Hair *et al* 1998). At present there are no statistically valid methods for determining an appropriate number of clusters. However, a number of heuristic decision rules are commonly used. The rule in this study was to look for an increase in the cluster coefficients as the algorithm successfully combines clusters. A marked increase of the coefficient suggests that two relatively dissimilar clusters have been combined thus suggesting the numbers of clusters prior to the merger is the most probable solution (Mojena and Wishart 1977, Aldenferer and Blashfield 1984, Hair *et al* 1998).

Prior to the initial cluster analysis (Wards method), the data set was examined for any outlying observations which are known to be sensitive to cluster analysis. Note the factor scores are standardised variables, as a consequence, values exceeding ± 3.0 are potential outliers (Lorr 1983, Tabachnick and Fidell 1989, Hair, 1998). Upon examination it was determined that none of the observations could be identified as potential outliers and it thus appeared safe to conduct cluster analysis on both data sets (beef and sheep). It should also be noted that SPSS 6.1 will automatically identify potential outliers (SPSS 1996).

Using the initial centroids estimated from Ward's method, *K-means* cluster analysis was performed for several different cluster values suggested by the agglomeration schedule and dendrograms produced from Ward's method. The optimal *n* was based on the internal validation of the various cluster solutions. This procedure is

essentially a cross validation of the D_2 sample utilising a constrained and unconstrained solution for each alternative cluster. For a given number of clusters (n), the constrained solution classifies all cases in D_2 based on the cluster analysis results from the test sample D_1 . By contrast, the unconstrained solution poses no restrictions. The chance corrected coefficient of agreement, *Kappa*, was computed for the two solutions of D_2 cases for each n . The optimal n was then chosen to maximise *Kappa* (Punj and Stewart 1983, McIntyre and Blashfield 1980). Once the optimal n was determined, both sets of data (D_1 and D_2) were combined and input into *K-means* cluster analysis with the number of clusters specified at the optimal value. The cluster solutions were then assigned to each case and saved for subsequent analysis: profiling and prediction.

6.5.3 Stage 3 - Discriminant Analysis: Assessment of Identified Strategic Variables

Discriminant analysis (DA) is a multivariate technique whose general objectives are to determine whether a given set of predictor variables differentiates among two or more groups or objects, and if so, determines which variables contribute the most to this discrimination. In addition, the analysis determines the accuracy to which the variables can predict group membership (Tabachnick and Fidell 1989, Hair *et al* 1998).

With DA, one or more linear combinations of quantitative predictors are created and called discriminant functions. The first discriminant function is extracted so that it maximises the differences on this function among groups. A second discriminant function may then be extracted that maximises the differences on this function among groups, but with the constraint that they are uncorrelated with all previously extracted functions (Daniels and Darcy 1983, Tabachnick and Fidell 1989, Hair *et al* 1998).

The objective of the test was to assess how accurately the derived underlying strategic variables could accurately predict cluster membership of beef and sheep farmers and to assess the discriminatory power of the variables in order to determine which variables contributed the most to predicted cluster membership.

Prior to the procedures being carried out, the assumptions of normality, linearity, and multicollinearity were evaluated to ensure that these assumptions were not violated. In addition Box's M test statistic, adjusted for unequal sample sizes, was evaluated to test the null hypotheses of the equality of covariance matrices of the independent variables across the identified groups. If the statistical significance is greater than the critical level of 0.05 then the equality of the covariances is supported and DA is appropriate (Hair *et al* 1998).

Stepwise procedures were undertaken whereby the independent variables (derived strategic dimensions) were sequentially entered according to the discriminatory power they added to group membership prediction. This method was selected since there was no *a priori* knowledge of the predictor variables.

Having computed the procedures, the discriminating power of the variables were evaluated by several criteria (Morrison, 1969, Daniels and Darcy 1983, Crask and Perreault 1977, Peterson and Mahajan 1976, Tabachnick and Fidell 1989, Hair *et al* 1998):

- Wilks' lambda (Λ) - a reflectance of the importance of the variables and functions. The importance of the variable is inversely proportional to the size of lambda. Since several functions are considered simultaneously, Wilks' lambda is not just the ratio of between group to within group sum of squares, but is the product of Wilks' lambda for each function. The significance level is based on a chi-square transformation.

- Canonical function - relates the number of important functions through a variety of tests: (a) eigenvalues greater than 1 are significant, the greater the value the greater the discriminatory power of the function. (b) Percentage of variance greater than 5% is significant. (c) A canonical correlation greater than 0.6 is significant. (d) Overall chi-square statistics for the derived functions.
- Percentage of variance explained, I^2 - is the measure of the amount of overall variance in the criterion or dependent variable accounted for the predictor variables acting as a set and is analogous to R^2 in multiple regression (Peterson and Mahajan 1976). An important characteristic is that I^2 estimates the total explained variance regardless of the form or nature of the relationship. It is computed as follows (N is the number of observations, K is the number of groups and λ_i is the i th eigenvalue).

$$I^2 = \frac{N}{(N - k)(1 + \lambda_1)(1 + \lambda_2) + 1}$$

In addition I^2 was used to assess the contribution of each predictor variable (underlying strategic dimension) to overall criterion prediction. Thus it was possible to partition the dependent variable variance among the independent variables by using each predictor variable combination in separate stepwise DA's to discover the relative importance of each predictor variable. In other words, the I^2 of each predictor variable, which when taken as percentage of the overall criterion, reveals the unique contribution made by that variable.

- Percentage correctly classified. The final step of assessing the overall model fit was to determine the predictive accuracy of the discriminant functions. A split sample reliability test using random holdout and analysis samples was employed as cross validation to ensure that the full model was an effective and true

representation of the discriminant model (Morrison, 1969, Crask and Perreault 1977, Daniels and Darcy 1983).

The hit ratios of the hold out and analysis samples were first compared to the maximum chance criterion (C_{max}) which is a measure of predictive accuracy that compares the percentage correctly classified with the percentage of respondents in the largest group. They were then compared to the proportional chance criterion (C_{pro}) which is a measure of predictive accuracy that compares the percentage correctly classified with the average probability of classification taking into account group sizes, Hair *et al* (1998) suggests that this is the most appropriate measurement as it takes into account group sizes. Acceptability of the model is based on the threshold values plus approximately 25% (Morrison 1969, Hair *et al* 1998). Having validated the model on the split sample, the procedure was then conducted on the full sample.

- Finally Press's Q statistic was used on the full model to measure the classificatory power of the discriminant function when compared to a chance model. The calculated value is compared to a critical value (the chi-square value for 1 degree of freedom at the desired confidence level i.e. $\chi = 10.83$, $p = 0.001$). If it exceeds this critical value then the classification matrix can be deemed statistically better than chance (Hair *et al* 1998). The Q statistic is calculated by the following formula (where N = total sample size, n = number of observations correctly classified and K = number of groups):

$$\text{Press's Q} = \frac{[N - (n - K)]^2}{N(K - 1)}$$

The next stage was to interpret the discriminant functions and to determine the relative importance of each independent variable in discriminating between the groups. Interpretation was based on the examination of the standardised canonical

discriminant coefficients. Coefficients ± 0.3 or higher are considered to be substantive (Daniels and Darcy 1983, Peterson and Mahajan 1976, Tabachnick and Fidell 1989, Hair *et al* 1998).

6.5.4 Stage 4 - Profiling of Strategic Groups

The final stage of the analysis was to profile the identified strategic groups. In the surveys (Appendix 5), a considerable amount of detailed information was collected on the personal and management characteristics of the individual farmers but not used in cluster analysis. These data were used to develop the profiles of group members by examining the differences between descriptive variables relating to farm and farmer characteristics, miscellaneous marketing characteristics, information gathering activities for each identified strategic group.

In order to develop strategic grouping profiles, statistical tests were employed to delineate and describe each cluster profile to identify the variables where values differ significantly from one strategic group to another. Intercluster differences attributable to each factor or variable were identified using one-way analysis of variance (ANOVA), and means were compared using Tukey's honestly significance tests (adjusted for unequal size). Qualitative variables were analysed using chi-square tests of independence.

CHAPTER 7 THE IDENTIFICATION OF MARKETING CHANNEL UTILISATION AND DEVELOPMENT OF BEEF MARKETING TYPOLOGIES

7.0 Introduction

The purpose of this, and the following chapter, is to identify marketing channel utilisation of beef and sheep livestock finishers in order to develop marketing typologies. These typologies may provide insights into the marketing behaviour of farmers in relation to channel utilisation.

The selection of marketing channel utilisation by beef and sheep finishers is not necessarily a straightforward choice between livestock market or direct to abattoir. Indeed, many choices exist, and a wide combination of channel utilisation has been identified in this study.

The strategic group analysis was conducted according to the methodology outlined in Chapter 6. Factor analysis was performed to derive underlying strategic variables, which were then subjected to cluster analysis using both hierarchic and non-hierarchic techniques. Discriminant analysis was then performed to predict cluster membership and to examine if there was reasonable discrimination between the groups. Finally, intergroup cluster tests were used to build group profiles using chi-square and one-way analysis of variance.

The purpose of these analyses was to discover the complexity of decision making in relation to channel selection. They were not intended to operationalise specific generic competitive strategies, such as cost leadership or differentiation, since there is little *a priori* knowledge of farmer business decision making in relation to livestock distribution.

7.1 Identification of Marketing Channel Utilisation of Beef Finishers

Twenty marketing channels were identified from the survey, comprising six direct channels and a further fourteen multiple channels of two or more as detailed in Table 7.1.

Table 7.1 Market Channel Selection and Utilisation of Beef Finishers

Marketing Channel	Utilisation %
<i>Direct Channel Selection</i>	
1. Livestock Market	22.3
2. Direct Sales to Abattoir via Group Marketing Schemes (GMS)	13.1
3. Direct Sales to Abattoir	7.4
4. Livestock Dealer	2.5
5. Electronic Auctions (EA)	1.8
6. Private Sales	1.1
<i>Multi- Channel Selection</i>	
7. Livestock Market + Direct Sales to Abattoir via GMS	16.5
8. Livestock Market + Abattoir	15.9
9. Livestock Market + Electronic Auctions	3.1
10. Livestock Market + Direct Sales to Abattoir + Abattoir (GMS)	2.8
11. Livestock Market + Private Sales	2.8
12. Livestock Market + Livestock Dealer	2.1
13. Direct Sales to Abattoir + Direct Sales to Abattoir via GMS	2.1
14. Livestock Market + EA + Direct Sales to Abattoir via GMS	2.1
15. Direct Sales to Abattoir (GMS) + Private Sales	1.8
16. Livestock Market + Electronic Auctions + Abattoir	0.7
17. Livestock Dealer + Direct Sales to Abattoir + Abattoir (GMS)	0.7
18. Livestock Market + Direct Sales to Abattoir + Private Sales	0.4
29. Livestock Market + Abattoir (GMS) + Livestock Dealer	0.4
20. Electronic Auctions + Direct Sales to Abattoir via GMS	0.4
<i>n = 283</i>	

Initial chi-square tests of associations between channel selection and associated variables proved to be invalid because of low expected values (Cochran 1954, Everitt 1977). It was therefore necessary to merge channels to achieve valid results. Channel utilisation percentages obtained through the survey (i.e. Question 1b - *Please indicate in percentage terms the methods of sale you used for each channel selected*) were examined to assist in grouping the initial multi-channel categories outlined in Table 7.1 into five final categories which would be used for statistical tests and comparative analysis.

It must be noted that three channel selections have been omitted from the sample: Electronic Auctions, Private Sales and Livestock Dealers accounting for 5.1% (n = 15). As there appeared to be little market penetration via these channels it was decided to omit these channels and concentrate on the main channels selected. These new categories along with their percentage of channel utilisation are detailed Table 7.2.

Table 7.2 Categorisation of Beef Marketing Channels

<i>Category</i>	<i>Marketing Channels</i>	<i>Utilisation %</i>
LMARKET	Direct Sales to Livestock Market	23.51
GMS	Direct Sales to Abattoir via Group Marketing Schemes	13.81
ABATTOIR	Direct Sales to Abattoir	7.83
	<i>Total Direct Sales</i>	<u>45.15</u>
MULTI- LM	Livestock Market and Abattoir Livestock Market and Private Sales Livestock Market and Livestock Dealer Livestock Market and Electronic Auction and Abattoir Livestock Market and Abattoir and Private Sales	26.49
MULTI-GMS	Group Marketing Schemes (GMS) and Livestock Market GMS and Livestock Market and Abattoir GMS and Livestock Market and Electronic Auction GMS and Private Sales GMS and Abattoir GMS and Livestock Dealer and Abattoir GMS and Livestock Dealer and Livestock Market GMS and Electronic Auction	28.36
<i>n=268</i>	<i>Total Multi-Channels Sales</i>	<u>54.85</u>

As can be seen from Table 7.2, direct marketing channels accounted for 45.15% of total channel utilisation. Selling via LMARKET was the predominant choice at 23.51%. However, sales via GMS (13.81%) and ABATTOIR (7.83%) accounted for 21.64%, illustrating a high level of competition between direct channels. Multi-channel selection accounted for the remaining 55.85% and, within these categories,

MULTI-LM and MULTI-GMS were closely utilised at 26.49% and 28.36% respectively. It should be noted that a number of alternatives selected in multi-livestock market comprise channels associated with abattoir sales. These figures illustrate that the livestock market system is certainly under threat in both direct and multi-channel selection and further suggests the increasing importance of channels associated with preferred supplier relationships. Furthermore, due to the nature of preferred supplier relationships (i.e. prescriptive management practices), it may also suggest that animals passing through these channels are of a higher quality than those passing through the livestock market system or, that in the case of multiple channel utilisation, quality livestock is sold via GMS or ABATTOIR with poorer livestock sold via the livestock market system. Again, it serves to illustrate the levels of competition between market channels i.e. the emergence of a two channel system of sales via either the livestock market or the abattoir sectors in both direct and multi-channel selection, indicating the erosion of traditional spot market transactional arrangements and increased vertical co-ordination via preferred supplier relationships. However, it provides no understanding as to why farmers select particular channels. The subsequent analysis will provide insights into the marketing orientations of beef producers in relation to channel utilisation.

7.2 Stage 1: The Derivation of Underlying Strategic Variables Using Principle Components Analysis

In the first phase of the analysis, twenty four key attitude variables (listed in Appendix 6) relating to various aspects of marketing strategy activity were selected after an examination of the correlation matrix and then subjected to principle components analysis.

A varimax rotation (orthogonal method) was conducted and the standard criteria of an eigenvalue = 1 (factors = 7) and scree test (factors = 8) were used as guidelines to determine the number of factors in the first rotations (Stevens 1986, Tabachnick and Fidell 1989, Child 1990, Malhotra 1993, Hair *et al* 1998). These were followed by several different trial rotations where factor interpretability was compared. The cut off point for interpretation of loading scores was conservatively high at 0.60 (Tabachnick and Fidell (1989) suggest that loadings in excess of 0.60 are very good and those over 0.71 are excellent).

Confirmatory analysis to determine a satisfactory model fit was undertaken by examining the reproduced correlation matrix residuals (i.e. the differences between the observed correlations as given in the input correlation matrix and the reproduced correlations as estimated from the factor matrix) which indicated an acceptable model fit (Cliff 1987, Child 1990, Hair *et al* 1998). The model also satisfied the diagnostic tests of the Kaiser- Meyer-Olkin Measure of Sampling Adequacy, Bartlett's test of Sphericity and the Determinant of the Correlation Matrix (Tabachnick and Fidell 1989, Malhotra 1993, Hair *et al* 1998). The latent root variables (underlying strategic dimensions) were subsequently named to reflect the strategic dimension that they represented.

7.2.1 Results of Principle Components Analysis

Seven highly interpretable and distinct factors explaining 65.1% of total variance appeared to give the best representation of the underlying relationship among the selected variables. The sorted, and subsequently named, factor loading scores are illustrated in Table 7.3.

Table 7.3 Results of Principle Components Analysis of Strategy Variables

<i>Underlying Strategic Dimensions</i>	<i>Factor Loading</i>
<i>Market Knowledge</i>	
I work out the differences in returns resulting from selling livestock via different marketing outlets, e.g. livestock markets, direct to abattoir.	.729
I am personally involved in off farm marketing activities, e.g. producer groups	.610
I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.	.604
I understand detailed market requirements for the livestock I produce.	.600
<i>Production Planning</i>	
I plan my production decisions by continually monitoring market price	.794
I simultaneously plan production and sales decisions.	.776
I plan my production to coincide with seasonal fluctuations.	.711
<i>Consumer and Buyer Orientation</i>	
I increase my farm profitability by satisfying the buyers of my produce.	.701
I increase my farm business success by understanding the needs and wants of the final consumer.	.703
<i>Channel Flexibility</i>	
I deal with a minimum number of marketing outlets so that I can maintain a good relationship with these channel members, e.g. livestock market, abattoir	.758
<i>Differentiation</i>	
I produce speciality, niche market livestock e.g. organic	.844
I produce livestock which requires specialist knowledge, equipment or facilities that other farmers do not have.	.690
I own or manage facilities that are normally owned by middlemen further down the distribution chain, e.g. farm shop, slaughterhouse, haulage business	.631
<i>Quality and Traceability Focus</i>	
I increase my farm business success by producing quality livestock which I sell by formal or informal contract e.g. retail led producer club schemes	.690
Being able to trace livestock back to source is essential to my farm business operation.	.689
<i>Cost Focus</i>	
I have the lowest possible inputs	.831
Budgeting and planning to obtain the lowest possible farm costs is the most important management activity I undertake.	.651
I am aware of the exact costs and returns for the livestock I produce.	.611
Determinant of Correlation Matrix = 0.008694, $p < 0.00001$	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .83835, $p < 0.05$	
Bartlett test of Sphericity = 1819.48, $p < 0.00001$	

7.2.2 Description of Derived Strategic Variables

The distinct strategic dimensions that the seven factors appear to represent are as follows:

F₁ Market Knowledge

This strategic dimension, accounting for 24.9% of variance, is associated with an understanding of the differences in returns achievable by selling via different channels, off farm marketing involvement, the distribution channels through which the livestock moves after it leaves the farm gate, and a knowledge of detailed market requirements. High scores on this factor relate to an understanding of the market and distribution system.

F₂ Production Planning

The production planning factor places emphasis on livestock production and sales planning associated with the monitoring of market signals, seasonality and sales decisions. This factor accounts for 8.6% of variance. High scores would indicate that farmers plan their production and sales decisions in conjunction with market prices.

F₃ Consumer and Buyer Orientation

This factor, accounting for 7.2% of variance, has high loading scores on the increase of farm profitability by meeting the requirements sought by buyers and by meeting the needs and wants of the final consumer. Farmers scoring highly on this factor would appear to understand the need to produce livestock which meets the attributes required by the market place.

F4 Channel Flexibility

Channel flexibility is only strongly associated with one variable that indicates the degree of channel flexibility associated with marketing livestock. High scores may indicate that farmers minimise the number of marketing outlets to maintain a strong business relationship with a chosen channel and this may indicate a degree of vertical co-ordination. This factor accounted for 6.8% of variance.

F5 Differentiation

This factor is concerned with the degree of differentiation of livestock production, either by producing niche livestock or involvement with further processing or values added activities. High factor loadings are thus associated with the production of niche livestock and the use of specialist knowledge or equipment associated with differentiation which non-differentiators may not use or have. This factor accounts for 6.2% of variance.

F6 Quality and Traceability Focus

Quality and traceability focus, accounting for 5.8% of variance, is associated with farm business success in terms of the production of quality livestock sold by formal or informal contract and an understanding of the need for traceability to increase farm business success. High scores may indicate a level of vertical co-ordination.

F7 Cost Focus

The cost focus is associated with an understanding of increasing farm business success by producing livestock with the lowest input costs achieved via budgeting and planning with an awareness of the exact costs associated with production. (i.e. to increase gross margins, profitability and efficiency of production.). This factor accounted for 5.5% of variance.

7.3 Stage 2: Development of Marketing Typologies using Cluster Analysis

In accordance with the procedure recommended by Punj and Stewart (1983) outlined in Chapter 6, the 268 beef cases (i.e. the factor scores, mean 0 and standard deviation of 1) were randomly split into two data sets, D_1 and D_2 , the test and internal validation samples respectively. The test sample was used to generate the possible alternative cluster solutions to the classification problem. The internal validation sample was then used to select the optimum solution based on its stability and reproducibility.

7.3.1 Results of Cluster Analysis

The initial cluster analysis of D_1 (using Ward's method) suggested between two and four clusters. Consequently using the initial centroid estimates, *K-means* cluster analysis was performed for the three cluster values (i.e. $n= 2, 3, 4$). Next the coefficient of agreement (*Kappa*) between the constrained and unconstrained solution of D_2 cases were computed for each of the alternatives. The two, three and four cluster solutions produced *Kappa*, the chance corrected coefficient of agreement of 0.80, 0.89 and 0.82, respectively. Since the decision criterion is to maximise *Kappa*, the three cluster solution appeared optimal. However, before accepting this solution, all the cluster solutions were examined for interpretability and external validity. A three cluster solution was deemed the most meaningful as this solution was highly interpretable and appeared to have external validity i.e. significant inter-cluster differences were observed in variables that were not used in the cluster analysis. Thus a final three cluster solution on the basis of all cases (268) was developed for the derived factor scores and the cluster sizes.

The three clusters (based on the cluster means for the derived factor scores and the cluster sizes) were named according to the business strategy that the groups appeared to follow. Mean factor scores and standard deviations for farmers in each strategic group with each strategic dimension and the results from ANOVA tests are detailed in Table 7.4. High positive mean scores indicate that a particular dimension is important to a business.

Table 7.4 Characteristics of Three Strategic Groups Derived from Cluster Analysis

<i>Strategic Dimensions</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1</i>	<i>2</i>	<i>3</i>	
Market Knowledge	-0.5823 ^{a,b} <i>0.6869</i>	0.5051 ^a <i>0.8335</i>	0.2408 ^b <i>1.3015</i>	0.0001
Production Planning	0.0166 <i>0.9927</i>	-0.0552 <i>1.0057</i>	0.1125 <i>1.0194</i>	0.6481
Consumer and Buyer Orientation	0.2990 ^a <i>0.9470</i>	-0.3675 ^{a,b} <i>0.9205</i>	0.1925 ^b <i>1.0499</i>	0.0001
Channel Flexibility	-0.2353 ^{a,b} <i>0.9234</i>	0.1696 ^a <i>0.9495</i>	0.1980 ^b <i>1.2220</i>	0.0035
Differentiation	-0.2647 ^{a,b} <i>0.4322</i>	-0.4316 ^{a,c} <i>0.4918</i>	2.0423 ^{b,c} <i>0.8335</i>	0.0001
Quality and Traceability Focus	-0.3673 ^a <i>0.9283</i>	0.3786 ^{a,b} <i>0.8007</i>	-0.0235 ^b <i>1.3022</i>	0.0001
Cost Focus	-0.3415 ^{a,b} <i>0.9417</i>	0.3053 ^a <i>0.9437</i>	0.1147 ^b <i>1.0252</i>	0.0001
Numbers of Businesses (n=268)	115	114	39	

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

7.3.2 Description of Identified Strategic Groups

The multivariate analysis described above, identified three strategic groups: Selling Orientation (*Sellers*), Buyer Focus (*Buyer focus*) and Differentiation (*Differentiators*). The characteristics of the three groups are detailed below and the cluster features are illustrated in Figure 7.1.

1. *Selling Orientation Strategy*

This cluster accounts for 115 farmers, 43.0%, of the sample. Cluster members' score highly on only two strategic dimensions: consumer and buyer orientation and production planning. This would suggest that they have a perception that they increase their profitability by meeting the needs and want of buyers and final consumers whilst planning their production to a limited degree. However, these group members have a low score on the attributes required to meet consumer and buyer orientation, i.e. low scores on market knowledge, quality and traceability. Members are not concerned with channel loyalty; this may be because they produce livestock which meets minimum market requirements and chase markets to sell in order to gain short-term advantages. They may also view beef production as a minor enterprise in their overall farming operation and view their strategy as simply producing and selling livestock to provide additional income.

2. *Buyer Focus Strategy*

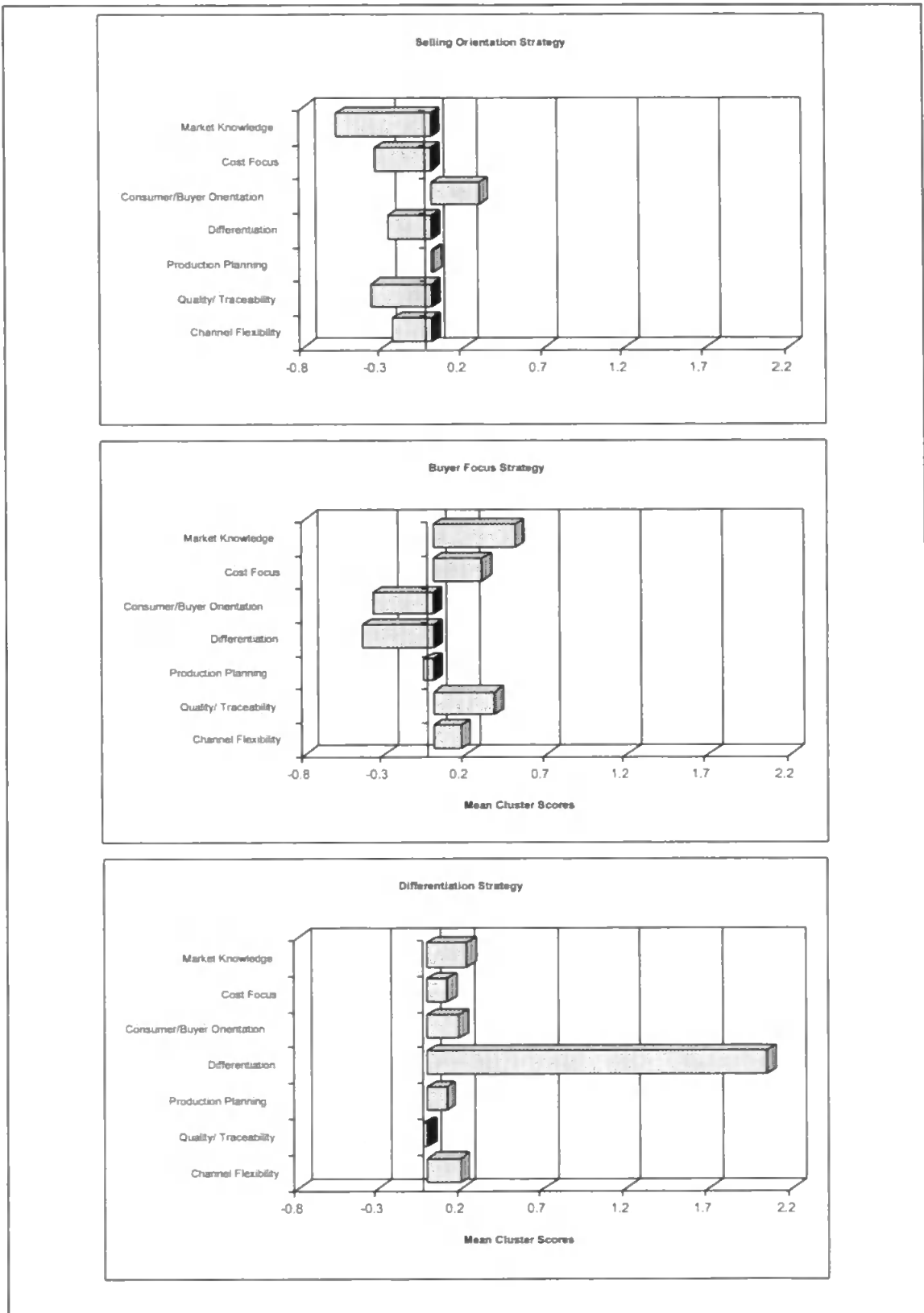
This group contains 114 farmers, 42.5%, of the sample. Cluster members score highly on strategic dimensions associated with channel flexibility, quality and traceability, cost and market knowledge. This would suggest that this group of farmers are concerned with producing quality slaughterstock as they have a good knowledge of the market requirements in terms of carcass conformation, recognise the need for both traceability and efficiency of production. They minimise the

number of channels to which they sell by contract and this may indicate a level of vertical co-ordination. This may also suggest that they may seek simplicity in their marketing arrangement by dealing with a minimum number of marketing channels but are aware of the costs and requirements associated with the different channels. The low loading scores on production planning, consumer/buyer orientation and differentiation indicates that this strategic group is primarily concerned with the efficiency of production and selling by contract into preferred supplier relationships; it may indicate that they are slow to respond to consumer demand.

3. *Differentiation Strategy*

Differentiators, the smallest strategic group of 39 members, accounts for 14.5% of the sample. Members' scores are significantly higher than other businesses on the strategic dimension relating to differentiation. This suggests that these farmers are likely to differentiate by producing niche livestock, use specialist knowledge or facilities that other producers do not have, and own or manage facilities that are normally owned by middlemen further down the distribution chain. They score positively on all dimensions except those associated with quality and traceability. This may be because this particular dimension is not an important function of the farm business: they can satisfy this requirement by rearing their own replacements and selling via their own developed markets. Differentiators are likely to have good market knowledge and understand the need to meet consumer and buyers needs. At the same time, they maintain a cost efficient production strategy by planning and budgeting at production level. They also have a low level of channel flexibility to maintain good relationships with their customers.

Figure 7.1 Strategic Dimensions Associated with the Clustered Strategic Groups



7.4. Stage 3: Assessing the Discriminatory Power of the Identified Strategic Variables using Discriminant Analysis

A further evaluation of the seven underlying strategic dimensions (*market knowledge, production planning, consumer and buyer orientation, channel flexibility, differentiation, quality and traceability and cost focus*) was conducted to assess how accurately they could predict and discriminate between group membership. A high level of predictive accuracy would indicate that a reasonable level of discrimination had been achieved and would signify confidence in the three cluster solution.

A stepwise discriminant analysis (outlined in Chapter 6) was conducted and the discriminating power of the variables were evaluated by several criteria: (a) Wilk's lambda, (b) variance explained, I^2 , and (c) percentage correctly classified criteria (Morrison 1969, Daniels and Darcy 1983, Crask and Perreault 1977, Peterson and Mahajan 1976, Tabachnick and Fidell 1989, Hair *et al* 1998).

Prior to the procedure, the evaluation of the assumptions of normality, linearity, multicolliniarity and homogeneity of covariance revealed no threat to the multivariate analysis. Box's M test statistic was evaluated to test the null hypotheses of the equality of covariance matrices across the three groups. For the full model, the following statistic was obtained: Box's M = 58.52, approx. F = 1.33; *df* 45473.4, $p > 0.05$ suggesting that there was no departure from the null hypothesis.

7.4.1 Results of the Discriminant Analysis

One predictor variable, *production planning*, was dropped from the analysis during the stepwise procedure as it failed the tolerance test. It was shown to be independent of the other variables within the model and thus did not contribute to the prediction of cluster membership. This was not unexpected, since the F-ratio (Table 7.4)

indicated that there were no significant differences between the identified clusters with respect to this variable. The six remaining predictors significantly discriminated across the three strategic groups ($\Lambda = 0.105$, $\chi^2 = 592.15$, $df = 12$, $p < 0.0001$, Table 7.5).

Table 7.5 Stepwise Discriminant Functions

<i>Function</i>	<i>Eigenvalue</i>	<i>Percentage of Variance</i>	<i>Canonical Correlation</i>	Λ	χ^2	<i>Significance</i>
1	2.84	65.66	0.86	0.105	592.15	$p < 0.0001$
2	1.49	34.34	0.77	0.402	238.96	$p < 0.0001$

The remaining predictors discriminated significantly across the three strategic groups after partialling out the effects of the first discriminant function (residual $\Lambda = 0.402$, $\chi^2 = 238.961$, $df = 5$, $p < 0.0001$). In addition, high eigenvalues (i.e. the larger the value, the better the groups are discriminated) indicated a satisfactory level of discrimination. On this basis both functions could be interpreted.

The total amount of variance explained by the first function for differences between the groups accounts for 65.66% of variance, with the second function accounting for 34.34%. Furthermore, I^2 explained 89.41% of the variance in the clusters and suggested that the six predictors acting as a set possess relatively large discriminatory power.

The interpretation of the overall discriminant model was evaluated by examining the standardised discriminant function coefficients and group centroids of the six predictor variables (Table 7.6). The coefficients represent the relative contributions of the predictor variables to the respective functions, and thus their contribution to the ability to classify predicted group membership.

Table 7.6 Summary of Standardised Discriminant Function Coefficients and Group Centroids

<i>Predictor Variables</i>	Discriminant Function¹	
	<i>1</i>	<i>2</i>
Differentiation	1.024	0.003
Market Knowledge	0.099	0.891
Quality & Traceability Focus	-0.091	0.656
Consumer & Buyer Orientation	0.040	0.588
Cost Focus	0.235	-0.579
Channel Flexibility	0.142	0.388
Group Centroids		
Buyer Focus	-0.862	1.262
Selling Orientation	-0.516	-1.346
Differentiation	4.042	0.280

¹Coefficients greater than 0.3, in **boldface**, are deemed significant.
(Hair *et al* 1998)

Table 7.6 shows that *Differentiation* (1.024) dominated the first discriminant function. Examination of the group centroids suggests that this function appeared to discriminate between Differentiation Strategy (mean 4.042) and the other two groups (mean -0.862 and -0.516), *i.e. differentiators* are marketing orientated and understand the needs and wants of the final consumer by producing niche livestock or finding ways of adding value.

The second function has high loadings for the remaining variables. Examination of the group centroids indicated that this function appeared to discriminate between Buyer Focus (mean 1.262) and Selling Orientation (mean -1.346) strategies. *i.e. buyer focus* members have better overall industry knowledge, understand the market place and market requirements.

To aid interpretation the group centroids and discriminate functions are presented graphically in Figure 7.2.

Figure 7.2 Group Centroids in Attribute Discriminant Space with Territorial Map Overlay

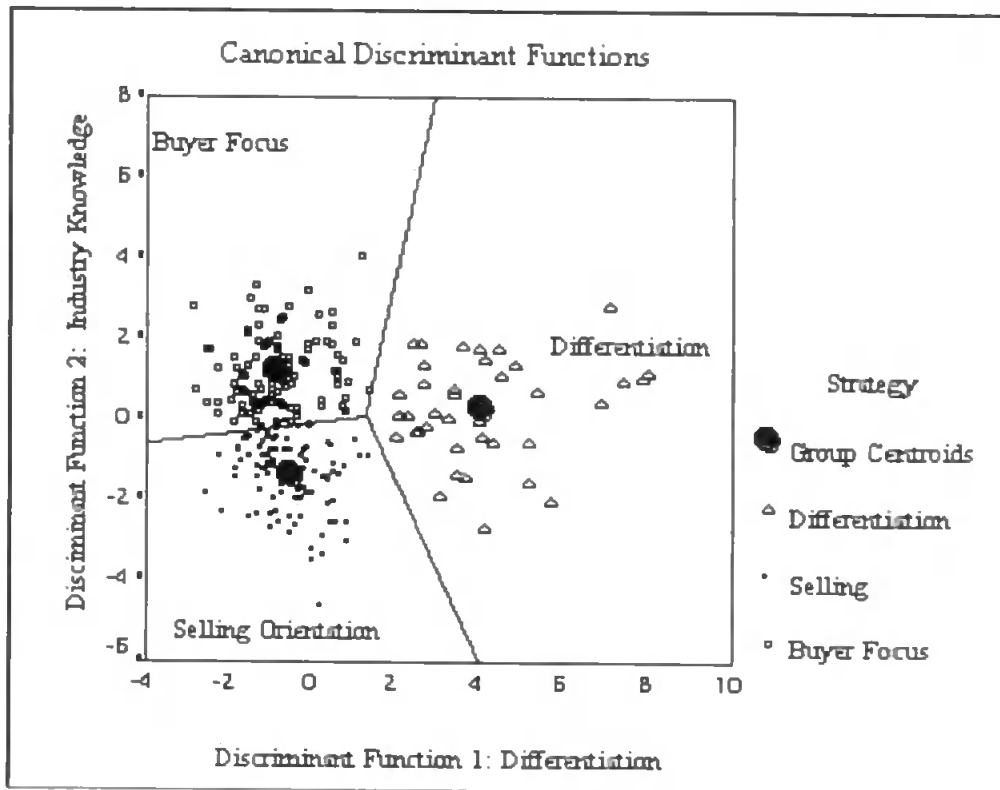


Figure 7.2 clearly shows that discrimination has been achieved. Interpretation of the standardised coefficients suggests that first function might represent a Differentiation dimension while the second function might represent an Industry Knowledge dimension.

A further evaluation of the variables was conducted to assess which variables contributed the most discriminatory power in prediction of cluster membership by partitioning out the variance of the overall I^2 contribution of each predictor variable to the overall criterion prediction of 89.4%. The individual contributions made by the predictor variables totalled 51.13%; the remaining 48.78% indicated the dynamic interaction between the variables in predicting cluster membership (Table 7.7). Within the individual contribution percentages, *Differentiation* was the best discriminator at 32.66% (which dominated the first discriminant function). The

combined contribution of the remaining variables (associated with the second discriminant function) accounted for 18.47% with *Market knowledge* contributing 7.71%, *Quality/traceability* and *consumer/buyer orientation* contributed 3.55% and 3.19% respectively with smaller contributions made by the two remaining variables.

Table 7.7 Variance Partitioning of Strategic Variables

<i>Predictor Variables (Strategic Dimensions)</i>	I^2	<i>Contribution²</i>	<i>% Contribution³</i>
Total Set of Variables	0.8941		
Differentiation	0.6020	0.292	32.67
Market Knowledge	0.8243	0.069	7.71
Quality & Traceability Focus	0.8624	0.031	3.55
Cost Focus	0.8698	0.024	2.71
Consumer & Buyer Orientation	0.8656	0.029	3.19
Channel Flexibility	0.8824	0.012	1.31
<i>Total</i>		<i>0.457</i>	<i>51.13</i>

¹Based on Peterson and Mahajan (1976). Computed as follows (N is the number of observations, K is the number of groups and λ_i is the i th eigenvalue).

$$I^2 = \frac{N}{(N-k)(1 + \lambda_1)(1 + \lambda_2) + 1}$$

² For example: the unique contribution of a predictor variable is equal to $I^2_{1-6} - I^2_{1-5}$ which would give the contribution of variable 6.

³ The percentage of contribution of a variable is the contribution as a percentage of the overall I^2 e.g. 0.292 of $0.8941=32.67\%$.

The predictive accuracy of the discriminant model was evaluated using a random split reliability test. The predictive validity of the discriminant functions were supported by a number of tests (summarised in Table 7.8). The analysis and holdout samples were used to compare the hit ratios before examining the final overall hit ratio (Morrison 1969, Hair *et al* 1998). The test samples scored 97.76% and 97.89% respectively, which outperformed both C_{max} (maximum chance criteria) and C_{pro} (proportional chance criteria) greater than the approximate 25% criterion suggested by Hair *et al.* (1998). The overall sample hit ratio of 98.88% also exceeded this criterion. In addition, the classification matrix was statistically better than would be

expected by chance (Press's Q statistic = 518.18, $p < 0.001$); thus confidence in the predictive validity of the discriminant functions is supported.

Table 7.8 Classification Results of Overall Discriminant Model

Actual Strategic Group	No. of Businesses	Predicted Group Membership		
		<i>Selling Orientation</i>	<i>Buyer Focus</i>	<i>Differentiation</i>
Selling Orientation	115	114 (99.1%)	1 (0.9%)	0 (0%)
Buyer Focus	114	2 (1.8%)	112 (98.2%)	0 (0%)
Differentiation	39	0 (0%)	0 (0%)	39 (100%)

Percentage correctly classified :

Analysis sample:	97.76%	
Hold out sample:	97.89%	
Overall Sample:	98.88%	
Cmax:	42.91%	
Cpro:	38.61%	
Press' Q	518.15	$p < 0.001$

It is certainly clear from the analysis that not only was discrimination achieved between the three identified groups but that the six predictor variables (underlying strategic dimensions) were able to predict cluster membership accurately supporting the validity of the cluster analysis and signifying the stability of the three cluster solution.

7.5 Stage 4: Profiling of Strategic Groups

In order to develop strategic grouping profiles, statistical tests were employed to delineate and describe each cluster profile, identifying the variables where values differ significantly from one strategic group to another. Intercluster differences attributable to each factor or variable were tested using F-ratio comparisons of variances among the mean of criterion variables from a one-way ANOVA and Tukey's honestly significance difference test adjusted for unequal size. Due to the qualitative nature of some of the variables, chi-square tests of independence were used rather than one-way ANOVA for those variables.

In the survey a considerable amount of detailed information was collected on the personal and management characteristics of the individual farmers. These data were not used in the cluster analysis. The following sections develop the profiles of group members by examining the differences between descriptive variables relating to farm and farmer characteristics, miscellaneous marketing characteristics, information gathering activities for each identified strategic group.

Finally, the impact that the identified strategic groups have on aggregate channel utilisation by measuring channel utilisation against the beef marketing categories, outlined in Table 7.2, by strategic group using chi-square analysis. For many variables the test results indicate there are significant differences between strategic groups supporting external validity of the clusters.

7.5.1 Age, Experience and Education

Age distribution was fairly evenly matched across all three groups with the average age falling in the 41-50 years of age category (Table 7.9). Consequently, cross tabulation of livestock farming experience with strategic group membership revealed

that the average level of experience fell in the 21-30 years category for all three groups (Table 7.10).

Table 7.9 Association between Age by Strategic Group

<i>Strategic Group</i>	<i>Age (years)</i>					
	<i>< 30</i> %	<i>31-40</i> %	<i>41-50</i> %	<i>51-60</i> %	<i>61-70</i> %	<i>70+</i> %
Selling	3.5	20.9	32.2	23.5	16.5	3.4
Buyer Focus	3.5	34.2	24.6	25.4	10.5	1.8
Differentiation	5.1	30.8	28.2	28.2	2.6	5.1

n=268

Absolute Values: $\chi^2=8.81$, *df*= 6, *P* > 0.05

Table 7.10 Association between Experience by Strategic Group

<i>Strategic Group</i>	<i>Livestock Farming Experience (Years)</i>			
	<i>< 10</i> %	<i>11-20</i> %	<i>21-30</i> %	<i>>30</i> %
Selling	19.1	29.6	31.3	20.0
Buyer Focus	22.8	28.1	29.8	19.3
Differentiation	25.7	30.8	25.6	17.9

n=268

Absolute Values: $\chi^2=1.15$, *df*= 6, *P* > 0.05

There did, however, appear to be intergroup differences between the levels of education achieved (Table 7.11). *Differentiators* were strongly associated with a level of higher education (30.8%) whilst *sellers* appeared to be strongly associated with secondary school education (62.65%). *Buyer focus*, on the other hand, although associated with secondary education (50.1%) were also associated with a level of further education with 17.5% of members in both the national diploma and higher education categories.

Table 7.11 Association between Education by Strategic Group

<i>Strategic Group</i>	<i>Level of Education</i>			
	<i>Secondary</i> %	<i>A Levels</i> %	<i>National Diploma</i> %	<i>Higher Education¹</i> %
Selling	62.6	9.6	13.0	14.8
Buyer Focus	51.8	13.2	17.5	17.5
Differentiation	33.3	20.5	15.4	30.8

n=268

¹ Higher education: HND, Degree or Postgraduate qualification
 Absolute Values: $\chi^2=13.46$, $df= 6$, $P < 0.05$

7.5.2 Time Spent Off Farm Engaged in Farm-and Non-Farm Related Activities

In the farm related activity category 33.3% of *buyer focus*, 30.4% of *selling* and 23.1% of *differentiation* members indicated that they were not engaged in any off farm marketing activities. However, of those engaged in off farm marketing activities intergroup differences were observed with *differentiation* members tending to be associated with more days (5+ days) spent way from the farm compared to the other two groups (Table 7.12).

Table 7.12 Association between Time Spent Off Farm - Farm Related Activities by Strategic Group

<i>Strategic Group</i>	<i>Farm Related Activities (Days per month)</i>				
	<i>1</i> %	<i>2</i> %	<i>3</i> %	<i>4</i> %	<i>5+</i> %
Selling	37.5	32.5	8.8	12.5	8.7
Buyer Focus	26.3	31.6	6.6	22.4	13.1
Differentiation	46.7	16.7	3.3	10.0	23.3

n=186

Absolute Values: $\chi^2=15.83$, $df= 8$, $P < 0.05$

Table 7.13 Association between Time Spent Off Farm - Non Farm Related Activities by Strategic Group

<i>Strategic Group</i>	<i>Non Farm Related Activities (Days per month)</i>				
	<i>1-5</i> %	<i>5-10</i> %	<i>11-15</i> %	<i>16-20</i> %	<i>21-25</i> %
Selling	33.3	23.8	9.5	28.6	4.8
Buyer Focus	46.4	25.0	7.1	17.9	3.6
Differentiation	65.1	11.1	2.7	1.1	20.0

n=64

Absolute Values: $\chi^2=16.11$, *df*= 8, *P* < 0.05

Similar observations were detected in non-farm related activities with 75.4% of *buyer focus*, 81.7% of *sellers*, and 61.5% *differentiators* indicating no non-farm related involvement. Of those members engaged in non-farm related activities, *differentiators* were associated with 65.1% and 34.9% spending one day to five days and five plus days per month off farm, respectively (Table 7.13). *Buyer focus* members were also observed to have a slight association at 46.4%. A possible reason for these intercluster differences may be due to the fact that a relatively high proportion of *differentiators* (33.3%) and *buyer focus* members (21.1%) were involved with positions of responsibility in farming organisations (i.e. more responsibility than normal voting members) and *differentiators*, at 23.1%, were also strongly associated with ownership of non-farm businesses, possibly indicating a level of farm diversification (Table 7.14).

Table 7.14 Association between Positions of Responsibility in Farming Organisation and Ownership of Non-Farm Business by Strategic Group

<i>Strategic Group</i>	<i>Farming Organisation or Other¹</i>		<i>Non Farm Business Owned²</i>	
	<i>None</i> %	<i>Responsibility</i> %	<i>None</i> %	<i>Responsibility</i> %
Selling	88.7	11.3	93.9	6.1
Buyer Focus	78.9	21.1	90.4	9.6
Differentiation	66.7	33.3	76.9	23.1

n=268

¹ Absolute Values: $\chi^2= 10.063$, *df*= 2, *P* < 0.05 ² $\chi^2= 9.312$, *df*= 2, *P* < 0.05

7.5.3 Membership of Group Marketing and Farm Assured British Beef and Lamb Scheme (FABBL)

Table 7.15 indicates that both *differentiators* and *buyer focus* members were strongly associated with group marketing schemes and FABBL membership at 57.0% and 43.6%, respectively. A further 23.1% and 12.3% were associated with FABBL only membership. *Sellers* appeared to be strongly associated with non-membership of any scheme although 24.3% and 27% were associated with FABBL only and GMS + FABBL schemes, respectively. This would suggest that both *buyer focus* members and *differentiators* are strongly associated with a level of vertical co-ordination, thus implying that they view marketing as extending beyond the boundary of the farm gate. It further suggests the likelihood that there will probably be differences between strategic groups with respect to channel utilisation.

Table 7.15 Relationship between Group Marketing Membership by Strategic Group

<i>Strategic Group</i>	<i>Group Marketing Membership</i>		
	<i>Non Member</i>	<i>FABBL Only</i>	<i>FABBL & GMS¹</i>
	%	%	%
Selling	48.7	24.3	27.0
Buyer Focus	30.7	12.3	57.0
Differentiation	33.3	23.1	43.6

n=268

Absolute Values: $\chi^2 = 22.194$, $df = 4$, $P < 0.01$

¹ Group marketing schemes defined as members belonging to producer groups and/or co-operatives. It should be noted that retail led producer schemes dominate this category with only 5% of the sample indicating co-operative membership.

7.5.4 Farming Areas

Differences were observed in the association between farm size and strategic groups. *Buyer focus and differentiators* were strongly associated with large farms (121 ha+) at 43% and 35.9%, respectively; whilst *sellers* appeared to be associated to medium-large farms (80-120 ha, Table 7.16). No significant differences were detected in terms of land tenure, with the majority of holdings (> 98%) in all groups being owned. With regard to land leased into the farm business no significant differences were detected: *Differentiators* indicated an average of 42.35 ha with *buyer focus* and *sellers* indicating averages of 32.83 ha and 30.70 ha, respectively. With regard to land rented out it appeared that little or no land was actually leased out by these groups, with *sellers, buyer focus* and *differentiators* indicating averages of 0.7 ha, 0.0 ha and 2.37 ha, respectively; again no significance differences were detected.

Table 7.16 Relationship between Farm Size by Strategic Group

<i>Strategic Group</i>	<i>Farm Size(ha)</i>			
	<i><40</i> %	<i>41-80</i> %	<i>81-120</i> %	<i>121+</i> %
Selling	15.7	27.0	34.8	22.6
Buyer Focus	11.4	25.4	20.2	43.0
Differentiation	15.4	25.6	23.1	35.9

n=268

Absolute Values: $\chi^2 = 12.931$, *df*= 6, *P* < 0.05

With regard to quota transfers in and out of the farm business very low levels were observed with *sellers* indicated averages of 0.83% and 0.96% for transfers in and out whilst *buyer focus* and *differentiators* indicated similar averages of 1.33%, 1.35% and 1.07% and 1.61%, respectively. Low levels of quota transfer may be attributable to the beef crisis.

In terms of land allocation, *differentiation* strategy members were strongly associated with the largest percentage of land allocated to beef production, with a 28.2 % allocation in the 51-75% category and 23.1% in excess of 76% category (Table 7.17). By contrast members of the other two groups are predominantly associated with a land allocation below 50%. Average land allocation was reported as 39 ha, 33 ha and 53 ha for *buyer focus*, *sellers* and *differentiators*, respectively.

Table 7.17 Relationship between the Percentage of Total Land Allocated to Beef Production by Strategic Group

Strategic Group	Land Allocation (% of total area farmed)			
	1-25% %	26-50% %	51-75% %	76+% %
Selling	34.8	43.5	13.0	8.7
Buyer Focus	39.4	41.3	11.4	7.9
Differentiation	23.1	25.6	28.2	23.1

n=268

Absolute Values: $\chi^2 = 17.592$, *df*= 6, *P* < 0.01

Groups also differed with respect to herd size (Table 7.18). *Differentiators* were associated with large herds of 75+ animals (64.1%) as were *buyer focus* at 50.1% whilst *sellers* tended to be associated with smaller herds (25-49 animals) at 37.4%. Average herd sizes were reported as 123, 100 and 75 for *differentiators*, *buyer focus* and *sellers*, respectively.

Table 7.18 Relationship between Herd Size by Strategic Group

Strategic Group	Herd Size		
	25-49 %	50-74 %	75+ %
Selling	37.4	25.2	37.4
Buyer Focus	27.1	22.8	50.1
Differentiation	23.1	12.8	64.1

n=268

Absolute Values: $\chi^2 = 9.790$, *df*= 4, *P* < 0.05

Combining the results of the herd and land allocation analysis it would appear that *differentiators* may employ more extensive management practices than *buyer focus* and *selling* members. It may also indicate that *buyer focus* members practice more intensive management practices than the other two groups.

7.5.5 Beef Finishing and Carcase Conformation Attributes

Sellers were predominantly associated with unknown grading (46.1%); of the known grading they were less likely to produce high quality carcasses (EU, 1-2 range), although they appear to be capable of producing average carcase conformation (42.6%, RO+,3-4H range). In contrast, *buyer focus* members appeared to be associated with both high quality (11.4%) and average carcase (54.4%) attributes. *Differentiators* were less likely to have no knowledge of conformation and were associated with producing both high (15.1%) and average quality livestock (51.3%, Table 7.19).

Table 7.19 Relationship between Carcase Grading by Strategic Group

<i>Strategic Group</i>	<i>Carcase Grading</i> ¹			
	<i>Unknown</i> %	<i>EU, 1-2</i> %	<i>RO+, 3-4H</i> %	<i>-O-P, 1-5H</i> %
Selling	46.1	3.5	42.6	7.8
Buyer Focus	23.7	11.4	54.4	10.5
Differentiation	28.2	15.4	51.3	5.1

n=268

Absolute Values: $\chi^2 = 17.595$, $df = 6$, $P < 0.01$

¹ Based on the MLC grading system whereby: carcasses in EU, 1-2 categories attract price premia; RO+, 3-4H attract base price and -O-P, 1-5H attract price penalties.

7.5.6 Financial Characteristics

Information was gathered on the level of debt servicing (defined as interest and principal payments as a proportion of gross income for the 1997/1998 financial year). Although all groups had a proportion of debt with the average being in the 10-19% category, no significant differences were detected between any of the strategic groups. However, significant differences were detected between the relationship of strategic group members and the level of income derived from beef production (Table 7.20). *Differentiators* were associated with a high proportion of income derived at the 70%+ level at 28.2% whilst *buyer focus* members were associated with the 25-49% level at 40.4% and *sellers* appeared to be associated with the smallest category at 42.6% at < 25%. This would suggest that *differentiators* view beef production as the primary enterprise whilst *buyer focus* may view production as a secondary enterprise and *sellers* as a complementary enterprise.

Table 7.20 Relationship between Farm Income derived from Beef Production by Strategic Group

<i>Strategic Group</i>	<i>Farm Income</i>			
	0-24% %	25-49% %	50-69% %	70% + %
Selling	42.6	33.9	14.8	8.7
Buyer Focus	30.7	40.4	13.2	15.8
Differentiation	23.1	23.1	25.6	28.2

n=268

Absolute Values: $\chi^2 = 17.482$, *df*= 6, *P* < 0.01

Members of *buyer focus* and *selling orientation* strategic groups perceive their financial performance in relation to the strategies they follow to be average (compared to other farmers), although *sellers* were slightly more likely to perform below average. In contrast *differentiation* members perceived themselves to be strongly associated with above average performance (Table 7.21).

Table 7.21 Relationship between Perceived Financial Performance by Strategic Group

<i>Strategic Group</i>	<i>Financial Performance</i>		
	<i>Below Average</i> %	<i>Average</i> %	<i>Above Average</i> %
Selling	9.6	79.1	11.3
Buyer Focus	7.8	78.9	13.3
Differentiation	2.6	62.1	35.3

n=268

Absolute Values: $\chi^2 = 12.633$, df= 4, P < 0.05

7.5.7 Miscellaneous Marketing Characteristics

Eight variables, that were not included in cluster analysis, were examined to ascertain the importance of profit maximisation, animal welfare, price influence, quality of livestock, techniques, competitors and the influence of the CAP. The results of the ANOVA are illustrated in Table 7.22.

Table 7.22 Results of Miscellaneous Marketing Characteristic ANOVA's

<i>Miscellaneous Characteristics</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Sell</i>	<i>2 Buy</i>	<i>3 Diff</i>	
Profit Maximisation ¹	4.104 ^a <i>0.831</i>	4.483 ^{a,b} <i>0.641</i>	4.000 ^b <i>0.973</i>	0.0002
Animal Welfare ²	4.088 ^{a,b} <i>0.676</i>	4.553 ^a <i>0.596</i>	4.487 ^b <i>0.644</i>	0.0051
Intensive Production ³	3.053 ^a <i>0.916</i>	4.070 ^{a,b} <i>0.893</i>	3.123 ^b <i>0.917</i>	0.0001
Price Influence ⁴	3.578 ^a <i>1.253</i>	3.544 ^b <i>1.318</i>	2.949 ^{a,b} <i>1.468</i>	0.0412
Competitors ⁵	1.763 ^a <i>0.952</i>	2.017 ^b <i>1.092</i>	2.744 ^{a,b} <i>1.390</i>	0.0001
Techniques ⁶	1.162 ^{a,b} <i>1.171</i>	2.132 ^{a,c} <i>0.942</i>	2.815 ^{b,c} <i>1.206</i>	0.0001
Quality ⁷	2.374 ^a <i>0.986</i>	2.561 ^b <i>1.039</i>	3.385 ^{a,b} <i>1.330</i>	0.0001
CAP ⁸	4.287 <i>1.049</i>	4.325 <i>0.982</i>	4.077 <i>1.036</i>	0.417

¹ Maximising profits is my most important farming goal

² High animal welfare standards are important to my production methods

³ Intensive production methods are important to my farm business operation

⁴ I have no influence over the price I receive for my produce

⁵ My main competitors are a small number of specialist producers

⁶ I use specialist techniques to gain the highest quality premia for my livestock

⁷ I produce livestock which are a different quality than those produced by other farmers

⁸ The CAP has a most important influence over my farm profitability

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

Intercluster differences were observed in seven out of the eight variables. Profit maximisation was deemed to be important by all three groups. However, significant differences were observed indicating that *buyer focus* members appeared to be more profit motivated in terms of beef production than the other two groups. This may be because *sellers* only view production as a complementary function providing additional income. Whilst *differentiators* are more likely to view production as the primary enterprise there is association of involvement in non-farm businesses and possible farm diversification which may bring additional revenue to the farm business.

Animal welfare standards were perceived to be important by all three groups, but significant differences were observed between *buyer focus* and *differentiators* compared to *sellers*. This may be of particular importance if members of these two groups are vertically co-ordinated via group marketing schemes.

Intensive production methods appeared to be of greater importance to *buyer focus* compared to the other two groups and may provide confirmation as to why these members allocate less land to the beef enterprise.

Price influence also proved to be significant with both *buyer focus* and *selling* members perceiving that they cannot influence the price they receive compared to *differentiators*. This may suggest that *differentiation* members can influence price to a limited degree (price make) by producing sought after stock (e.g. organic, pedigree breeds), adding value and selling via farm shops or selling via their own developed markets whilst the other two groups appear to be price takers. A further chi-square analysis of prices achieved (compared to other farmers) revealed that *differentiators* were strongly associated with above average prices achieved compared to the other two groups (Table 7.23).

Table 7.23 Relationship between Prices Achieved (compared to other farmers) by Strategic Group

<i>Strategic Group</i>	<i>Prices Achieved</i>	
	<i>Average %</i>	<i>Above Average %</i>
Selling	82.3	17.7
Buyer Focus	71.7	28.3
Differentiation	59.0	41.0
n=265		
Absolute Values: $\chi^2 = 8.999$, df= 2, P < 0.01		

In addition, *differentiators* perceived that they produced a different quality of livestock and indicated that they also used specialist techniques to maintain high quality to a moderate degree. Furthermore, they perceived, to a moderate extent that their main competitors were a small number of niche producers compared to the other two groups.

Whilst CAP was not significant, the result was included to highlight the importance that all three groups perceived agricultural support in a business context. It would suggest that all three groups perceive this to be an important part of their marketing mix.

7.5.8 Information Gathering Activities

Results from the intergroup analysis of the sources and types of information utilised are presented in Tables 7.24 and 7.25. Initial examination of the results suggested that both *buyer focus* members and *differentiators* may utilise management-related information sources to a greater degree than *sellers*. In addition, sources of information in relation to price appeared to be of greater importance to both *buyer focus* and *selling* groups.

Table 7.24 Information Sources Ranked by Level of Importance by Strategic Group

<i>Selling Orientation Strategy</i>		<i>Buyer Focus Strategy</i>		<i>Differentiation Strategy</i>	
Agricultural journals	3.74	My own records	3.96	My own records	3.92
My own records	3.58	My farm budget	3.82	Agricultural journals	3.56
Land Agents	3.31	Agricultural journals	3.61	My farm budget	3.46
My farm budget	3.23	Other farmers	3.22	Other farmers	3.18
Other farmers	3.22	Family members	3.12	Land Agents	3.08
Family members	3.03	Land Agent	3.10	My accountant	3.08
My accountant	2.82	NFU	3.08	Family members	2.94
NFU	2.78	Abattoir agents	3.02	NFU	2.82
Radio/television	2.58	Producer group info	2.99	Farmer group meeting	2.79
Newspapers	2.47	My accountant	2.82	MLC	2.74
Farmer group meeting	2.33	Farmer group meeting	2.81	Radio/television	2.74
Trade literature	2.33	Trade literature	2.72	Trade literature	2.72
MLC	2.32	Radio/television	2.68	My bank manager	2.62
Abattoir agents	2.31	Newspapers	2.61	Producer group info	2.36
My bank manager	2.18	MLC	2.48	Abattoir agents	2.31
Livestock dealers	2.17	Livestock dealers	2.24	Newspapers	2.15
Feed company reps	2.05	My bank manager	2.20	Livestock dealers	1.92
Producer group info	2.04	Feed company reps	1.90	Feed company reps	2.02

Table 7.25 Information Types Ranked by Level of Importance by Strategic Group

<i>Selling Orientation Strategy</i>		<i>Buyer Focus Strategy</i>		<i>Differentiation Strategy</i>	
Local livestock price	4.29	Local livestock price	4.35	Management practices	3.92
UK livestock price	3.75	UK livestock price	4.11	UK livestock price	3.89
Animal diseases	3.75	Management practices	3.79	Local livestock price	3.87
Financial	3.61	Financial	3.74	Animal diseases	3.72
Management practices	3.51	Animal diseases	3.72	Financial	3.64
Consumer info	3.08	Quality premiums	3.40	Consumer info	3.52
Quality premiums	3.07	Production techniques	3.34	Production techniques	3.51
Production techniques	2.99	Consumer info	3.26	Quality premiums	3.33
Producer group info	2.16	Producer group info	3.01	Producer group info	2.55
Overseas prices	2.04	Overseas prices	2.07	Overseas prices	2.10

Further analysis revealed some intergroup differences (Table 7.26).

Table 7.26 Results of ANOVA for Information Types and Sources by Strategic Group

<i>Information Type</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Sell</i>	<i>2 Buy</i>	<i>3 Diff</i>	
Own Records	3.583 ^{a,b} <i>1.154</i>	3.956 ^a <i>1.033</i>	3.923 ^b <i>0.983</i>	0.0245
Farm Budget	3.226 ^{a,b} <i>1.318</i>	3.816 ^a <i>1.411</i>	3.762 ^b <i>1.374</i>	0.0002
Abattoir Agents	2.313 ^a <i>1.313</i>	3.017 ^{a,b} <i>1.248</i>	2.307 ^b <i>1.259</i>	0.0001
Producer Group Information	2.044 ^a <i>1.252</i>	2.904 ^a <i>1.269</i>	2.361 <i>1.287</i>	0.0001
<i>Information Source</i>				
Local Livestock Price	4.278 ^a <i>0.781</i>	4.349 ^b <i>0.902</i>	3.876 ^{a,b} <i>1.104</i>	0.013
UK Livestock Price	3.748 ^a <i>1.114</i>	4.105 ^a <i>0.971</i>	3.897 <i>0.995</i>	0.034
Production Techniques	2.991 ^{a,b} <i>1.104</i>	3.342 ^a <i>1.012</i>	3.513 ^b <i>1.189</i>	0.009
Producer Group Info	2.151 ^a <i>1.167</i>	2.942 ^a <i>1.289</i>	2.563 <i>1.373</i>	0.001

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

The ANOVA results revealed that *buyer focus* and *differentiation* members perceived their own records and farm budget information to be of greater importance compared to *sellers* suggesting that these groups are concerned with efficiency of production to maximise gross margins. In addition, *buyer focus* members placed more importance than *sellers* on abattoir agent and producer group information.

With regard to information sources, local livestock and UK price was perceived to be of greater importance to *buyer focus*, which may be of importance if these members

are vertically co-ordinated i.e. producer club prices tend to be based on average UK and local livestock price. This may also confirm why these members perceive producer group information to be of importance. Livestock price was also deemed important by *sellers*, since they appear to produce livestock of poorer quality which meet minimum market requirements, price monitoring of local markets may be an important consideration in relation to livestock market channel utilisation.

In addition, production technique information was perceived to be important by both *buyer focus* and *differentiators* compared to *sellers* suggesting that these two groups wish to optimise carcass quality to increase returns.

7.6 Market Channel Utilisation

This section profiles channel selection by strategic group and examines choice criteria in relation to channel selection.

7.6.1 Channel Utilisation by Strategic Group

Significant intergroup differences were observed between strategic groups in relation to channel selection (Table 7.27). The results indicated that *buyer focus* members were strongly associated with GMS (19.3%) and MULTI-GMS (37.7%) and less likely to use LMARKET (12.3%). *Sellers* were strongly associated with LMARKET (37.4%) and MULTI-LM (31.3%) whilst being far less likely to utilise either GMS (8.7%) or MULTI-GMS (16.5%) channels. *Differentiators* on the other hand, were more likely to utilise GMS related channels and less likely to use LMARKET.

Table 7.27 Relationship between Channel Utilisation by Strategic Group

<i>Strategic Group</i>	<i>Distribution Channel</i>				
	<i>LMarket %</i>	<i>GMS %</i>	<i>Abattoir %</i>	<i>Multi-LM %</i>	<i>Multi-GMS %</i>
Selling	37.4	8.7	6.1	31.3	16.5
Buyer Focus	12.3	19.3	10.5	20.2	37.7
Differentiation	8.6	17.8	5.9	30.8	36.9

n=268

Absolute Values: $\chi^2 = 36.175$, *df*= 8, *P* < 0.001

Further analysis of single channel versus multi-channel selection, Table 7.28, revealed that *differentiators* were more likely to be associated with multi-channel utilisation compared to the other two groups. Analysis of channel flexibility (Table 7.29) indicated that whilst *differentiators* used more channels than *buyer focus*, a significant difference was detected between *sellers* and *buyer focus*; possibly indicating that *sellers* chase short term advantages to optimise returns.

Table 7.28 Relationship between Single Channel and Multi-Channel Utilisation by Strategic Group

<i>Strategic Group</i>	<i>Distribution Channel</i>	
	<i>Single Channel %</i>	<i>Multi - Channel %</i>
Selling	42.1	57.9
Buyer Focus	52.2	47.8
Differentiation	33.3	66.7

n=268

Absolute Values: $\chi^2 = 6.017$, *df*= 2, *P* < 0.05

Table 7.29 Results of Channel Flexibility ANOVA by Strategic Group

<i>Marketing Channels</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Sell</i>	<i>2 Buy</i>	<i>3 Diff</i>	
Numbers of Marketing Channels Used	2.681 ^a <i>1.380</i>	2.254 ^a <i>1.275</i>	2.462 <i>1.295</i>	.0449

NB: within rows, means with similar superscripts differ significantly at *P*<0.05.

Means are reported in standard text with standard deviations in *italics*.

With regard to distance to selected channels, the majority of members in all groups indicated that the marketing channels selected were predominantly in the 0-80 km category, Table 7.30. However, significant differences were observed; *differentiators* appeared slightly more likely to utilise channels in the 81-160 km category and were slightly more associated with the 160+ km category. *Buyer focus* and *sellers* appeared less likely to utilise channels in the 81-160 km category and even less likely to use the latter category. It does, however, serve to illustrate that the region is well served by both the livestock market and abattoir sector, although utilisation is likely to be dependent on geographical location.

Table 7.30 Relationship between Channel Utilisation and Distance by Strategic Group

<i>Strategic Group</i>	<i>Distance (Kms)</i>		
	<i>0-80</i> %	<i>81-160</i> %	<i>161+</i> %
Selling	93.9	5.2	0.9
Buyer Focus	85.1	7.9	7.0
Differentiation	74.3	15.4	10.3
n=268			
Absolute Values: $\chi^2 = 12.441$, df= 4, P < 0.05			

7.6.2 Channel Utilisation and Carcase Attributes

Whilst associations between carcase attributes and strategic group have been identified previously (section 7.5.5), further chi-square analysis was undertaken to assess carcase attributes by channel categorisation i.e. whether carcase quality can be attributed to any particular channel, Table 7.31. The results revealed that LMARKET was, as might be expected, strongly associated with Unknown grading (87.71%) and less likely to produce attributes in either top (EU, 1-2) or average quality (RO+, 3-4H) range which may suggest that livestock passing via this channel may be of a poorer quality than the other identified channels. ABATTOIR was strongly associated with average quality and slightly less likely to be associated with top quality. GMS, however, was strongly associated with both top and average quality attributes at 37.9% and 48.3%, respectively. In the multi-channel categories, MULTI-LM was associated with poorer quality livestock (-O-P, 1-5H) at 14.08% and slightly less likely to be associated with average quality (39.44%). In contrast, MULTI-GMS was strongly associated with both average and poorer quality at 71.05% and 15.79%, respectively. This may suggest that in both multi-channel categories, poorer quality animals pass via the livestock market system whilst higher quality animals are sold via abattoir related channels.

Table 7.31 Relationship between Carcase Quality and Marketing Channel Selection

<i>Channel</i>	<i>Carcase Grade</i>			
	<i>Unknown</i> %	<i>EU, 1-2</i> %	<i>RO+, 3-4H</i> %	<i>-O-P, 1-5H</i> %
<i>LMARKET</i>	85.71	4.76	9.52	0.00
<i>GMS</i>	2.70	16.22	72.97	8.11
<i>ABATTOIR</i>	14.29	0.00	76.19	9.52
<i>MULTI-LM</i>	39.44	7.04	39.44	14.08
<i>MULTI-GMS</i>	6.58	6.58	71.05	15.79

n = 268

Absolute values: $\chi^2 = 133.083$, df=12, P < 0.001

7.6.3 Choice criteria

The results of choice criteria factors ranked by decreasing level of importance are presented in Table 7.32.

Table 7.32 Choice Criteria Ranked by Level of Importance by Strategic Group

<i>Selling Orientation Strategy</i>		<i>Buyer Focus Strategy</i>		<i>Differentiation Strategy</i>	
Sale price	4.65	Sale price	4.75	Sale price	4.77
Higher expected returns	3.92	Higher expected returns	4.24	Higher expected returns	4.15
Quality of livestock	3.89	Quality of livestock	4.21	Animal welfare	3.92
Speed of payment	3.87	Speed of payment	4.04	Quality of livestock	3.87
Convenience	3.74	Animal welfare	4.01	Speed of payment	3.67
Animal welfare	3.70	Convenience	3.76	Marketing costs	3.54
Competitive bidding	3.68	Marketing costs	3.69	Your time	3.38
Proximity to farm	3.60	Price information	3.68	Convenience	3.37
Marketing costs	3.54	Transportation costs	3.54	Transportation costs	3.36
Access to pool of buyers	3.43	Grading uncertainty	3.46	Price information	3.33
Price information	3.37	Your time	3.40	Loyalty	3.31
Ability to withdraw stock	3.32	Bargaining strength	3.39	Proximity to farm	3.23
Grading uncertainty	3.26	Competitive bidding	3.38	Competitive bidding	3.21
Transportation costs	3.25	Proximity to farm	3.30	Grading uncertainty	3.18
Your time	3.10	Access to pool of buyers	3.25	Access to pool of buyers	3.13
Loyalty	3.07	Loyalty	3.19	Ability to withdraw stock	3.10
Bargaining strength	2.91	Ability to withdraw stock	2.89	Bargaining strength	3.08
Social aspects	2.26	Contractual obligations	2.34	Contractual obligations	2.47
Contractual obligations	2.04	Social aspects	2.25	Social aspects	2.36
Experimenting with different channels	1.72	Experimenting with different channels	2.16	Experimenting with different channels	2.34

Initial examination of the rankings suggested that there appeared to be little intergroup differences in relation to channel selection. Further analysis confirmed this assumption, with only one factor - bargaining strength, being significant (Table 7.33).

Table 7.33 Results of Choice Criteria ANOVA

<i>Choice Criteria</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Sell</i>	<i>2 Buy</i>	<i>3 Diff</i>	
Bargaining strength	2.913 ^a <i>1.196</i>	3.395 ^a <i>1.273</i>	3.077 <i>1.326</i>	.0142

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

The result suggested that *buyer focus* members appear to perceive bargaining strength as being moderately important compared to *sellers*. This may be of increased importance due to their level of vertical co-ordination. However, whilst the factors affecting choice criteria appear to be relatively similar, reasons as to why each strategic group select their chosen channels may relate to the interaction of their strategic dimensions and the identified intergroup differences in relation to the factors affecting choice criteria.

7.7 Summary

Members of the identified strategic groups appear to operate their businesses in a distinctive manner and follow clearly defined, but seemingly different, business strategies which significantly influence market channel utilisation. Furthermore, the characteristic profile of each identified group appears to be consistent with its cluster profile. It is likely that logical reasons exist as to why farmers pursue their given strategies, such as the possibility of individual farmers having distinctive competencies or differing business objectives compared to members of other strategic groups. A comparative thumbnail profile is outlined in Table 7.34 and the results presented here are discussed in Chapter 9.

Table 7.34 Thumbnail Profile of Strategic Groups

<i>Selling Orientation Strategy</i>	<i>Buyer Focus Strategy</i>	<i>Differentiation Strategy</i>
<p>Low level of differentiation High channel flexibility Low quality/traceability focus Production planning focus Low cost focus High consumer/buyer orientation focus Low level of market knowledge</p>	<p>Low level of differentiation Low channel flexibility High quality/traceability focus Low production planning focus High cost focus Low consumer/buyer orientation focus High level of market knowledge</p>	<p>High level of differentiation Low channel flexibility High quality/traceability focus Production planning focus High cost focus High consumer/buyer orientation focus High level of market knowledge</p>
Av. Age 41-50, Av. Exp. 25-30 yrs	Av. Age 41-50, Av. Exp. 25-30 yrs	Av. Age 41-50, Av. Exp. 25-30 yrs
Strongly associated with secondary education	Associated with further education	Strongly associated with higher education
Less likely to be involved in off farm marketing activities	Likely to be involved in off farm marketing activities	More likely to be involved in off farm marketing activities
Unlikely to have a position of responsibility with farming organisations	Likely to have a position of responsibility with farming organisations	More likely to have a position of responsibility with farming organisations
Less likely to be member of any scheme - low level of vertical co-ordination	More likely to be member of GMS-high level of vertical co-ordination	More likely to be member of GMS-high level of vertical co-ordination
Unlikely to be involved in non farm related business activities	Less likely to be involved in non farm business activities	More likely to be involved in non farm business activities
Associated with medium- large farms (81-120 ha)	Strongly associated with large farms (121+ ha)	Strongly associated with large farms (121+ ha)
Associated with smaller herd size (25-49)	Associated with large herd size (75+)	Associated with large herd size (75+)
More likely to farm extensively	More likely to farm intensively	More likely to farm extensively
Strongly associated with poorer or unknown quality	Strongly associated with high & average quality carcasses	Strongly associated with high & average quality carcasses
Associated with 0-24% farm income	Associated with 25-49% farm income	Strongly associated with 70% + income
Complementary enterprise	Secondary enterprise	More likely to be main enterprise
Associated with average financial performance	Associated with average financial performance	Strongly associated with above average financial performance
Profit maximisation important	Profit maximisation very important	Profit maximisation less important
High animal welfare standards important	High animal welfare standards important	High animal welfare standards important
No influence over price - price taker	No influence over price - price taker	Moderate influence over price- price maker
Not in competition with specialist producers	Not in competition with specialist producers	In competition with specialist producers
Specialist techniques to gain high premiums unimportant	Specialist techniques to gain high premiums unimportant	Specialist techniques to gain high premiums moderately important
Quality differentiation unimportant	Quality differentiation less important	Quality differentiation important
CAP important part of marketing mix	CAP important part of marketing mix	CAP important part of marketing mix
Make use of local livestock price information in relation to channel utilisation	Make use of information sources in relation to production practices and monitoring of market signals in relation to channel utilisation	Make use of information sources in relation to production practices and planning
Strongly associated with LMARKET channel utilisation	Strongly associated with both GMS and MULTI-GMS related channels	Associated with GMS related channel utilisation.
Unlikely to view marketing as extending beyond the farm gate	Likely to view marketing as extending beyond the farm gate	Likely to view marketing as extending beyond the farm gate
<i>marketing a selling function</i>	<i>marketing a business function</i>	<i>marketing a business function</i>

CHAPTER 8 THE IDENTIFICATION OF MARKETING CHANNEL UTILISATION AND DEVELOPMENT OF SHEEP MARKETING TYPOLOGIES

8.0 Introduction

This chapter replicates the methodology undertaken on the beef sample to establish marketing typologies of sheep finishers. The purpose of these analyses was to discover the complexity of decision-making in relation to channel selection.

8.1 Identification of Marketing Channel Utilisation of Sheep Finishers.

Sixteen marketing channels were identified from the survey comprising four direct channels and a further twelve multiple channels of two or more (Table 8.1).

Table 8.1 Market Channel Selection of Sheep Finishers

Marketing Channel	<i>Utilisation %</i>
<i>Direct Channel Selection</i>	
1. Livestock Market	21.9
2. Direct Sales to Abattoir	16.3
3. Direct Sales to Abattoir via Group Marketing Schemes (GMS)	15.7
4. Electronic Auctions (EA)	2.2
<i>Multi- Channel Selection</i>	
5. Livestock Market + Direct Sales to Abattoir	11.2
6. Livestock Market + Direct Sales to Abattoir via GMS	13.5
7. Direct Sales to Abattoir + Abattoir via GMS + Private Sales	5.1
8. Livestock Market + Electronic Auctions	2.8
9. Livestock Market + Livestock Dealer + Private Sales	2.3
10. Livestock Market + EA + Direct Sales to Abattoir via GMS	1.7
11. Livestock Market + Livestock Dealer	1.7
12. Livestock Market + Private Sales	1.7
13. Livestock Market + Electronic Auctions + Abattoir	1.1
14. Electronic Auctions + Abattoir (GMS)	1.1
15. Livestock Market + Direct Sales to Abattoir + Abattoir (GMS)	1.1
16. Livestock Market + Electronic Auction + Livestock Dealer	0.6
<i>n = 178</i>	

Initial chi-square tests of associations between channel selection and associated variables again proved to be invalid because of low expected values (Cochran, 1954,

Everitt 1977). Channel utilisation percentages obtained through the survey (i.e. Question 1b - *Please indicate in percentage terms the methods of sale you used for each channel selected*) were examined to assist in grouping the initial multi-channel categories outlined in Table 8.1 into five final categories which would be used for statistical tests and comparative analysis.

It should be noted that Electronic Auctions (accounting for 2.2%, n=4) have been omitted from the sample as there appeared to be little market penetration. The new categories and their percentage of channel utilisation are outlined Table 8.2.

Table 8.2 Categorisation of Sheep Marketing Channels

<i>Category</i>	<i>Marketing Channels</i>	<i>Utilisation %</i>
LMARKET	Direct Sales to Livestock Market	22.42
GMS	Direct Sales to Abattoir via Group Marketing Schemes	16.67
ABATTOIR	Direct Sales to Abattoir	16.09
	Total Direct Sales	55.18
MULTI- LM	Livestock Market and Abattoir Livestock Market and Electronic Auction Livestock Market and Private Sales Livestock Market and Livestock Dealer Livestock Market and Electronic Auction and Abattoir Livestock Market and Abattoir and Livestock Dealer Livestock Market and Livestock Dealer and Private Sales	21.84
MULTI-GMS	Group Marketing Schemes (GMS) and Livestock Market GMS and Abattoir GMS and Electronic Auction GMS and Abattoir and Private Sales GMS and Livestock Market and Abattoir	22.98
n=174	Total Multi-Channels Sales	44.82

Examination of the percentage of channel utilisation revealed that direct marketing channels accounted for 55.18% with LMARKET (22.42%) as the predominant

choice followed by GMS (16.67%) and ABATTOIR (16.09%) which aggregate to 32.76%. Multi-channel utilisation categories accounted overall for 44.82%, MULTI-GMS was marginally higher at 22.98% than MULTI-LM at 21.84%. The results illustrate that, in the case of sheep, the traditional spot market transactional relationship is certainly under threat from increase competition in overall direct sales to abattoir in both single and multi-channel selection, and also suggest an increase in sectoral vertical co-ordination via preferred supplier relationships due to changes in the supply chain. As with the beef sample, the results suggest that higher quality animals are by passing the livestock market sector, as producers attempt to meet the demands of the multiple retailers. Further analysis will provide insights into the marketing orientations of sheep producers in relation to channel utilisation.

8.2 Stage 1: The Derivation of Underlying Strategic Variables using Principle Components Analysis

In the first phase of the analysis, twenty five key attitude variables (listed in Appendix 7) relating to various aspects of marketing strategy activity were selected after an examination of the correlation matrix and subjected to principle components analysis.

A varimax rotation (orthogonal method) was conducted, as explained in Chapters 6 and 7, which satisfied the procedure requirements indicating a satisfactory model fit. The cut off point for interpretation of loading scores was conservatively high at 0.55 or above.

8.2.1 Results of Principle Components Analysis

Eight highly interpretable and distinct factors explaining 67.8% of total variance appeared to give the best representation of the underlying relationship among the

selected variables. The sorted and subsequently named factor loading scores are illustrated in Table 8.3.

Table 8.3 Results of Principle Components Analysis of Strategic Variables

<i>Underlying Strategic Dimensions</i>	<i>Factor Loading</i>
<i>Differentiation</i>	
My main competitors are a small number of specialist producers	.749
I own or manage facilities that are normally owned by middlemen further down the distribution chain. e.g. farm shop, slaughterhouse, haulage business	.721
I produce speciality, niche market livestock e.g. organic	.720
<i>Product Focus</i>	
I continually update the production techniques I use to produce my livestock	.813
I meet market requirements by adapting my production methods	.627
<i>Production Planning</i>	
I plan my production decisions by continually monitoring market prices	.787
I plan my production to coincide with seasonal fluctuations	.650
<i>Consumer and Buyer Orientation</i>	
I increase my farm profitability by satisfying the buyers of my produce	.800
I increase my farm business success by understanding the needs and wants of the final consumer.	.733
<i>Market Knowledge</i>	
I am aware of the exact costs and returns for the livestock I produce.	.608
I understand detailed market requirements for the livestock I produce	.596
<i>Quality and Traceability Focus</i>	
I increase my farm business success by producing quality livestock which I sell by formal or informal contract	.790
Being able to trace livestock back to source is essential to my farm business operation	.601
<i>Distribution Knowledge</i>	
I work out the differences in returns resulting from selling livestock via different marketing outlets. e.g. livestock markets, direct to abattoir.	.761
I continually seek out new markets to sell to. e.g. new producer clubs, direct to butchers	.601
I am personally involved in off marketing activities e.g. producer clubs	.591
I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.	.573
<i>Cost Focus</i>	
I have the lowest possible inputs	.754
Determinant of Correlation Matrix = 0.002786, $p < 0.00001$	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.75464, $p < 0.05$	
Bartlett test of Sphericity = 1341.12, $p < 0.00001$	

8.2.2 Description of Derived Strategic Variables

The distinct strategic dimensions that the seven factors appear to represent are as follows:

F₁ Differentiation

This dimension, accounting for 24% of variance, is associated with the level of differentiation for sheep production. High loading factor scores are associated with producing niche livestock in competition with a small number of specialist producers. Furthermore, differentiation is characterised by an involvement with further processing or value added activities through the ownership of facilities normally owned by middlemen further down the supply chain.

F₂ Product Focus

This dimension is concerned with adapting and continually updating production techniques in order to meet market requirements indicating a dimension linked to meeting the requirements of the market place. This factor accounts for 9.9% of variance.

F₃ Production Planning

The production planning dimension is associated with an understanding of planning production decisions by continually monitoring market prices, production coinciding with seasonal fluctuations to meet consumer demand and, possibly, to gain price advantages. This factor accounts for 7.4% of variance.

F₄ Consumer and Buyer Orientation

This factor, accounting for 6.1% of variance, is primarily associated with the understanding that farm profitability and success is increased with knowledge of the

market requirements of by both buyers and the final consumer in terms of production attributes and carcase conformation.

F₅ Market Knowledge

Market knowledge is associated with an understanding of the exact costs and returns associated with production in conjunction with knowledge of detailed market requirements. This factor accounts for 5.9% of variance.

F₆ Quality and Traceability Focus

Quality and traceability focus places the emphasis on increasing farm business success by producing quality livestock sold by contract thus indicating a level of vertical co-ordination. In addition, an understanding that the issue of traceability is essential to the farm business operation which is sought by the marketplace. This factor accounts for 5.2% of variance.

F₇ Distribution Knowledge

High scores on this factor relate to an understanding of the differences in returns achievable by selling via different marketing channels. Furthermore, an off-farm marketing function of identifying new market outlets to sell to, and a detailed knowledge of distribution after the livestock leaves the farm. Farmers scoring highly on this dimension may view marketing as extending beyond the farm gate. This factor accounted for 4.8% of variance.

F₈ Cost focus

Cost focus was only associated with one variable - low inputs. Farmers scoring highly on this factor may view cost efficiency important in relation to their production decisions. This factor accounted for 4.5% of variance.

8.3 Stage 2: Development of Marketing Typologies using Cluster Analysis

The cluster analysis procedure (i.e. the factor scores, mean 0 and standard deviation of 1), were subsequently entered into cluster analysis to develop typologies; outlined in Chapters 6 and 7), was performed on 174 sheep farmers. As with the beef sample, the data were randomly split into two samples D_1 the test sample (used to generate alternative cluster solutions) and D_2 the internal validation sample (used to select the optimum solution based on its stability and reproducibility).

8.3.1 Results of Cluster Analysis

The initial cluster analysis, of D_1 (Ward's method) suggested a two or three cluster solution. Using the initial centroid estimates, *K-means* cluster analysis was performed for the two cluster values (i.e. $n= 2, 3$), then the coefficient of agreement (*Kappa*) between the constrained and unconstrained solution of D_2 cases were computed for each of the alternatives. The two and three cluster solutions produced *Kappa*, the chance-corrected coefficient of agreement of 0.80 and 0.89, respectively. Thus the three cluster solution appeared to be optimal.

Both cluster solutions were examined for interpretability and external validity by testing if there were any significant differences between the clusters and for the descriptive variables that were not used to generate the clusters. The three cluster solution was deemed the most meaningful as this solution was highly interpretable and appeared to have external validity. Thus a final three cluster solution on the basis of all cases (174) was the developed for the derived factor scores and the cluster sizes.

The three clusters (based on the cluster means for the derived factor scores and the cluster sizes) were named according to the business strategy that the groups appeared to follow. Mean factor scores and standard deviations for farmers in each strategic group along with each strategic dimension and the results from analysis of variance are presented in Table 8.4. High positive mean scores indicate that a particular dimension is important to a business.

Table 8.4 Characteristics of Three Strategic Groups Derived from Cluster Analysis

<i>Strategic Dimensions</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1</i>	<i>2</i>	<i>3</i>	
Differentiation	-0.0579 ^{a,b} <i>0.7358</i>	-0.4043 ^{a,c} <i>0.5754</i>	3.3132 ^{b,c} <i>1.4424</i>	0.0001
Product Focus	-0.0829 ^a <i>0.9590</i>	0.3678 ^{a,b} <i>1.1056</i>	-0.4043 ^b <i>0.7437</i>	0.0286
Production Planning	0.0789 <i>0.9057</i>	-0.1632 <i>1.2515</i>	0.6031 <i>1.0375</i>	0.1138
Consumer and Buyer Orientation	0.2995 ^a <i>0.8752</i>	-1.0811 ^{a,b} <i>0.6380</i>	0.1528 ^b <i>0.8631</i>	0.0001
Market Knowledge	-0.3211 ^{a,b} <i>0.7700</i>	0.7687 ^{a,c} <i>0.8219</i>	1.8996 ^{b,c} <i>1.3948</i>	0.0001
Quality and Traceability Focus	-0.0021 <i>1.0093</i>	-0.0262 <i>1.0296</i>	0.1775 <i>0.7264</i>	0.8852
Distribution Knowledge	0.6420 ^{a,b} <i>0.9921</i>	-0.4251 ^{a,c} <i>0.8622</i>	1.0549 ^{b,c} <i>0.8425</i>	0.0004
Cost Focus	-0.5350 <i>0.9437</i>	0.1293 <i>0.9417</i>	0.3095 <i>1.0252</i>	0.4384
Numbers of Businesses (n=174)	130	37	7	

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

8.3.2 Description of Identified Strategic Groups

The multivariate analysis (described above) identified three strategic groups: *Opportunists*, *Production Orientation* and *Differentiators*. The characteristics of the three groups are detailed below and the cluster features are illustrated in Figure 8.1.

1. *Opportunist Strategy*

The first cluster represents the majority of the sample, 130 farmers accounting for 74.71%. Members appear to plan their production to a limited degree to coincide with seasonal fluctuations and monitor market prices. However, whilst they perceive that they meet consumer and retail expectations, they have a low level of market knowledge in terms of detailed market requirements and the costs associated with production. In addition, members have a reasonable knowledge of distribution and a level of off-farm activity which may suggest that: they sell to a large number of market outlets; are continually looking for new market opportunities; and are likely to weigh up the costs and returns of selling to different outlets in order to maximise returns. It may be likely that these members produce carcasses meeting minimum market requirements. This may provide an explanation why they may be opportunist in varying their channel utilisation to gain short-term price advantages. This group may view sheep production as a minor enterprise associated primarily with a grass management function providing additional income to the overall enterprise. Whilst there may a degree of off-farm marketing involvement, it is likely that in terms of sheep production, members view marketing as a selling function.

2. *Production Strategy*

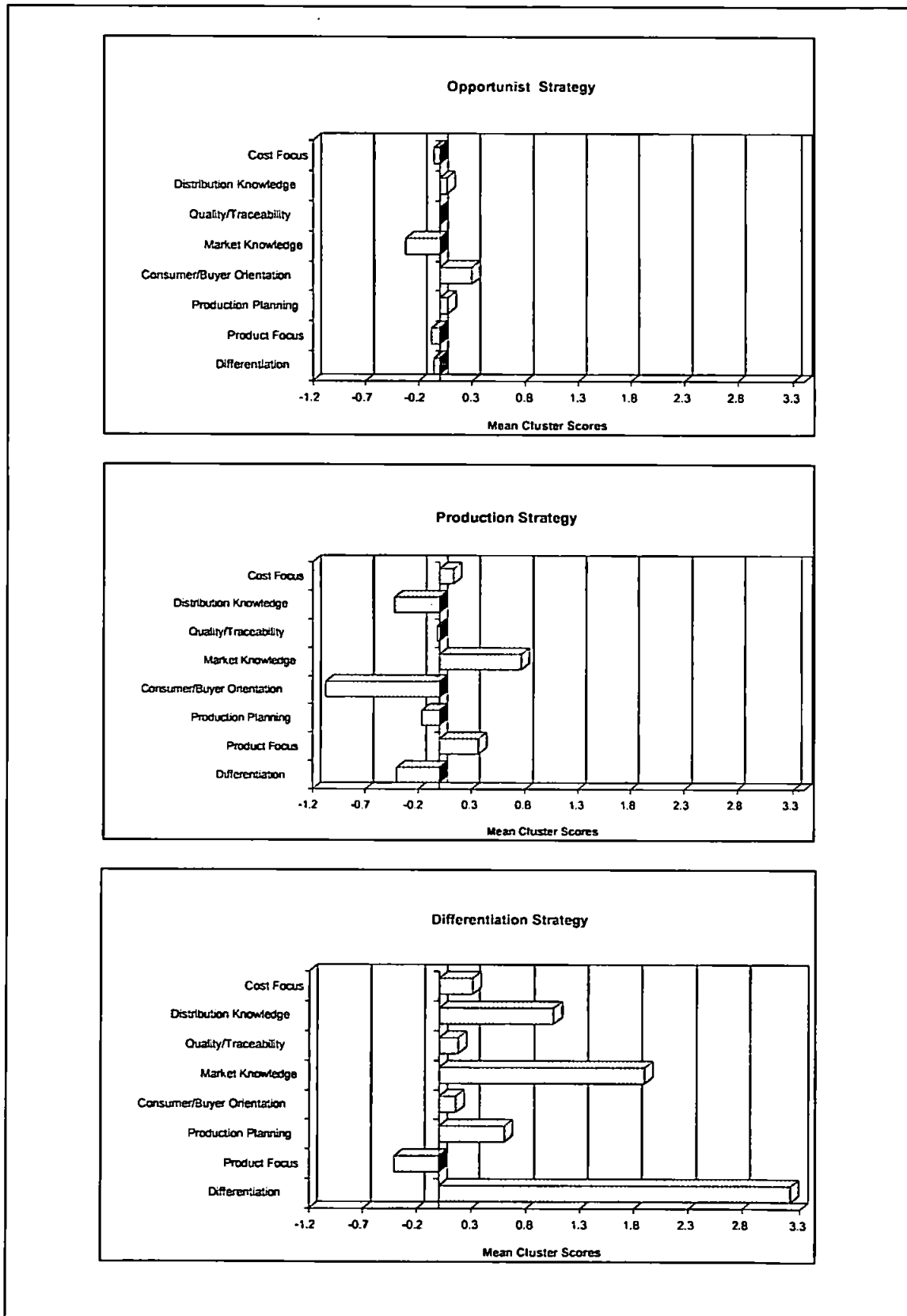
This group accounts for 37 farmers and represents 21.27% of the sample. Farmers in this group score highly on market knowledge, product focus and cost focus. This suggests that they perceive that most profit is accrued by implementing a cost

efficient production strategy by adapting their production techniques to meet detailed market requirements. However, low scores on distribution knowledge, consumer and buyer orientation, and production planning suggest that they are unconcerned with seeking out new market outlets, involving themselves in off-farm marketing activities or planning production with regard to price monitoring or seasonal fluctuations. This would suggest a production orientation approach and may indicate they seek simplicity in their marketing arrangements viewing the farm gate as the boundary of the business.

3. *Differentiation Strategy*

Differentiators are members of the smallest group accounting for only 7 farmers which represents 4.02%. Members score significantly higher than other firms on the dimensions relating to differentiation, suggesting that they produce niche livestock, believe that their main competitors are small specialist producers, and are likely to be involved in other added value activities. In addition, they score positively on all the remaining dimensions with the exception of product focus, they may not deem this to be important as the production techniques used provide the attributes required by the marketplace. The remaining dimensions suggest that they are likely to employ a planned cost efficient production strategy taking into account what is happening in the marketplace. In other words, they meet the requirements sought by the market place in terms of carcass conformation; understand the need for quality and traceability to increase business success, plan production by continually monitoring market prices and seasonal fluctuations; and are also aware of exploiting marketing opportunities by continually seeking new marketing opportunities. It is more than likely that these members see the farm business as extending beyond the farm gate and view sheep production as an integral part of the farm business.

Figure 8.1 Strategic Dimensions Associated with the Clustered Strategic Groups



8.4. Stage 3 **Assessing the Discriminatory Power of the Identified Strategic Variables using Discriminant Analysis**

A further evaluation of the eight underlying strategic dimensions (*market knowledge, production planning, product focus, consumer and buyer orientation, distribution knowledge, differentiation, quality and traceability* and *cost focus*) was conducted to assess how accurately they could predict and discriminate between group membership. A high level of predictive accuracy would indicate that a reasonable level of discrimination had been achieved and would signify confidence in the three cluster solution.

A stepwise discriminant analysis (outlined in Chapter 6) was conducted on 174 cases. The discriminating power of the variables, as previously mentioned, were evaluated by: (a) Wilk's lambda, (b) variance explained, I^2 , and (c) percentage correctly classified.

The procedure met the required assumptions and the Box's M test statistic was evaluated to test the null hypotheses of the equality of covariance matrices across the three groups. There was no evidence of departure from the null hypothesis (Box's M = 112.55, approx. F = 1.96; $df = 883.6$, $p > 0.05$; Hair *et al* 1998).

8.4.1 Results of Discriminant Analysis

Three predictor variables, *quality and traceability focus, production planning* and *cost focus*, were dropped from the analysis during the stepwise procedure as they failed the tolerance test (i.e. were independent of the other variables within the model and thus did not contribute to the prediction of cluster membership). This was not unexpected, since the F-ratio (Table 8.4) indicated that there were no significant differences between these variables in the identified clusters. The five remaining

predictors significantly discriminated across the three strategic groups ($\Lambda = 0.14$, $\chi^2 = 332.27$, $df = 10$, $p < 0.0001$); Table 8.5).

Table 8.5 Stepwise Discriminant Functions

<i>Function</i>	<i>Eigenvalue</i>	<i>Percentage of Variance</i>	<i>Canonical Correlation</i>	Λ	χ^2	<i>Significance</i>
1	1.79	53.67	0.80	0.140	332.27	$p < 0.0001$
2	1.55	46.33	0.78	0.391	158.35	$p < 0.0001$

The remaining predictors discriminated significantly across the three strategic groups after partialling out the effects of the first discriminant function (residual $\Lambda = 0.391$, $\chi^2 = 158.35$, $df = 4$, $p < 0.0001$). In addition, high eigenvalues indicated a satisfactory level of discrimination. On this basis both functions could be interpreted.

The total amount of variance explained by the first function for differences between the groups accounts for 53.67% of variance with the second function accounting for 46.33%. Furthermore, the five predictors acting as a set possess relatively large discriminatory power (I^2 explains 86.73% of the variance in the clusters).

The interpretation of the overall discriminant model was evaluated by examining the standardised discriminant function coefficients and group centroids (Table 8.6) of the five predictor variables.

Table 8.6 Summary of Standardised Discriminant Function Coefficients and Group Centroids

<i>Predictor Variables</i>	Discriminant Function¹	
	<i>1</i>	<i>2</i>
Consumer & Buyer Orientation	-0.059	0.739
Differentiation	0.984	0.329
Distribution Knowledge	0.383	0.438
Market Knowledge	-0.654	0.952
Product Focus	-0.125	-0.386
<i>Group Centroids</i>		
Opportunist	-0.355	0.638
Production	0.027	-2.377
Differentiation	6.449	0.704

¹Coefficients greater than 0.3, in **boldface**, are deemed significant.
(Hair *et al* 1998)

As can be seen from Table 8.6, *Differentiation* (0.984), dominated the first discriminant function. Examination of the group centroids suggests that this function appeared to discriminate between *differentiation* strategy (mean 6.450) and the other two groups (means -0.355 and 0.0267) *i.e. differentiators* are involved in a level of differentiation.

The second function is dominated by two variables: *market knowledge* and *consumer & buyer orientation*; examination of the group centroids suggests that this function discriminated between Opportunist (mean 0.638) and Production strategies (mean - 2.377) *i.e. production* members are more likely to have a greater level of market knowledge and than *opportunists*.

To aid interpretation the group centroids and discriminate functions are displayed graphically in Figure 8.2.

Figure 8.2 Group Centroids in Attribute Discriminant Space with Territorial Map Overlay

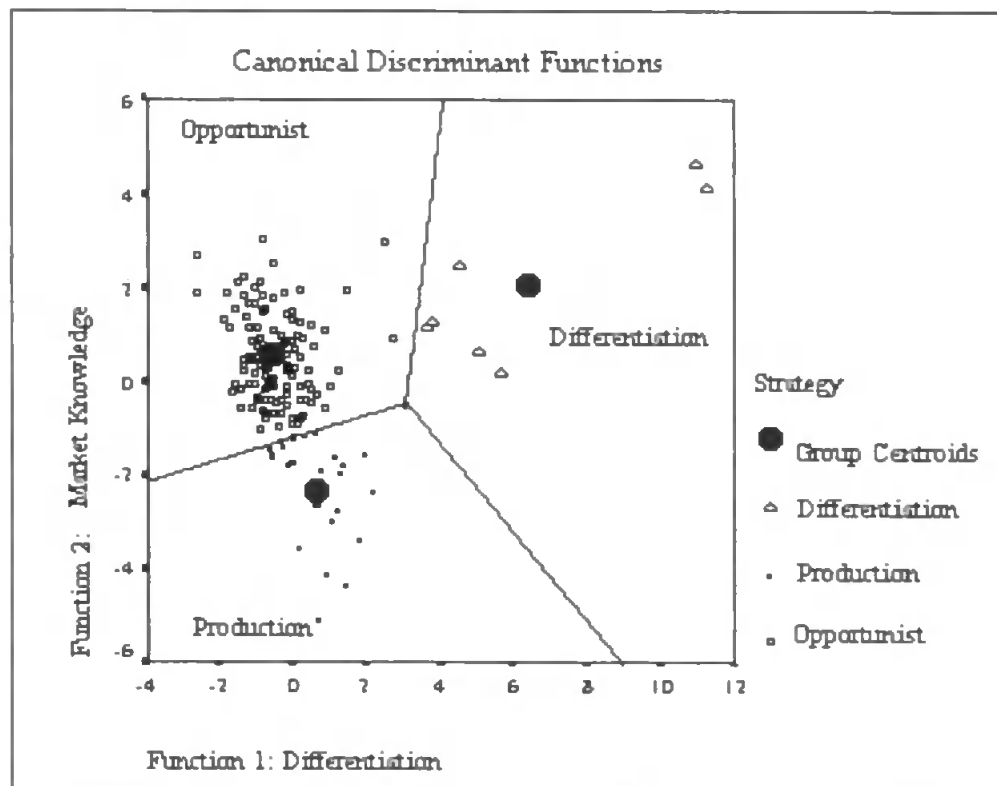


Figure 8.2 clearly shows that discrimination has been achieved. Interpretation of the standardised coefficients suggest that first function might represent a Differentiation dimension while the second function might represent a Market Knowledge dimension.

A further evaluation of the variables was conducted to assess which variables contributed the most discriminatory power in prediction of cluster membership by partitioning out the variance of the overall I^2 contribution of each predictor variable to the overall criterion prediction of 86.73%. The individual contributions made by the predictor variables totalled 59.95%; the remaining 40.05% indicated the interaction between the variables in predicting membership (Table 8.7). Within the individual contribution percentages *differentiation* (21.18%) made the greatest contribution (which dominated the first discriminant function). *Consumer and buyer*

orientation and *market knowledge*, that dominated the second discriminant function, were the next best predictors at 16.52% and 14.44%, respectively. Small contributions were made by the two remaining predictors.

Table 8.7 Variance Partitioning of Strategic Variables

<i>Predictor Variables (Strategic Dimensions)</i>	<i>I²</i>	<i>Contribution</i>	<i>% Contribution</i>
Total Set of Variables	0.8673		
Differentiation	0.6781	0.189	21.81
Market Knowledge	0.7240	0.143	16.52
Consumer & Buyer Orientation	0.7421	0.125	14.44
Distribution Knowledge	0.8328	0.035	3.98
Product Focus	0.8427	0.025	2.84
<i>Total</i>		<i>0.517</i>	<i>59.95</i>

¹Based on Peterson and Mahajan (1976). Computed as follows (N is the number of observations, K is the number of groups and λ_i is the *i*th eigenvalue.

$$I^2 = \frac{N}{(N - k)(1 + \lambda_1)(1 + \lambda_2) + 1}$$

² For example: the unique contribution of a predictor variable is equal to $I^2_{1-5} - I^2_{1-4}$ which would give the contribution of variable 5.

³ The percentage of contribution of a variable is the contribution as a percentage of the overall I^2 e.g. 0.189 of 0.8673 = 21.81%.

The predictive accuracy of the discriminant model was again evaluated using a random split reliability test. The predictive validity of the discriminant functions were supported by a number of tests (summarised in Table 8.8). The analysis and holdout samples scored 95.40% and 94.25%, respectively, thus outperforming both C_{max} and C_{pro} greater than the approximate 25% criterion suggested by Morrison (1969) and Hair *et al.* (1998). The overall sample hit ratio of 98.85% also exceeded this criterion. In addition, the classification matrix was statistically better than would be expected by chance (Press's Q statistic = 33.60, $p < 0.001$); thus confidence in the

predictive validity of the discriminant functions is supported. The classification results are reported in Table 8.8.

Table 8.8 Classification Results of Overall Discriminant Model.

Actual Strategic Group	No. of Businesses	Predicted Group Membership		
		<i>Opportunist</i>	<i>Product Focus</i>	<i>Differentiation</i>
Opportunist	130	130 (100%)	0 (0%)	0 (0%)
Production	37	2 (5.7%)	35 (94.3%)	0 (0%)
Differentiation	7	0 (0%)	0 (0%)	7 (100%)

Percentage correctly classified :

Analysis sample:	94.25%	
Hold out sample:	95.40%	
Overall Sample:	98.85%	
Cmax:	74.71%	
Cpro:	60.46%	
Press's Q	33.60	p<0.001

It is clear from the analysis that not only was discrimination achieved between the three identified groups but that the five predictor variables (underlying strategic dimensions) were able to predict cluster membership accurately thereby supporting the validity of the cluster analysis and signifying the stability of the three cluster solution.

8.5 Stage 4 Profiling of Strategic Groups

Profiling was undertaken using, as previously described, one-way analysis of variance and chi-square tests of independence of the farm and farmer characteristic variables. However, it should be noted that the *Differentiation* strategy only contained 7 members and thus it was not possible to include this group in the majority of chi-square tests (because of low expected values). Significant comparisons using these analyses could only identify differences between the other two groups; thus where chi-square was undertaken, in most cases, the *Differentiation* strategy characteristics are descriptive.

8.5.1 Age, Experience and Education

Age distribution (Table 8.9) was evenly matched between the two largest groups, no significance was detected, with the average falling in the 41-50 age category. The average age of *differentiators*' was slightly lower falling predominantly in the 31-40 age category. Consequently, the average level of farming experience for the two largest groups fell into the 21-30 year category, whilst *differentiators* fell into the 11-20 year category (Table 8.10).

Table 8.9 Association between Age by Strategic Group

<i>Strategic Group</i>	<i>Age (years)</i>					
	< 30 %	31-40 %	41-50 %	51-60 %	61-70 %	70+ %
Opportunist	0.8	24.6	23.1	29.2	17.7	4.6
Production	0.0	24.3	24.3	29.7	18.9	2.8
<i>n=167</i>						
Absolute Values: $df=3$, $\chi^2=0.785$, $P > 0.05$ (χ^2 based on <40 years to > 61 years)						
Differentiation	14.3	42.9	14.3	28.6	0.0	0.0
<i>n=7</i>						

Table 8.10 Association between Experience by Strategic Group

<i>Strategic Group</i>	<i>Livestock Farming Experience (Years)</i>			
	<i>< 10</i> %	<i>11-20</i> %	<i>21-30</i> %	<i>>30</i> %
Opportunist	21.5	27.7	21.5	29.3
Production	24.3	16.2	24.3	35.2
<i>n=167</i>				
Absolute Values: $df= 3, \chi^2=0.952, P > 0.05$				
Differentiation	14.3	57.1	0	28.6
<i>n=7</i>				

Intergroup differences were observed between the level of education and the two largest groups (Table 8.11). *Opportunist* members were strongly associated with secondary education (55.45%) and less likely to have received higher education. *Production orientation* members, in contrast, were strongly associated with higher education (37.8%) and slightly less likely to receive secondary only education, in addition there was a higher proportionate percentage of *production* orientated members associated with further and higher education (51.3%) compared to *opportunists* (33.1%)

Table 8.11 Association between Education by Strategic Group

<i>Strategic Group</i>	<i>Level of Education</i>			
	<i>Secondary</i> %	<i>A Levels</i> %	<i>National Diploma</i> %	<i>Higher Education¹</i> %
Opportunist	55.4	11.5	16.9	16.2
Production	40.5	8.2	13.5	37.8
<i>n=167</i>				
Absolute Values: $df= 3, \chi^2= 8.20, P < 0.05$				
Differentiation	14.3	14.3	14.3	57.1
<i>n=7</i>				

¹ Higher education: HND, Degree or Postgraduate qualification

Differentiation members indicated a proportionally higher percentage associated with higher education at (57.1, n=4) than the other three categories that each included only one respondent.

8.5.2 Time Spent Off Farm Engaged in Farm and Non-Farm Related Activities

The farm related activity category (Table 8.12) revealed that *opportunists* were strongly associated with a level of off-farm marketing activity i.e. only 25.4% indicating no off-farm related involvement. In contrast, *production* members were strongly associated with little or no off-farm related involvement; *differentiators* indicated a high level of off-farm related activity with 57.1% of members indicating 4+ days per month pursuing these activities. Furthermore, *differentiators* were more likely to have positions of responsibility with farming organisations compared to both *production* and *opportunist* members (Table 8.14).

Table 8.12 Association between Time Spent Off Farm - Farm Related Activities by Strategic Group

<i>Strategic Group</i>	<i>Farm Related Activities (Days per month)</i>				
	<i>0</i> %	<i>1</i> %	<i>2</i> %	<i>3</i> %	<i>4+</i> %
Opportunist	25.4	24.6	24.6	6.9	18.5
Production	51.4	24.3	13.5	5.4	5.4
<i>n=167</i>					
Absolute Values: df= 4, $\chi^2=11.09$, P < 0.05					
Differentiation	0.0	14.3	14.3	14.3	57.1
<i>n=7</i>					

No association with non-farm related activities were detected with all groups indicating low levels of activity (Table 8.13). In addition, all groups indicated low levels of involvement with the ownership of non-farm related businesses (Table 8.14).

Table 8.13 Association between Time Spent Off Farm - Non - Farm Related Activities by Strategic Group

<i>Strategic Group</i>	<i>Non Farm Related Activities (Days per month)</i>				
	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4+</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Opportunist	78.5	3.8	3.8	0.8	13.1
Production	86.5	2.7	0.8	1.9	8.1
<i>n=167</i>					
Absolute Values: $df= 4, \chi^2=3.25, P > 0.05$					
Differentiation	71.4	0.0	0.0	14.3	14.3
<i>n=7</i>					

Table 8.14 Association between Positions of Responsibility in Farming Organisation and Ownership of Non - Farm Business by Strategic Group

<i>Strategic Group</i>	<i>Farming Organisation or Other¹</i>		<i>Non Farm Business Owned²</i>	
	<i>None</i>	<i>Responsibility</i>	<i>None</i>	<i>Responsibility</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Opportunist	85.4	14.6	95.4	4.6
Production	97.3	2.7	94.6	5.4
Differentiation	42.9	57.1	71.4	28.6
<i>n=174</i>				

¹ Absolute Values: $df= 2, \chi^2= 14.96, P < 0.001$

² Descriptive: Low expected values

8.5.3 Membership of Group Marketing and Farm Assured British Beef and Lamb Schemes (FABBL)

The results revealed that *production* members were strongly associated with both Group Marketing Schemes and FABBL membership at 54.1% with a further 32.4% indicating FABBL only membership (Table 8.15). *Opportunist* members, however, were more likely to be associated with non-membership of any scheme, with over a third of members indicating non-membership. *Differentiators* indicated that they were either a member of FABBL or GMS/FABBL at 28.6% and 71.4%, respectively.

This would suggest that both *production* and *differentiators* are associated with a level of vertical co-ordination and that channel utilisation will be affected as a result.

Table 8.15 Relationship between Group Marketing Membership by Strategic Group

<i>Strategic Group</i>	<i>Group Marketing Membership</i>		
	<i>Non Member</i>	<i>FABBL Only</i>	<i>FABBL & GMS¹</i>
	%	%	%
Opportunist	38.5	27.7	33.8
Production	13.5	32.4	54.1
<i>n=167</i>			
Absolute Values: $df=2, \chi^2=8.73, P<0.05$			
Differentiation	0.0	28.6	71.4
<i>n=7</i>			

¹ Group marketing schemes defined as members belonging to producer groups and/or co-operatives. It should be noted that retail led producer schemes dominate this category with only 8.9% of the sample indicating co-operative membership.

8.5.4 Farming Areas

Intergroup differences between *production* and *opportunist* members were detected (Table 8.16). It appeared that *production* members were more likely to be associated with small and medium farms (<40ha and 41-80ha) at 35.1% and 24.3%, respectively. In contrast *opportunists* were associated with medium-large farms (81-120ha) at 36.9% and far less likely to be associated with small farms at 6.9%. *Differentiators* were shown to be predominantly associated with large farms (121+ha) at 71.4%. No significant differences were detected in terms of land tenure with the majority of holdings being owned (> 95%). Whilst there was a level of leased and rented land no significant group differences were detected. *Opportunists* indicated an average of 35.65ha and 0.5ha for leased and rented out land whilst *production* members indicated 29.94ha and 0.62ha and *differentiators* 25.43ha and 0.0ha, respectively.

Table 8.16 Relationship between Farm Size by Strategic Group

<i>Strategic Group</i>	<i>Farm Size(ha)</i>			
	<40 %	41-80 %	81-120 %	121+ %
Opportunist	6.9	26.2	36.9	30.0
Production	35.1	24.3	18.9	21.6
<i>n=167</i>				
Absolute Values: $df=3, \chi^2=9.229, P < 0.05$				
Differentiation	14.3	14.3	0.0	71.4
<i>n=7</i>				

With regard to quota transfers, no differences were detected in relation to quota leased in to the farm business. However, differences were observed in relation to quota transfers leased out (Table 8.17). *Differentiators* appeared to rent out far more quota compared to the other two groups. As can be seen in Table 8.18, *differentiators* indicate a high proportion of large flock sizes. Since quota was originally based on historical production, it could be assumed that these members initially received high quota allocations giving them the opportunity of leasing out quota to provide additional revenue as they make adaptations to their enterprise mix.

Table 8.17 Results of Leased Out Quota Anova by Strategic Group

<i>Leased Quota</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Opp</i>	<i>2 Prod</i>	<i>3 Diff</i>	
Units Leased	10.061 ^a 35.901	14.865 ^b 75.337	85.714 ^{a,b} 89.671	0.0095

Significant differences were detected in relation to flock sizes, Table 8.18. *Opportunists* were associated with small flocks (150-299) at 49.2% whilst *production* members were strongly associated with medium sized flocks (300-499) at 51.4%. This would suggest that *opportunists* view sheep production as a complementary

grazing function, whilst *production* members may view sheep production as the primary enterprise. In contrast, *differentiators* indicated a high proportion in the 500+ category at 71.4% and the remainder in the 150-299 category. However, as previously mentioned this group was also associated with large farms.

Table 8.18 Relationship between Flock Size by Strategic Group

<i>Strategic Group</i>	<i>Flock Size</i>		
	<i>150-299</i> %	<i>300-499</i> %	<i>500+</i> %
Opportunist	49.2	30.0	20.8
Production	21.6	51.4	27.0
<i>n=167</i>			
Absolute Values: $df=2$, $\chi^2=9.382$, $P < 0.01$			
Differentiation	28.6	0.0	71.4
<i>n=7</i>			

In terms of land allocation further intergroup differences were observed (Table 8.19). *Production* members were associated with a higher percentage of land allocation to the sheep enterprise compared to *opportunists*. As good grazing management is one of the most important factors influencing sheep flock profitability and this would suggest that *production* members (compared to *opportunists*) choose to optimise grass management potential as part of their planned cost efficiency strategy. Examination of *differentiators* suggests that they follow the same policy as *production* members, with 42.9% indicating a high land allocation of 76%+ and a further 28.6% indicating 51-75%.

Table 8.19 Relationship between The Percentage Of Total Land Allocated To Sheep Production by Strategic Group

<i>Strategic Group</i>	<i>Land Allocation (% of total area farmed)</i>			
	<i>1-25%</i> <i>%</i>	<i>26-50%</i> <i>%</i>	<i>51-75%</i> <i>%</i>	<i>76+%</i> <i>%</i>
Opportunist	21.5	49.2	20.1	9.2
Production	8.1	13.5	51.4	27.0
<i>n=167</i>				
Absolute Values: $df=3, \chi^2=10.402, P < 0.05$				
Differentiation	14.3	14.3	28.6	42.8
<i>n=7</i>				

8.5.5 Sheep Finishing and Carcase Conformation Attributes

Opportunists were associated with poorer quality carcase attributes, 21.5% (OP, 3H-5) and Unknown at 26.2%, although this group was capable of producing high (EU, 1-2) and average (R, 3L) quality at 16.9% and 35.4%, respectively (Table 8.20). In contrast, *production* members were more likely to produce both high and quality carcase attributes at 29.7% and 54.1%, respectively. *Differentiators* indicated that carcase attributes produced were relatively evenly distributed between high and average at 42.86% and 57.14%, respectively. This would suggest that both *production* and *differentiation* members consistently produce carcase attributes sought by the market place.

Table 8.20 Relationship between Carcase Grading by Strategic Group

<i>Strategic Group</i>	<i>Carcase Grading</i> ¹			
	<i>Unknown</i> %	<i>EU, 1-2</i> %	<i>R, 3L</i> %	<i>OP, 3H-5</i> %
Opportunist	26.2	16.9	35.4	21.5
Production	10.8	29.7	54.1	5.4
<i>n=167</i>				
Absolute Values: $df=3, \chi^2=12.083, P < 0.01$				
Differentiation	0.0	42.86	57.14	0.0
<i>n=7</i>				

¹ Based on the MLC grading system whereby: carcasses in EU, 1-2 categories attract price premia; R, 3L attract base price and OP, 3H-5 attract price penalties.

8.5.6 Financial Characteristics

Information gathered on the level of debt servicing revealed that all groups had a proportion of debt, although no significant differences were detected. The average for all groups being in the 10-19% category.

Intergroup differences were observed for the level of income derived from sheep production (Table 8.21). *Production* members were strongly associated with a high proportion of income derived from sheep production and were more likely to be associated with income in the 50-69% and 70%+ bands at 35.1% and 24.3%, respectively. In contrast, *opportunists* were more likely to be associated with income levels between 0-49% bands whilst *differentiation* members indicated income levels predominantly between 0-49%. This suggests that both *differentiators* and *opportunists* view sheep production as being complementary to the overall enterprise whilst *production* members are more likely to view sheep production as the main enterprise of the farm business.

Table 8.21 Relationship between Farm Income derived from Sheep Production by Strategic Group

<i>Strategic Group</i>	<i>Farm Income</i>			
	<i>0-24%</i> <i>%</i>	<i>25-49%</i> <i>%</i>	<i>50-69%</i> <i>%</i>	<i>70% +</i> <i>%</i>
Opportunist	31.6	49.2	10.0	9.2
Production	24.3	16.2	35.1	24.3
<i>n=167</i>				
Absolute Values: $df=3, \chi^2=7.938, P < 0.05$				
Differentiation	28.6	42.8	28.6	0.0
<i>n=7</i>				

With regard to overall financial performance, no differences were observed between the two largest groups (Table 8.22), both indicating a high proportion in relation to (perceived) average performance (compared to other farmers) at 79.3% and 70.3% respectively. However, unlike the other two groups, *differentiators* perceived their performance to be either average or above average.

Table 8.22 Relationship between Financial Performance by Strategic Group

<i>Strategic Group</i>	<i>Financial Performance</i>		
	<i>Below Average</i> <i>%</i>	<i>Average</i> <i>%</i>	<i>Above Average</i> <i>%</i>
Opportunist	6.9	79.3	13.8
Production	8.1	70.3	21.6
<i>n=167</i>			
Absolute Values: $df=3, \chi^2=1.474, P > 0.05$			
Differentiation	0.0	57.1	42.9
<i>n=7</i>			

8.5.7 Miscellaneous Marketing Characteristics

Eight variables, which were not included in the cluster analysis, were examined to ascertain their importance: profit maximisation, animal welfare, quality, price influence, overseas influence, the influence of CAP, and risk. The results of the ANOVA's are presented in Table 8.23.

Table 8.23 Results of Miscellaneous Marketing Characteristic ANOVA's

<i>Miscellaneous Characteristics</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Opp</i>	<i>2 Prod</i>	<i>3 Diff</i>	
Profit Maximisation ¹	4.215 <i>0.767</i>	4.108 <i>1.021</i>	3.571 <i>1.272</i>	0.1135
Animal Welfare ²	4.359 <i>0.767</i>	4.162 <i>1.068</i>	4.429 <i>0.786</i>	0.2111
Quality ³	2.000 ^{a,b} <i>0.943</i>	2.485 ^{a,c} <i>0.998</i>	3.429 ^{b,c} <i>1.511</i>	0.0012
Price Influence ⁴	3.703 ^{a,b} <i>1.450</i>	3.177 ^{a,c} <i>1.266</i>	2.427 ^{b,c} <i>1.133</i>	0.0237
Overseas Producers ⁵	1.892 ^a <i>1.222</i>	1.891 ^b <i>1.242</i>	3.143 ^{a,b} <i>1.676</i>	0.0359
CAP ⁶	4.221 ^a <i>0.976</i>	4.216 ^b <i>1.004</i>	3.143 ^{a,b} <i>1.069</i>	0.0194
Risk ⁷	3.662 ^a <i>1.031</i>	3.108 ^{a,b} <i>1.100</i>	4.000 ^b <i>1.155</i>	0.0109
Channel relationship ⁸	1.014 ^a <i>0.123</i>	3.428 ^{a,b} <i>1.336</i>	1.567 ^b <i>0.113</i>	0.0001

¹ Maximising profits is my most important farming goal

² High animal welfare standards are important to my production methods

³ I produce livestock which are a different quality than those produced by other farmers

⁴ I have no influence over the price I receive for my produce

⁵ I am not in competition with overseas producers

⁶ The CAP has a most important influence over my farm profitability

⁷ I adapt my enterprise mix to minimise risk

⁸ I deal with a minimum number of marketing outlets so that I can maintain a good relationship with these channel members

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

Intergroup differences were detected in six out of the eight variables. Profit maximisation was deemed important by all three groups but no significant differences were observed, similar observations were made for animal welfare standards.

The production of livestock that group members perceived to be of a different quality was found to be of increased importance to the *differentiation* group. As previously mentioned, this illustrates that members of this group believe that it can differentiate its product by producing niche stock or adding value and thus produce a different quality of livestock that the other two groups can not achieve. Consequently, *differentiation* members may believe that they can influence the price attained for this to a greater degree than the other two groups since they are involved in added value activities. This may provide a reason as to why they feel that the influence of overseas producers (i.e. imports) and CAP are less important in terms of their marketing mix since they may sell via farm shops or their own developed markets compared to the other two groups. This would suggest that *differentiators* may believe under the right circumstances they can *price make* to a limited degree whilst the other two groups would appear to be *price takers*. Indeed, cross tabulation revealed that the majority of *opportunist* and *production* members (83.9% and 72.3%, respectively) believed that they achieved average prices (compared to other farmers) whilst 57.14% of *differentiators* believed that they achieved above average prices .

In addition, both *differentiators* and *opportunists* indicated that they adapted their enterprise mix to minimise risk compared to *production* members suggesting that they may have a greater degree of business flexibility attributable to access to greater resources. As previously mentioned, this may be because these two groups are less reliant on the sheep production as the main enterprise.

In terms of channel relationships, production orientated members appeared far more likely, compared to the other two groups, to want to maintain good relationships with channel members and thus minimise the number of channels used.

8.5.8 Information Gathering Activities

Results of the intergroup analysis of the sources and types of information are presented in Tables 8.24 and 8.25 ranked by decreasing level of importance for each group.

Table 8.24 Information Sources Ranked by level of Importance by Strategic Group

<i>Opportunist Strategy</i>		<i>Production Orientation Strategy</i>		<i>Differentiation Strategy</i>	
My own records	3.78	My own records	4.11	My farm budget	4.14
Agricultural journals	3.54	My farm budget	4.00	My own records	3.86
Other farmers	3.27	Agricultural journals	3.43	Family members	3.71
My farm budget	3.25	Other farmers	3.14	Agricultural journals	3.71
Land Agents	3.10	Land Agents	3.08	Radio/television	3.43
Family members	2.94	Family members	3.03	Land Agents	3.14
Abattoir agents	2.93	My accountant	3.02	Other farmers	3.14
NFU	2.74	NFU	2.76	Farmer group meeting	3.00
Farmer group meeting	2.66	Trade literature	2.66	My accountant	3.00
Trade literature	2.65	Newspapers	2.43	MLC	3.00
My accountant	2.63	Radio/television	2.41	Newspapers	2.86
Newspapers	2.53	Producer group info	2.32	NFU	2.86
Producer group info	2.47	Abattoir agents	2.32	My bank manager	2.86
Radio/television	2.44	Livestock dealers	2.24	Trade literature	2.86
MLC	2.43	Farmer group meeting	2.16	Livestock dealers	2.43
Livestock dealers	2.32	My bank manager	1.83	Producer group info	2.43
My bank manager	2.15	Feed company reps	1.73	Abattoir agents	2.29
Feed company reps	1.85	MLC	1.32	Feed company reps	1.86

Table 8.25 Information Types Ranked by level of Importance by Strategic Group

<i>Opportunist Strategy</i>		<i>Production Orientation Strategy</i>		<i>Differentiation Strategy</i>	
Local livestock price	4.32	Local livestock price	4.27	Financial	4.43
UK livestock price	3.85	UK livestock price	3.65	Management practices	4.00
Animal diseases	3.72	Management practices	3.59	Local livestock price	3.88
Financial	3.45	Animal diseases	3.49	UK livestock price	3.84
Management practices	3.29	Financial	3.46	Production techniques	3.71
Consumer info	3.15	Production techniques	3.31	Consumer info	3.71
Production techniques	2.89	Quality premiums	3.29	Animal diseases	3.43
Quality premiums	2.81	Consumer info	2.70	Quality premiums	3.00
Producer group info	2.32	Producer group info	2.36	Producer group info	2.86
Overseas prices	2.16	Overseas prices	1.57	Overseas prices	2.14

The results suggest that the information gathering activities that farmers perceive to be important do not appear to change a great deal according to strategic group membership. *Differentiators* access a marginally wider range of information sources compared to *production* and *opportunist* members. Similar observations were noted in relation to information types. It was thus not surprising that few intergroup significant differences were actually detected (Table 8.26).

Table 8.26 Results of ANOVA's for Information Types and Sources by Strategic Group

<i>Information Type</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Opp</i>	<i>2 Prod</i>	<i>3 Diff</i>	
Farm Budget	3.246 ^{a,b} <i>1.282</i>	4.000 ^a <i>1.027</i>	4.143 ^b <i>0.899</i>	0.0016
Abattoir Agents	2.324 ^a <i>1.226</i>	2.931 ^{a,b} <i>1.234</i>	2.286 ^b <i>1.254</i>	0.0189
<i>Information Source</i>				
Consumer info	3.146 ^{a,b} <i>0.957</i>	2.702 ^{a,c} <i>1.102</i>	3.714 ^{b,c} <i>1.113</i>	0.0142

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

Results of the ANOVA revealed that both *differentiators* and *production* members perceive farm budget information to be of greater importance than *opportunists*,

reinforcing the argument that both these groups follow planned cost efficient strategies. However, *production* members perceived abattoir information to be of greater importance than the other two groups. Furthermore, consumer information was deemed to be more important by *differentiators* and *opportunists* than *production* members suggesting that they have a greater degree of off-farm marketing orientation. However, whilst similarities exist, the way in which information is utilised may vary according to group membership.

8.6 Market Channel Utilisation

This section profiles channel selection by strategic group and examines choice criteria in relation to channel selection .

8.6.1 Channel Selection by Strategic Group

Significant intergroup differences between the two larger groups were detected (Table 8.27). The results illustrate that *production* members were strongly associated with GMS (40.5%) and far less likely to utilise LMARKET (10.8%), and were slightly less likely to utilise either MULTI-GMS (13.5%) or MULTI-LM (16.2%). In contrast, *opportunists* were associated with LMARKET and MULTI-LM at 26.9% and 25.4%, respectively and less likely to utilise GMS (10.8%). *Differentiators* indicated a high percentage associated with MULTI-GMS (71.4%) with the remainder utilising MULTI-LM (28.6).

Table 8.27 Relationship between Channel Utilisation by Strategic Group

<i>Strategic Group</i>	<i>Distribution Channel</i>				
	<i>LMarket %</i>	<i>GMS %</i>	<i>Abattoir %</i>	<i>Multi-LM %</i>	<i>Multi-GMS %</i>
Opportunist	26.9	10.8	16.2	24.6	21.5
Production	10.8	40.5	18.9	16.3	13.5
<i>n=167</i>					
Absolute Values: $df=4, \chi^2=20.037, P < 0.001$					
Differentiation	0.0	0.0	0.0	28.6	71.4
<i>n=7</i>					

Analysis of single channel versus multi-channel utilisation (Table 8.28) revealed that *production* members were strongly associated with single channel utilisation (70.3%), whilst no association was detected for *opportunist* members. In addition, analysis of channel flexibility (Table 8.29) revealed that both *opportunists* and *differentiators* utilised more channels compared to *production* members. This would suggest that *production* members appear to seek simplicity in their marketing arrangements compared to the other two groups and are comfortable with existing distribution arrangements.

Table 8.28 Relationship between Single Channel and Multi-Channel Utilisation by Strategic Group

<i>Strategic Group</i>	<i>Distribution Channel</i>	
	<i>Single Channel %</i>	<i>Multi - Channel %</i>
Opportunist	53.8	46.2
Production	70.3	29.7
<i>n=167</i>		
Absolute Values: $df=1, \chi^2=3.871, P < 0.05$		
Differentiation	0.0	100.0
<i>n=7</i>		

Table 8.29 Results of Channel Flexibility ANOVA

<i>Marketing Channels</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Opp</i>	<i>2 Prod</i>	<i>3 Diff</i>	
Numbers of Marketing Channels Used	2.462 ^a <i>1.453</i>	1.403 ^{a,b} <i>0.845</i>	3.000 ^b <i>0.817</i>	0.0042

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

With regard to distance to selected channels, no significant differences were detected with the majority of farmers (> 72%) utilising channels within 0-80 km confirming that the region is well served by both the livestock market and abattoir sector.

8.6.2 Channel Utilisation and Carcase Attributes

Whilst carcase attributes and channel utilisation by strategic group identified significant differences, a further chi-square analysis was undertaken between carcase conformation attributes and channel selection to confirm whether carcase quality could be attributed to any particular channel utilised by the derived strategic groups (Table 8.30).

Table 8.30 Relationship between Carcase Conformation and Marketing Channels

<i>Channel</i>	<i>Carcase Grade</i>			
	<i>Unknown</i> %	<i>EU, 1-2</i> %	<i>R,3L</i> %	<i>OP, 3H-5</i> %
<i>LMARKET</i>	66.7	5.1	17.9	10.3
<i>GMS</i>	0.0	37.9	48.3	13.8
<i>ABATTOIR</i>	3.6	14.3	64.3	17.8
<i>MULTI-LM</i>	23.7	18.4	42.1	15.8
<i>MULTI-GMS</i>	5.0	30.0	37.5	27.5

n=174

Absolute values: $df=12$, $\chi^2 = 76.019$, $P < 0.001$

The results revealed significant differences. LMARKET was strongly associated, as might be expected, with Unknown grading attributes (66.7%) and far less likely to be associated with any of the quality grading attributes, suggesting that stock passing via this particular channel may be of a poorer quality than the other identified channels.

GMS was strongly associated with top quality (EU, 1-2) and average (R,3L) attributes at 37.9% and 48.3%, respectively. ABATTOIR was strongly associated with average quality at 64.3%. Interestingly within MULTI-GMS, there was a strong association with both top quality and poorer quality (OP, 3H-5) carcase attributes at 30% and 27.5%, respectively. This may suggest that farmers utilising this particular channel sell higher quality animals via GMS with the poorer quality passing through

the other channels. With regard to MULTI-LM there was a slight association with average quality at 42.1%, again it may suggest a similar scenario as MULTI-GMS.

8.6.3 Choice Criteria

The results of choice criteria factors (gathered on a five point Likert scale) ranked by decreasing level of importance are presented in Table 8.31.

Table 8.31 Choice Criteria by Strategic Group

<i>Opportunist Strategy</i>		<i>Production Strategy</i>		<i>Differentiation Strategy</i>	
Sale price	4.59	Sale price	4.51	Sale price	4.57
Higher expected returns	4.08	Convenience	4.00	Higher expected returns	4.14
Convenience	3.94	Speed of payment	3.73	Animal welfare	4.14
Animal welfare	3.91	Marketing costs	3.68	Your time	3.86
Marketing costs	3.68	Animal welfare	3.65	Grading uncertainty	3.71
Speed of payment	3.65	Higher expected returns	3.51	Quality of livestock	3.58
Transportation costs	3.52	Proximity to farm	3.49	Convenience	3.57
Price information	3.49	Price information	3.38	Bargaining strength	3.43
Proximity to farm	3.46	Your time	3.35	Marketing costs	3.29
Competitive bidding	3.42	Grading uncertainty	3.32	Access to pool of buyers	3.29
Grading uncertainty	3.42	Loyalty	3.16	Ability to withdraw stock	3.29
Quality of livestock	3.29	Transportation costs	3.14	Proximity to farm	3.29
Loyalty	3.28	Access to pool of buyers	3.14	Grading uncertainty	3.14
Your time	3.28	Bargaining strength	3.08	Speed of payment	3.14
Bargaining strength	3.15	Quality of livestock	3.57	Competitive bidding	3.00
Access to pool of buyers	3.09	Competitive bidding	2.78	Transportation costs	3.00
Ability to withdraw stock	2.92	Ability to withdraw stock	2.62	Loyalty	2.86
Social aspects	2.28	Contractual obligations	2.22	Social aspects	2.85
Contractual obligations	2.12	Social aspects	1.97	Experimenting with different channels	2.57
Experimenting with different channels	1.83	Experimenting with different channels	1.73	Contractual obligations	1.86

Initial examination of the rankings suggested that the factors perceived to be important did not vary greatly across the three groups. Further analysis confirmed this assumption, with only one factor being significant (Table 8.32).

Table 8.32 Results of Choice Criteria ANOVA

<i>Choice Criteria</i>	<i>Strategic Groups</i>			<i>P</i>
	<i>1 Opp</i>	<i>2 Prod</i>	<i>3 Diff</i>	
Higher expected returns	4.085 ^a <i>0.996</i>	3.513 ^{a,b} <i>1.426</i>	4.142 ^b <i>0.690</i>	0.0195

NB: within rows, means with similar superscripts differ significantly at $P < 0.05$. Means are reported in standard text with standard deviations in *italics*.

The result revealed that both *opportunists* and *differentiators* perceive that the channels they selected provided higher returns compared to *production* members. This was not surprising since *opportunists*, as previously mentioned, produce slaughter stock of variable quality and seek a large number and variety of channels to sell to in order to maximise short-term gains. *Differentiators*, in contrast, produce high quality or average slaughterstock possibly for a niche market and vary channel utilisation to maximise returns. Production members whilst producing stock sought by the marketplace, devote more of their time on production concerns and may view the marketing of their stock as a selling function and thus appear to seek simplicity in their marketing arrangements. However, whilst there are similarities in the choice attributes, the way in which they actually select channels may be associated with differing group profiles.

8.7 Summary

Members of each strategic group appear to operate their businesses in a distinctive manner and follow clearly defined, but seemingly different, business strategies which, as seen, have had significant impacts on channel utilisation. In addition, the characteristics of each group would appear to be consistent with their cluster profiles. It is likely that logical reasons exist as to why farmers pursue each strategy, including the possibility that individual farmers may have distinctive competencies or different business objectives from members of other strategic groups. A comparative thumbnail profile is presented in Table 8.33 and the results presented here are discussed in Chapter 9.

Table 8.33 Thumbnail Profile of Strategic Groups

<i>Opportunist Strategy</i>	<i>Production Strategy</i>	<i>Differentiation Strategy</i>
<p>Low level of differentiation Low product focus Production planning focus Low cost focus High consumer/buyer orientation focus Low level of market knowledge Low quality/ traceability focus Moderate distribution knowledge</p>	<p>Low level of differentiation High product focus Low production planning focus High cost focus Low consumer/buyer orientation focus High level of market knowledge Low quality/ traceability focus Low distribution knowledge</p>	<p>High level of differentiation Low product focus High production planning focus High cost focus High consumer/buyer orientation focus High level of market knowledge High quality/ traceability focus High distribution knowledge</p>
Av. Age 41-50, Av. Exp. 21-30 yrs	Av. Age 41-50, Av. Exp. 21-30 yrs	Av. Age 31-40, Av. Exp. 11-20 yrs
Strongly associated with secondary education	Strongly associated with higher education	Associated with higher education
Likely to be involved in off farm marketing activities	Less likely to be involved in off farm marketing activities	Associated with off farm marketing activities
Unlikely to have a position of responsibility with farming organisations	Unlikely to have a position of responsibility with farming organisations	More likely to have a position of responsibility with farming organisations
Less likely to be member of any scheme - low level of vertical co-ordination	More likely to be member of GMS high level of vertical co-ordination	Associated with GMS membership-high level of vertical co-ordination
Unlikely to be involved in non farm related business activities	Unlikely to be involved in non farm related business activities	Some involvement in non farm related business activities
Associated with medium-large farms (81-120 ha)	Associated with small & medium farms (<40ha & 41-80ha)	Associated with large farms (121+ha)
Flock size -strong association with small flock size (150-299)	Flock size -strong association with medium flock size (300-499) category	Flock size - high proportion in large flocks (500+)
Lees emphasis on optimisation of grass management potential	Optimise grass management potential	Optimise grass management potential
Strongly associated with poorer & unknown quality characteristics	Strongly associated with high & average quality carcass characteristics	Associated with high and average quality carcass characteristics
Lease out small amount of livestock quota	Lease out small amount of livestock quota	Lease out large amount of livestock quota
Associated with 0-49% income	Strongly associated with 70%+ income	Associated with 0-49% income
Complementary enterprise - grazing function	More likely to be the main enterprise	Complementary enterprise - integral to the farm business
Associated with average financial performance	Associated with average financial performance	Associated with average & above average financial performance
Profit maximisation important	Profit maximisation important	Profit maximisation important
High animal welfare standards important	High animal welfare standards important	High animal welfare standards important
Quality differentiation unimportant	High animal welfare standards important	Quality differentiation important
No influence over price-price taker	Quality differentiation less important	Can influence price- price maker
Overseas competition important	No influence over price-price taker	Overseas competition unimportant
CAP very important part of marketing mix	Overseas competition important	CAP less important part of marketing mix
Adapt enterprise to minimise risk important	CAP very important part of marketing mix	Adapt enterprise to minimise risk important
Make moderate use of information types in relation to monitoring of market signals (abattoir agents) and use of consumer information moderately important	Adapt enterprise to minimise risk less important	Make use of information sources in relation to production planning - farm budget and use of consumer information important
No association with any given channel and high channel flexibility varying channel utilisation - opportunistic	Make use of information sources in relation to production planning - farm budget	Associated with Multi- GMS and Multi-LM with high channel flexibility - multi-use
May view marketing as extending beyond the farm gate	Strongly associated with GMS, low channel flexibility and single channels- simplicity in marketing arrangements	Likely to view marketing as extending beyond the farm gate
<i>marketing a selling function</i>	Unlikely to view marketing as extending beyond the farm gate	<i>marketing a business function</i>
	<i>marketing a selling function</i>	

CHAPTER 9 DISCUSSION AND CONCLUSIONS

9.0 Substantive Findings

Discussions of the substantive findings are divided into three main sections. The first focuses on the description of the derived typologies. The second, on channel utilisation and transaction costs. The third, on the developed typologies¹⁸ in relation to existing agricultural and generic classifications.

9.1 Description of Derived Typologies

Robust predictive models have been established, building upon previous studies (Grieve and Young 1973, Mitchell 1976, MLC 1980, Crabbs 1993, Bromell 1994, Hobson 1997, McLeay *et al* 1996) and adapted methodologies (Peterson and Mahajan 1976, Punj and Stewart 1983, McLeay *et al* 1996). These predictive models have given rise to marketing typologies for both beef and sheep finishers. Discrimination between the groups with each typology was achieved, highlighting the contribution of each predictor variable and percentage of variance via partitioning. This revealed that discrimination was achieved by the level of differentiation, market and industry knowledge, and revealed some comparative differences between producers of both species.

¹⁸NB: Beef Typologies – selling orientation strategy (sellers), buyer focus strategy (buyer focus) and differentiation strategy (differentiators)
Sheep Typologies – opportunist strategy (opportunists), production strategy (producers) and differentiation strategy (differentiators)

There seems little doubt that members of the identified strategic groups appear to operate their businesses in a distinctive manner and follow clearly defined, but seemingly different business strategies, which significantly influence market channel utilisation. Furthermore, the characteristic profile of each identified group appears to be consistent with their cluster profiles. It is likely that logical reasons exist as to why farmers pursue their given strategies, such as the possibility that individual farmers have distinctive competencies or differing business objectives compared to members from other strategic groups. Sections 9.1.1 to 9.1.3 outline lowland beef typologies while sections 9.1.4 to 9.1.6 outlines lowland sheep typologies.

9.1.1 Selling Orientation Strategy (Sellers) - Beef

Members of the selling orientation strategy group appear to focus on sales rather than production concerns, producing livestock of poorer and more variable quality than other groups. They are thus limited in the number of channels to which they can sell. However, advantages appear to be gained by matching production to seasonal fluctuations to a limited degree, and also by continually monitoring local prices in order to chase short term advantages by selling to a large number of livestock market outlets. In terms of beef production, *sellers* do not appear to have any level of marketing orientation. It is likely that these members primarily view marketing as a selling function which provides additional income, as a complementary function, to the overall enterprise. It is thus unlikely that the marketing function extends beyond the farm gate.

9.1.2 Buyer Focus Strategy - Beef

Buyer focus group members, in contrast, appear to operate a cost-efficient production strategy with a high production focus producing livestock which meets market requirements in terms of carcase quality and traceability. They appear to place a greater emphasis on profit maximisation which is achieved through a greater understanding of what is happening in the market place. They are involved in off-farm marketing and are likely to hold positions of responsibility within farming organisations. The beef enterprise appears to be integral to the overall profitability of the farm business, even though it is more likely to be viewed as a secondary enterprise. As a result, these members appear to possess a high level of marketing orientation and place a greater emphasis on establishing preferred supplier relationships via group marketing schemes. These characteristics indicate a high level of vertical co-ordination. Consequently, this group is likely to view marketing as extending beyond the farm gate and, as such, is more likely to be viewed as a business function of the enterprise.

9.1.3 Differentiation Strategy (Differentiators) - Beef

Differentiators would appear to display more entrepreneurial skills than the other two groups, since they appear more likely to have: non-farm business involvement coupled with a high level of market knowledge, off-farm marketing activity, and a greater likelihood of holding positions of responsibility within farming organisations compared

to the other two groups. Furthermore, members of this group are highly educated, and actively seek opportunities to differentiate their livestock either by producing niche livestock or by being involvement with further processing. This is achieved by adopting a cost-efficient production strategy which meets market requirements. They are likely to plan their production and sales decisions prior to production. This is possibly because they view beef production as the primary enterprise. As a result, these members have a very high level of marketing orientation and vertical co-ordination, and thus are more likely to view marketing as extending beyond the farm gate. They are likely to view marketing as a business function integral to the whole enterprise.

9.1.4 Opportunist Strategy (Opportunists) – Sheep

Members of the opportunist strategy group focus on sales rather than production concerns. Although the cost structures of these farmers' are likely to be higher than the other two groups and carcase attributes of a variable quality, advantage may be gained through high channel flexibility, synchronising production with seasonal fluctuations and continually monitoring market prices. They are continually seeking new sales opportunities that offer the highest returns in order to optimise short-term advantages. Whilst there appears to be a degree of marketing orientation and a belief that the marketing function extends beyond the farm gate, in reality, it is likely that *opportunists* primarily view marketing as a selling function, possibly because sheep production is viewed as a complementary grazing function, providing additional income to the overall farm business.

9.1.5 Production Strategy (Producers) - Sheep

In contrast, production strategy (*producers*) members appear to concentrate on the costs and efficiency of production rather than on sales concerns. Highly educated, they may believe that most profit is accrued by investing their production skills to produce livestock of a consistent quality which can attract livestock premia; this may be because they have an inflexible product mix and view sheep production as the main enterprise. Consequently, they have low levels of off-farm marketing involvement, and low channel flexibility, but have a high level of vertical co-ordination suggesting that they meet the needs of retailers and can thus attract Group Marketing Scheme premia. It is likely that these members seek simplicity in their marketing arrangements, viewing marketing as a selling function.

9.1.6 Differentiation Strategy (Differentiators) - Sheep

Differentiators would appear to display more entrepreneurial type skills than the other two groups. They are highly educated and actively seek opportunities for ways of differentiating their livestock by producing niche products, adding value, or being involved with further processing. They are involved in off-farm marketing activities, and are more likely to hold positions of responsibility within farming organisations. They have high channel flexibility and vertical co-ordination involvement to optimise advantages in the long term. In addition, they consistently produce carcass attributes of high quality sought by the market place. Whilst sheep production is a minor part of the enterprise, production concerns are more likely to be considered integral to the whole farm business, rather than just a complementary grazing function. It is more than likely that marketing is viewed as a business function. However, it should be noted that due to

the small sample that this particular cluster profile is, in the main, descriptive due to the lack of statistically significant results.

9.1.7 Comparative Differences Between Beef and Sheep Strategic Groups

Differentiation Strategy characteristics for both species were extremely similar and no distinct differences were observed other than beef producers were more likely to be associated with beef production as the main enterprise while sheep production was more likely to be complementary. However, comparative differences are highlighted between Selling Orientation Strategy (Beef) & Opportunist Strategy (Sheep) and Buyer Focus Strategy (Beef) & Production Strategy (Sheep).

- ***Selling Orientation Strategy (Beef) & Opportunist Strategy (Sheep)***

Examination of the underlying latent variables carried out under the cluster analysis stage revealed similar attributes. The analysis suggested that both groups had poor market knowledge in relation to carcass conformation, production planning and costs. Profiling of the groups revealed other similarities, both groups were associated with low educational levels, unlikely to be involved in non-farm related activities and unlikely to hold positions of responsibility with farming organisations or membership of FABBL/producer clubs. Furthermore, both groups were associated with medium sized farms and low income levels from the relevant enterprise thus tending to view livestock production as a complementary enterprise to the farm business.

Both groups are unlikely to view marketing as extending beyond the farm gate and were both strongly associated with livestock market channel usage and viewed marketing as a selling function. However, *opportunists* made greater use of market information related to livestock market usage, synchronised production with seasonal fluctuations and were far more pro-active in using a greater number of different livestock markets than *sellers*. This would suggest that the main difference between the two groups is that *opportunists* appeared to be far more active in their selling function to gain short-term price advantages while *sellers* appeared to be passive and use distribution as a means of disposal of their livestock.

- ***Buyer Focus Strategy (Beef) and Production Strategy (Sheep)***

Similarities were observed during the cluster analysis stage, both groups appeared to have high levels of market knowledge in relation to costs, carcass conformation and production requirements. However, *buyer focus* members appeared to have greater market and distribution knowledge and a greater understanding of the need for quality and traceability than *production* members. Profiling revealed that while both groups were associated with both GMS and FABBL membership and the required carcass conformation attributes sought by the market, *buyer focus* members were more likely to be involved in off-farm marketing activities and positions of responsibility in farming organisations. Furthermore, *buyer focus* members made greater use of distribution & production information and monitored marketing signals in relation to channel usage and

were more likely to market livestock via producer club schemes. *Production* members tended to make use of information related to production planning only and sought convenience in their marketing arrangements. This suggests that *production* members appear to focus primarily on production concerns by devoting most of their time to production decisions and seek simplicity in their marketing arrangements by tending to use a single distribution channel thus view marketing as a disposal/ selling function. In contrast, *buyer focus* members appeared to be more pro-active in understanding the market and distribution system and were more likely to be associated with multiple channel usage and thus appear more likely to view marketing as a business function.

9.2 Channel Utilisation, Transaction Costs and Choice

Structural changes (previously outlined) that are taking place within the livestock market and abattoir sector, in association with fewer livestock farms and shifts in channel utilisation levels, inevitably mean that patterns of livestock distribution from farm to abattoir have changed. It is clear from the results, that channel utilisation is not a straightforward choice between either livestock market or abattoir, and that many farm businesses select a combination of routes to the market place and that these routes are influenced by their farm business decision making behaviour.

Channel utilisation results for both species have confirmed the emerging trend of a two channel system emerging - the livestock market and the abattoir, *i.e.* poorer livestock

passing via the livestock market sector and livestock meeting market requirements via the abattoir sector. While the underlying causes of these changes have been highlighted in the literature and the results presented, it is evident that these changes are, predominantly, the result of increased vertical co-ordination brought about by changes in the macro-environment and consumer demand. However, the multivariate approach undertaken clearly identifies that channel utilisation is dependent on the marketing and business orientations of the farm business and how they have reacted to changes in the market place. In other words, the likelihood of utilising either direct to abattoir or via group marketing schemes is dependent on the degree of market orientation and knowledge of the market place.

The results of channel utilisation analysis by typology were unequivocal, and revealed that there were significant differences between the derived groups and channel utilisation. In addition, the results also suggest that the emerging trend of vertical co-ordination via group marketing schemes is fuelling the need for a reduction in transaction costs across the vertical continuum, and reduces the reliance of spot market transactions via the livestock auction sector as a result. This is evident in the case of *buyer focus, producers and differentiators* (both species) who were associated with both GMS and MULTI-GMS channel utilisation. Furthermore, the analysis not only identifies a relationship between carcass conformation and typology, but also establishes the relationship between marketing channel and carcass quality. As such, the results indicate that higher quality carcasses are more likely to pass either through GMS, MULTI-GMS

or direct to abattoir than through other livestock auction routes. These findings are consistent with previous studies (MLC 1980, Knowles *et al* 1994, Hobbs 1996a, 1997).

Transaction costs have been identified as being an important element of distribution theory throughout this thesis - the theoretical concept provides powerful arguments as to why firms may wish to introduce vertical co-ordination and consequential types of governance structures (Chapter 2). From a theoretical perspective, the options for achieving vertical co-ordination have been conceptualised as a continuum ranging from spot markets to full vertical integration. The middle of the continuum (vertical co-ordination) has been described by Williamson (1979) as "hybrid governance" arguing that managed co-ordination can be substituted for unmanaged co-ordination to reduce opportunism. The intensity of control that alternative co-ordination strategies employ, determines the level of co-ordination control, *i.e.* co-ordination with the minimum amount of error. Thus strategies to the left side of the continuum (livestock markets) have low intensities of control, while strategies to the right (full integration) have high intensities. Moreover, the very nature of the control fundamentally shifts as one moves from left to right on the continuum.

However, no livestock taxonomies have been found to show either how these various strategies are interrelated in relation to farm business decision-making or the likely location of farm businesses on the continuum. This present research has increased the understanding of the interrelationship between the marketing and business orientations of farmers in relation to channel utilisation. This has been achieved by providing

statistically robust cluster and predictive models that can demonstrate significant differences in relation to business orientation, farm characteristics related to aggregate channel utilisation.

It is evident that the need for farm level product differentiation, quality and traceability, and continuity of supply has forced a top down approach of vertically co-ordinated systems supporting Peterson *et al's* (1996) view, that vertical extensions in the form of retail-led schemes are positioned to co-ordinate product differentiation (i.e. either value added or carcass differentiation) in order to satisfy the needs of the processing/retail sector. This is achieved by reducing the transaction costs associated with livestock procurement. The difficulty for producers is that they have very little or no countervailing power, and thus must position themselves in, or be able to position themselves to take advantage of, incentive-based retail led schemes. Failure to do so, opens them to risks on the open spot market or they must seek other direct abattoir arrangements.

It is clear that *buyer focus*, *producers* and *differentiators* recognise that, in order to market their livestock successfully, they need to take advantage of price premia offered by the preferred supplier schemes, thereby ensuring that they meet the transaction requirements sought by the major retailers. This in turn has an upstream benefit supporting Hobbs' (1996a, 1996b) transaction cost arguments, *i.e.* retailers will favour establishing long-term preferred supplier procurement relationships to reduce information and monitoring costs in order to mitigate the costs incurred in shorter term

relationships. The results clearly demonstrate that, in order to meet the increasingly diverse needs of the consumer (in terms of nutrition, health, quality and traceability, animal welfare and production practices), many farm businesses have positioned themselves to take advantage of vertically co-ordinated schemes which, as a result, have had a marked effect on aggregate channel utilisation.

For example cluster profiling has illustrated that *producers*, *buyer focus* and *differentiators* (both species) are associated with membership of farm assurance schemes, and appear more capable of meeting the carcass and production requirements sought by group marketing schemes. This is evident by the association with higher quality carcass conformation of these groups. This, in effect, reduces the transaction costs to the processor/retailer and, ultimately, the price paid by the final consumer *i.e.* increased transaction costs would eventually be borne by the consumer.

Conversely, *sellers* and *opportunists* appear to have little option but to sell poorer quality livestock via livestock auction markets with the option of selling direct to abattoir those carcasses meeting conformation requirements. Thus, the results presented support the arguments outlined by various authors (Sporleder 1992, den Ouden *et al* 1996, Hobbs 1996a, 1996b; Loader 1996) that increased supply chain control will mitigate and reduce transactions costs. Increased efficiency gains can be achieved with increased vertical co-ordination, *i.e.* tighter supply chain control can ensure and meet consumer expectations for quality assured meat. Thus, retailers/processors are naturally drawn to channels of distributions and producers which meet their prescriptive criteria,

and it is inevitable that vertical co-ordination and preferred supplier relationships via formal or informal contracts will follow. Consequently, *sellers* and *opportunists* are likely to have difficulty in gaining entry to tightly co-ordinated supply chains.

There is some doubt as to whether there is mutual interdependency along the whole supply chain, especially since there appears to be a historical level of mistrust between producers and retailers (ADAS 1993, Hughes 1994, Palmer 1997). It has been argued (Williamson 1975, 1986; Mallen 1976, Stern *et al* 1992, Hobbs 1996a, 1996b) that co-ordination control arises from mutual interest and shared information flows. However, the results indicated that producer club information was not utilised to a great degree by any of the derived groups.

If retailer/processor information usage were more prevalent, then producers might gain benefits by accessing information that provided additional benefits such as access to new technology, added-value opportunities and differentiated products to meet consumer demand. Thus, it would appear that the level of supply control of existing preferred supplier relationships is focused specifically at quality assurance of the product. Whereas, in a truly mutual strategic alliance, control would only be one element of the relationship, *i.e.* the control process would also involve building relationships to ensure that mutual interest were indeed present. Within the red meat industry, it would appear that strategic alliances actually shift any form of market power away from the producer to the lead firm (retailer). Furthermore, strategic alliances in the form of preferred supplier relationships are actually of more benefit to the retailer than producer.

Sporleder (1992) and Barry *et al* (1992) have suggested that increased vertical coordination (*i.e.* increased top down control) will in turn further reduce throughputs of livestock via livestock markets. The results reported here suggest that *opportunists* and *sellers*, who view livestock production as a minor enterprise, are more likely to be associated with the livestock market sector and poorer quality carcass conformation than *differentiators* (both species) and *buyer focus*. This may partially explain the reduction of throughputs of livestock markets and, more importantly, that poorer livestock is passed through this channel as a result; Knowles *et al* (1994) have suggested that this is the case for lambs. In addition, the results indicate that *buyer focus* and *differentiators* (beef) use this channel to dump poorer quality carcasses. The ultimate effect of this is likely to be a thin market problem, which has the danger of affecting the price mechanism for the whole supply chain. Formula pricing (*i.e.* the grid system outlined in section 3.22) may be to blame. While most producer club schemes are incentive driven processes, they are geared to specific requirements of the grid system where premia are given for achieving high quality conformation. Furthermore, price is determined by average UK, average abattoir and local livestock market price. However, as seen above, fewer and poorer quality livestock passing via livestock markets may in turn reduce prices (hence the thin market) further up the chain, which is more beneficial to the retailer/processors and detrimental to the producer. The ultimate outcome is that strategic alliances could interfere with the price discovery and benchmarking process.

The overarching effect of increased vertical-ordination through oligopsonistic (*i.e.* few buyers and many sellers) competition is likely to support the view that Carpenter and Perkins (1967) put forward over thirty years ago.

“ Farmers are well aware that as independent producers they are small and part of a fragmented industry, that will be faced with fewer and larger buyers of their produce, and that these buyers will be dominated by large scale retailers for regular bulk quantities of produce of a specified quality. If farmers cannot organise themselves to offer what retailers want, they may be squeezed in the market by those who can and even lose independence.”

However, as the results indicate, it appears likely that a large number of producers are positioning themselves into preferred supplier relationships in order to overcome their marketing difficulties.

Following on from the transaction cost argument, it would appear that choice criteria for some farmers are already pre-determined, particularly in the case of *sellers* and *opportunists* since they are unable to meet requirements sought by the marketplace (retail procurement policies) and thus have a restricted number of channels through which they can sell. As a result, these particular groups seem to have very little alternative than to sell via the livestock auction market sector or direct to abattoir.

Therefore, when quality is variable, uncertainty increases *i.e.* both for procurers finding suitable supplies and for producers in finding alternative markets to which to sell their stock. Thus, procuring via the livestock market system exposes processors to a greater degree of uncertainty and likewise producers incur risk since they are unsure as to the

grades that their stock may achieve. Thus choice will be dependent on the level of risk aversion.

As seen in section 5.3, there has only been limited work undertaken on choice criteria, (Grieve and Young 1973, Mitchell 1976, Barker 1989, Hobbs 1997) and historically these studies have been descriptive and have failed, in most cases, to take into account business and marketing orientation. Thus, their results could not establish a relationship between channel selection and marketing and business orientation. The multivariate approach used in this study has integrated choice criteria variables into the overall research process undertaken in this thesis.

Examination of the choice criteria variables (Sections 7.6.3 and 8.6.3) indicated that there were few significant differences between of beef and sheep producers groups. However, since it would appear that for some farmers (*opportunists* and *sellers*) channel utilisation is predetermined (*i.e.* they have little choice but to sell via livestock markets), then the way in which members of each group select channels on their choice criteria will vary considerably according to group membership. For example, *producers* and *sellers* may well select on the basis of convenience and speed of payment, while *buyer focus* and *differentiators* may assess on the level of expected returns and will select their channel accordingly.

Inevitably, price was the overwhelming factor for all groups, and supported all previous studies (Grieve and Young 1973, Mitchell 1976, Barker 1989, Hobbs 1997). However, it

can also be argued that maximisation of sale price will be dependent to a degree on the level of risk aversion associated with producers channel preferences (Fausti and Feuz 1993, Jack *et al* 1999). For example, producers such as *opportunists* and *sellers* are likely to have a high level of risk aversion as they are unsure of the carcass characteristics and would thus appear more likely to be associated with the livestock market sector. Conversely, the other groups (*buyer focus, producers* and *differentiators* for both species) appear to be able to assess carcass quality and are able to make more informed decisions about their channel preference. This is clearly supported by the results reported here *i.e.* the use of multi-channel selection by groups that understand carcass conformation requirements. This suggests that when poorer quality livestock is sold via livestock markets there may be uncertainty as to how they may kill out and thus advantages can be gained via this channel (Bullen 1984, Lesser 1993, Knowles *et al* 1994, den Ouden *et al* 1996, Hobbs 1996a); while better quality livestock is sold either direct to abattoir or via GMS related channels.

In terms of price discovery as identified by Ward (1987), procurers will wish to mitigate the transaction costs associated with procurement by assuring that they buy carcasses meeting their requirements and that have been price adjusted to reflect the quality of the carcass. However, price discovery is dependent on the livestock market benchmark. Thus, if fewer and poorer quality carcasses pass through spot markets, then the consequential effect will be to the advantage of procurers and identifies a potential thin market problem.

The results reported here clearly illustrate a relationship between production practice and carcass conformation, which in turn are associated with the level of marketing and business orientation of the farm business. Moreover, aggregate channel utilisation is consequently associated with these levels. In addition, there are significant differences between the identified marketing channels in terms of carcass conformation attributes. Therefore, it would appear that there is a strong association between carcass quality and channel, which directly relates to the marketing and business orientation profiles of the strategic groups. This, in turn, influences overall aggregate channel utilisation.

The literature review also identified an array of changes that have affected the farm business-operating environment, which may have led to many farmers adopting the marketing concept. One of the arguments put forward is that there is evidence to suggest that the marketing and business orientations of farmers are associated with levels of skills and education (Jones 1963, Warren 1989, Warren and Hoggard 1990, Errington and Tranter 1991, Gasson 1998). This in turn influences not only farm business/marketing behaviour, but also the use of information sources and types that may be influential in choice of marketing channel and subsequent channel utilisation. In other words, better educated farmers tended to be more proactive in managing the farm business and recognise the need for change and plan for change than less well educated farmers.

The study goes some way to support these views: in both species there appeared to be an association between the level of education attained by the producer and the derived

typology. For example, *differentiators* (both species) appeared to be associated with higher levels of educational attainment, followed by *producers* and *buyer focus*; conversely *opportunists* and *sellers* were mainly associated with low levels of educational attainment. This would appear to support previous studies (Jones 1963, Warren 1989, Warren and Hoggard 1990, Errington and Tranter 1991, Gasson 1998). It may also provide explanations as to the use of information sources/types, and thus the subsequent selection of marketing channel. Most farmers are unlikely to have skills in all potential areas of business strategy, and *producers*, *buyer focus* and *differentiators* appear to concentrate on specific areas where they have distinctive competencies and can overcome potential barriers to business growth. However, the skills of *opportunists* and *sellers* may be considerably lower than the other groups, which may impede overall performance and subsequent business growth. It would certainly appear unlikely that they can react quickly to change.

The results illustrate significant differences between the derived groups with respect to the perceived importance of information for at least some information sources. While some similarities exist between the groups, the way in which the information is used is dependent of the strategy utilised. For example, for beef finishers, *buyer focus* and *differentiators* placed greater emphasis on production planning, financial recording and production techniques. Furthermore, *buyer focus* were more interested in abattoir and producer club information, while *sellers* appeared to be more interested in local livestock prices. For sheep finishers, similar attributes were observed, although emphasis was placed on abattoir agents, farm budget and consumer information. The results

indicate that the information-gathering activities that farmers perceive to be important depend upon strategic group membership. The activities appear to be consistent with the strategy that group members follow, paralleling the studies of Mitchell (1976) and McLeay *et al* (1996).

There appears little doubt that the transaction costs argument (den Ouden 1996, Hobbs 1996a, 1996b; Loader 1996) significantly influences channel utilisation, and the move towards vertical co-ordination is likely to continue until major retailers have their preferred suppliers in place to meet demand. Livestock producers would appear to have little choice but to join these schemes if they are to take advantage of premia or even have a market for produce. Alternatively, farm businesses will have to look to alternative markets by adding value in some form to price make. At present, only *differentiators* are in the position to be able to achieve this.

This prompts the question as to whether many producers are capable of changing strategic group and, if so, which producers are most likely and able to do so. The results of the territorial maps (Figures 7.2 beef and 8.2 sheep) suggest that at present, some farmers may be capable of changing groups. For example, Figure 7.2 (beef) suggests that a number of *sellers* may be capable of adopting a *buyer focus* strategy while a number of *buyer focus* members may be capable in adopting a differentiation strategy. In relation to sheep finishers (Figure 8.2), a number of *opportunists* may be capable of adopting a production strategy. At present, there would appear to be a clear demarcation between *differentiators* and the other two groups, consequentially it may be more

difficult for farm businesses in these groups to adopt a differentiation strategy. However, change will be dependent on the distinctive competencies and business objectives of the farm business. Mobility barriers that make it costly for farmers to move from one group to another, may include managers' distinctive competencies and other barriers, as well as a firms' initial resource endowments.

As Haines (1999) has previously asserted:

“ Unlike many new skills which farmers have had to master, marketing is not a radically new departure requiring radically new techniques. It is simply a management re-orientation which ensures that business activity is *demand-led* not *production-driven*..... it simply shifts the management focus by insisting that planning and production be guided primarily by *marketing* objectives and requirements.”

If farm businesses do not possess or gain the required competencies for group transition, then it is likely that transition opportunities for many farmers may be limited.

9.3 Relationship of Developed Typologies to Existing Classifications

The derivation of marketing typologies is not a new concept; many authors have acknowledged the existence of both generic and agricultural classifications that provide explanations for business and marketing behaviour (for example Breiymer 1973, Bateman 1976, Meulenbergh 1986, McGee and Thomas 1986, Cool and Schendel 1987, Fiegenbaum *et al* 1987, McLeay and Zwart 1993, McLeay *et al* 1996, Haines 1999, Ritson 1997b). While the multivariate methodological approach adopted is not new, the study has improved upon existing approaches and provides additional insights into marketing and business orientations of lowland beef and sheep producers.

The study has utilised a novel and innovative approach to measure farm business behaviour, and has incorporated a number of additional cross check measures to ensure robust cluster models. The use of discriminant analysis has allowed the development of accurate predictive models not previously undertaken in any related studies found in the literature. Indeed, the methodological approach undertaken has not been used within the UK livestock sector, which has to date been reliant on bivariate studies. In addition, partition variance of the discriminant models enabled an understanding of the contribution of the latent variables. Consequently, the study has been able to provide additional insights in to farm business decision-making and overall aggregate channel utilisation.

The discriminant and partition analysis undertaken for producers of each species clearly illustrated that discrimination was achieved between the derived typologies. It was clear that, for both species, the *differentiation* predictor had the greatest influence. However, the analysis also revealed that *consumer orientation*, *distribution* and *market knowledge* were also essential elements of the partition and predictive process.

Findings from this study support the hypothesis that existing generic and agricultural classifications are inadequate to describe the breadth of strategies pursued by lowland finishers. However, it is acknowledged that some parallels can be drawn. For example, the two most widely referenced classifications (Miles and Snow 1978, Porter 1980) may provide some possible explanations for some elements of farm business behaviour.

The typologies developed from this study suggests that *differentiators* (both species) adopt Porter's (1980) differentiation and focus elements in order to gain a form of competitive advantage. In contrast, *buyer focus* and *producers* adopt a more pragmatic approach by concentrating on the production elements sought by the market place (although only *buyer focus* would appear to have knowledge of the marketplace and meet procurement requirements). It could be further argued that both *buyer focus* and *producers* differentiate on carcass quality, since both groups adopt a product focus. However, only *differentiators* in both species are perceived to gain any form of competitive advantage in terms of increased financial performance (*i.e.* above average prices achieved via price making advantage).

In relation to the Miles and Snow (1978) classification, *buyer focus* and *sellers* may fall into the *defender* category. In contrast, *differentiators* (both species), who tend to be more innovative and entrepreneurial, may fall into either *analyser* or *prospector* categories (dependent on their level of innovation), since they appear to be striving for added value or other forms of innovation to meet the needs of the market place. By the same token, *opportunists* and *sellers* can be viewed as *reactors* due to their limited strategic focus and have a limited range of channels to which they can sell. It is debatable as to whether the strategies adopted could be deemed as *failures* (Miles and Snow's final category) as it is difficult to assess the success of such strategies merely on prices achieved. Although parallels may exist between the developed typologies and Miles and Snow's industrial classifications, these industrial classifications do not appear particularly useful in describing farm business behaviour.

Agricultural typologies (*i.e.* marketing versus production orientation), as outlined by Mitchell (1976) and subsequent arguments posed by Barker (1989) and Haines (1999), would appear to be more appropriate than generic classifications to describe the marketing strategies adopted by livestock producers. However, these existing classifications only assume two types of marketing behaviour and fail to describe a significant portion of the farming population. For example, the results reported here suggest that *sellers* and *opportunists* appear to focus on sales rather than production concerns, and thus are merely disposing of livestock of variable quality as a by-product of the overall farm business: a classification not actually described within the literature. *Buyer focus* and *producers*, on the other hand, fall more easily into the defined definitions, particularly in case of the latter where carcass attributes are paramount, but there is little market or distribution knowledge. While *buyer focus* have some common attributes, it is evident that they fall some way between the two camps: there is an emphasis on production planning, but there are high levels of market knowledge with low consumer focus. *Differentiators* go a stage further than the historic marketing orientation view since there are higher levels of *differentiation* and possible segmentation. However, from a simple marketing perspective, only *differentiators* can be considered to be totally marketing orientated because they are more likely to pay attention to market signals, differentiate their product from that of other farmers and attempt to satisfy the wants and needs of the final consumer. This puts *differentiators* into a newly defined orientation, which is an extension of the traditional marketing orientation classification.

So where do these newly defined typologies sit in relation to the convergence argument? It would seem to provide partial support for Breiymær's (1973) third approach that for some farmers' agricultural marketing can be viewed as a form of market development. Furthermore, as Bateman (1976) asserts, studies of the objectives and decisions confronting individual businesses that are central to general business marketing should be applied to agricultural marketing, especially in light of the increased significance of changes in the food marketing environment which Ritson (1997a) described. This would also appear to support Meulenberg's (1986) thesis that emphasising the differences between general marketing and agricultural marketing concepts "is not fruitful" *i.e.* that general marketing principles should be included within agricultural marketing theory.

The results presented here appear to dispel a number of traditional descriptions of agricultural marketing. It is clear that the marketing of agricultural produce is not confined post-farm gate, since for a number of types of farm business identified in this study (namely *buyer focus* and *differentiators* for both species), this appears not to be the case. Also, the results are clearly supportive of work conducted in New Zealand by McLeay *et al* (1996), who concluded that the types of strategies that farmers adopt are more complex than previously identified in agricultural marketing literature. The study clearly supports the view that agricultural marketing should encapsulate general marketing theory, and thus is supportive of the definition proposed by Kohls and Uhl (1990).

The study has shown that the derived typologies of beef and sheep finishers have increased our understanding of livestock production and marketing strategies, and has identified that, while parallels can be drawn, existing classifications are not wholly adequate to describe farm business behaviour for finishers in the Far South West.

9.4 Implications

Some implications of the findings presented, are drawn in relation to the farm business, the supply chain and future policy making decisions.

9.4.1 Farm Businesses

It is clear from the analysis and discussion that members of each strategic group appear to operate their businesses in a distinctive manner and follow clearly defined, but seemingly different, business strategies which, as seen, have had significant impacts on channel utilisation. However, some additional observations can be made in relation to the profiled characteristics of the derived strategic groups and the way in which they interact with the marketplace.

It is apparent that the resource endowments of each strategic group may provide additional explanations as to marketing and decision making behaviour. As previously asserted there would appear to be a direct association between the level of education achieved and the derived typology. This may also have implications as to the use of market information relating to their business making decisions. The author anticipated

identifying a number of significant differences in relation to channel choice criteria in order to draw comparisons with other studies. However, only a few significant differences were observed (sections 7.6.3 & 8.6.3) which leads the author to hypothesise, that while similarities exist between the choice criteria attributes, the way in which information and choice criteria are used is directly related to the profiled characteristics of each group. The logic for this explanation is outlined below.

For beef finishers across all three groups: price, higher expected returns, and quality of livestock were similar in the top four channel choice attributes; similar attributes were observed for sheep finishers. However, while similarities exist, the way in which each strategic group interacts with the marketplace is different, suggesting that there is a distinct profiling relationship between strategic group attributes and the marketing choices that they make.

For example *sellers*, as outlined in section 9.1.4, display poor knowledge of the market, carcass conformation and distribution knowledge, do not plan production to any degree and have little idea about costs. They are unlikely to be involved in non-farm related activities and unlikely to hold positions of responsibility with farming organisations or membership of FABBL/producer clubs. In addition, they possess low educational levels and are limited in the channels to which they can sell. They passively dispose of their livestock accepting a given price. Thus, while they may have similar choice criteria attributes to the other groups, it is inevitable that given the nature of their group characteristics, they will use their given attributes (e.g. knowledge, intelligence,

experience, skills and training) differently than, say, a *differentiator* who has far greater resource attributes and thus can make more informed choices.

It can be argued that educational attributes have a profound effect on the way in which farmers use existing knowledge, gain training and advice and interact with the marketplace. This in itself would provide an explanation as to why farmers use market information, that in turn, influences channel selection and affects the level of risk aversion to a given channel. Clearly there are implications if policy makers wish encourage increased competitiveness and enable farmers the opportunity to improve their resource endowments, which in turn would break down entry barriers, and allow the adoption of more profitable marketing strategies; particularly in the case of *sellers* and *opportunists*.

To take advantage of new opportunities farmers old and new will need to develop a wide range of skills to run a multi-functional rural business. However, the future of any individual farm business clearly lies in the hands of the individual and thus uptake and usage of opportunities is reliant on creating a more dynamic business culture.

9.4.2 Supply Chain

Central to the decisions made in relation to the supply chain are the needs of the consumer. It is clear from the results that there are implications in the way in which

livestock producers understand, or not, the needs of the consumer which in turn has an influence on channel usage.

Changing macro-economic and socio-economic factors have had important effects on supply chain development in the UK. Consolidation of the UK grocery market has been occurring over the past two decades which has seen increased market shares and has allowed the top five UK retailers to exert almost total control over the meat supply chain. As a result, there has been the emergence of vertical co-ordinated supply chains to ensure that transaction costs are minimised in terms of animal welfare, quality & traceability and price. The emergence of retail producer clubs provide a preferred-supplier market outlet, but only for those that can meet the prescriptive requirements. This trend is likely to continue until retail led schemes secure the required number of preferred suppliers in place.

The above considerations are clearly identified in the study and explanations are provided as to why some livestock farmers are able to join these tightly co-ordinated schemes while others are not.

Despite the dominance of the supermarkets, many producers are now involved in added value/niche products. This activity is aimed at providing an alternative market for consumer and offers marketing opportunities for farmers, particularly *differentiators*, to be more pro-active rather than passively accepting a given market price as do *sellers*,

opportunists, producers and buyer focus members. This will enable farm businesses to increase their competitiveness.

It is also clear that farm businesses need to be more pro-active in identifying new price-making business opportunities to overcome the stranglehold that the major retailers have on the supply chain *e.g.* by the development of independent producer clubs, the pro-active development of group marketing initiatives, increased usage of farmers' markets and increased added value activities.

The UK abattoir sector has a number of long-term problems which will continue to affect operating capabilities, particular in relation to regulatory and operational costs, low margins and falling livestock availability. It seems that further rationalisation of the abattoir sector is likely. However, opportunities may exist for small and medium sized abattoirs to work more closely with farm businesses to offer more differentiated/regionally branded meat and meat products *i.e.* by the development of independent producer/processor groups. While these may have linkages to retail supply chains, farmers need to develop additional routes to market or direct to consumer to give them the ability to price-make. Clearly, opportunities are available for *buyer focus, production and differentiation* strategy members to be involved in these activities since they produce the required market attributes, but more importantly they need the right resource endowments to be able to do so. However, at present, it would appear that only *differentiators*, and some *buyer focus* members have the necessary skills to take advantage of these price-making opportunities.

The livestock market sector, serves Far South West farm businesses well in relation to geographic proximity. But the results indicate that fewer and poorer quality livestock is passing through the livestock market system as a result of retail led producer club competition. Both *sellers* and *opportunists* that primarily use livestock markets clearly produce livestock of variable quality while other groups such as *buyer focus* and *differentiators* (beef) use the system to dump their poorer livestock. The consequential effect of this action will inevitably further erode the livestock market sector due to increasing costs and income pressures *i.e.* a direct link between throughputs and overheads eroding profitability. The cost/revenue squeeze is likely to increase if throughputs continue to decline and may force further livestock markets to close which may in turn increase unit costs for farmers using this channel if they have to travel further to market. It could also be argued that unless *sellers* and *opportunists* start to raise quality they may no longer have a market to sell to.

9.4.3 Policy Considerations

It is clear that the derived typologies raise a number of policy implications related to skills, marketing attributes and distribution knowledge, and to changes in the supply chain. Some of these changes have been further exacerbated by the 2001 Foot and Mouth Disease (FMD) epidemic which has further focused the fundamental strategic forces for change that already existed, and will continue to drive structural change in the livestock and meat production industry. While the data for this study were collected prior to the outbreak, some post-FMD policy considerations are highlighted.

Clearly, the results of this research may also have efficiency and equity implications because farm businesses in a specific group may be affected by government/regional/local policy in different ways. If farmers in a particular group are following a strategy that is best suited to their internal business competencies and resource endowments, as well as the environment in which they operate, then policymakers should consider both the implication and effect of policymaking on each separate strategic group. The type of strategic research undertaken in this study was highlighted as important in the recent Report of the Policy Commission on the Future of Farming and Food [The Curry Report (UK Cabinet Office 2002)].

In relation to specific policy considerations, the first to be considered is skills and workforce development. If farmers are to increase their competitiveness or have any chance of adopting more market orientated approaches then they need the ability to be able to make the change. It would therefore seem sensible that training and advice should be tailored to strategic group requirements and should be made available at a local level while ensuring that educational delivery actually meets industry needs. In addition, business advice should again be tailored to specific strategic group needs and delivery needs to be of a consistent high quality.

Furthermore, mechanisms for technology and knowledge transfer need to be put in place to enable farm businesses to be made aware of potential business opportunities. There is no doubt that existing national/regional/sub-regional organisations need to work together more closely to provide a more integrated approach to both workforce and business

development. This has become increasingly important post-FMD which has highlighted the need for more coherent policy formation to meet specific industry needs.

Opportunity is another major policy driver. Clearly, farm businesses need to have the right attributes (as described above) to meet new business opportunities whether on or off-farm related. But there also needs to be a concerted policy effort to provide new supply chain development opportunities such as collaborative marketing, regional branding opportunities and further processing alliances to enable farm businesses to extend farm ownership further down the supply chain and also sell directly to the consumer.

Local food production systems, promoting locally produced food products sold in the same area would support more sustainable farming, and create mutual understanding and support between consumer and producers which may, in turn, overcome the barrier of the right to cheap food which has perpetuated since the end of the Second World War. Reduction of food miles and the promotion of local supply chains is a relatively new policy that both national and regional agencies have started to embrace particularly in light of the recent FMD crisis. However, in order to achieve this, policymakers need to actively support and develop regional strategies that are unique to the participants and the components that make up the region. This may require physical infrastructure intervention and/or programme driven initiatives such as the support of small local abattoirs to support sub-regional branding initiatives. However, the inherent difficulty in promoting local supply chains on any significant scale is whether they could compete

against established preferred-supplier and abattoir alliances with the major retailers. This raises the question as to whether intervention could achieve significant results. It is recognised that local supply chain opportunities exist for niche markets, however, these are presently assisted on a local basis and which enable *differentiators* and more marketing orientated groups such as *buyer focus* opportunities to price-make. It would, however, appear that local supply chain development in the face of well established national supply chains appears unrealistic unless there is a local critical mass (*i.e.* an opportunity to develop a local supply chain with sufficient membership to gain competitive advantage and a degree of countervailing power) and local/regional comparative advantage to promote more localised products.

A number of other post FMD policy issues are highlighted, for example: during the FMD outbreak livestock market closures were forced by Government in an attempt to prevent the disease spreading. After the subsequent movement restrictions were lifted, livestock markets still remained closed for a considerable period of time. Live auction markets were replaced, in many cases used as collection centres for direct abattoir and electronic auction purchases. Clearly there appear to be two consequent issues. One, there is likely to be further erosion of the price setting mechanism due to the Government's response of restricting animal movements and yet no policy response when movement restrictions are lifted. Second, this may be an opportunity for the Government to take a view about whether to phase out of live auction markets in view of their potential adverse effects on biosecurity (*i.e.* disease transmission during the crisis) and animal welfare (although, this is not a clear cut argument) in the support of e-commerce solutions. If so, then there will need to be some form of market intervention

in relation to the price making mechanism. Clearly, any form of policy intervention to phase out of livestock auctions would have a significant affect on the identified groups; particularly in the case of *sellers* and *opportunists* (which make up a significant proportion of the farming population) who would no longer have a channel to sell to. The consequential affect may drive some livestock producers out of business or may force some of these producers to become more production driven to meet the needs of the market place. Arguably, it could lead to a more market driven sector but at the cost of further farm business closures.

Some other direct FMD policy considerations are highlighted, for example:

- The need for greater control over animal movements and traceability. It would appear that more reliable methods are needed to ensure full traceability of livestock and the ability to fully audit livestock movements. Clearly, this would benefit *buyer focus*, *producers* and *differentiators* (both species) whilst further marginalizing *sellers* and *opportunists*.
- Will increased public concern over intensive farming force Government to reconsider agricultural production methods and promote sustainable and organic production to a greater degree. This would benefit *differentiators* (both species) and possibly drive the more marketing orientated members of *buyer focus* and *production* strategies to consider alternative production methods.

- The FMD crisis raised profound questions about the relationship between agriculture and the rural economy including how should policy secure sustainable local economic growth.

There is little doubt that FMD has compounded many of the economic pressures being experienced in the livestock sector and which has highlighted that agricultural development needs to be encompassed and viewed within a rural development context rather than stand-alone. However, while policy makers may need to assist in developmental opportunities, the industry itself needs to take charge of its own destiny. As Warren (1989) noted “the main barrier to prosperity and even survival of many farm businesses lies with the farmers themselves”.

9.5 Some Suggestions for Further Work

As with most research, inevitably, there are ways in which the research could be developed in the future. At the outset, one of the main aims of the research was to model farm business behaviour in relation to channel utilisation. The strategic group analysis approach, although successfully adapted, provided explanations of behaviour in relation to utilisation, but not specifically in relation to competitive performance. As a result, it was harder to assess relationships with industrial type strategies because they are in the main concerned with competitiveness. Thus, it would be useful to include a set of competitive measures that could be used in future research *e.g.* gross margin ratios, price making ability. While the type of research undertaken is relatively unique, a useful way

forward would be to conduct a longitudinal study to measure changes in strategy. This would identify/confirm whether producers are able to change strategic group, or whether as educational levels increase, there is a consequential gradual shift towards more sophisticated marketing strategies.

Furthermore, studies in other regions allowing comparative analysis in both livestock and arable sectors would be valuable by providing an understanding of not only agricultural marketing strategies, but also the relationship between those strategies and competitiveness and performance; particularly in light of the 2001 Foot and Mouth epidemic.

The emergence of vertical co-ordination partnerships prompts further questions. There are two areas of complementary interest. First, to examine the relationships between members of the supply chain. This would enable measurement and assessment of conflict and resolution processes (as identified by Dant and Schul 1992) and also to discover whether, within a true vertically co-ordinated framework, there is mutual benefit and trust or are members likely to be affected by bounded rationality or opportunist behaviour? Second, an assessment of a potential "thin market" problem, *i.e.* poorer quality and fewer livestock being procured through the livestock market sector (Sporleder 1992, Barry *et al* 1992); it would be interesting to measure the likely effect of these changes in terms of price transmission and the effectiveness of the livestock market as the benchmarking mechanism.

9.6 Conclusions

Major changes are taking place in all sectors of the livestock and meat producing industries from farm to slaughter. These emanate from a multiplicity of interactive factors arising from technological advances, legislative controls and social and economic pressures, all of which have an impact on the distribution of livestock from farm to abattoir and, therefore, farm marketing and business behaviour.

That ruminant livestock production remains important in Cornwall and Devon is unequivocal. The industry in the two counties is dominated by dairying, beef and sheep production and, in 1997, over 70% of agricultural land comprised grassland and crops grown for stockfeed. The national average was just 49%. Examination of breeding livestock numbers showed that the two counties accounted for 15% of the national dairy herd, almost 15% of the national beef herd over, and 13% of the national sheep flock.

Structural changes within both the abattoir and livestock auction market sectors have resulted in a reduction of provision in both sectors. The numbers of both markets and abattoirs throughout the country have been in long-term decline. By 1997 there were 146 livestock auction markets operating in England and this number was reduced to 127 by 2001 (Livestock Auctioneers' Association 1998, Livestock Auctioneers' Association 2001 *personal communication*). Numbers in Cornwall and Devon were 6 and 14, respectively, in 2001 (Livestock Auctioneers' Association 2001 *personal communication*), declining from a total of 30 in the two counties in 1980 (Rosenthal 1981). Abattoir numbers in England amounts to 410 in 1995, 375 in 1997 and 312 in

2001 (MAFF 1995a, 1997a, 2001). In Cornwall and Devon, the number of abattoirs remaining in 2001 was 22, 11 in each county (MAFF 2001). Legislative controls, associated with the introduction of the Single European Market in January 1993 had a significant impact on the structure of the abattoir sector, reducing absolute numbers and formally polarising the industry with dual licensing standards based on throughputs. Furthermore, it is evident that a two channel system has emerged and that the emergence of vertical co-ordination via preferred supplier relationships has a significant influence on aggregate channel utilisation.

The study has illustrated that transaction cost theory may provide many useful insights into structure and organisation of supply chains, suggesting that, all things being equal, the industry will be organised to minimise the cost of carrying out transactions. In addition, transaction cost explanations can influence choice criteria of marketing channels, and suggest that the location of the farm business on the vertical continuum is dependent on the marketing and business orientations.

A clear relationship between marketing and business orientation and farm business behaviour has been established. This in turn reveals that clear relationships exist between the carcass conformation achieved by the farm business and the subsequent route to the market place. In addition, it is also clear those carcass conformation relationships vary according to channel utilisation, and that each channel is associated with a level of carcass quality.

The study has indicated that for many farmers in the Far South West, marketing is much more than an activity that occurs after product leaves the farm gate and suggests that the marketing approach and mix of marketing variables utilised by individual farm businesses vary according to the strategy a firm may follow. Farm business marketing is thus more than just sales tactics for many farm businesses. Each strategic group interacts with the market in different ways, and thus has a significant effect on overall aggregate channel utilisation. In addition, it is also asserted that for many farmers (*opportunists* and *sellers*) the choice of channel is already pre-determined.

The study also suggests that most farm businesses have no choice but to price-take, and this is likely to be complicated further by the impending thin market problem. It would appear that if they wish to price-make, then they need to align farm business behaviour in line with *differentiation* strategies by finding ways of adding value or differentiating their product in addition to finding additional/alternative markets to which to sell their livestock.

While parallels can be drawn with generic and strategic business typologies (Porter 1980, Miles and Snow 1978) and agricultural classifications (such as Mitchell 1976, Barker 1989, Haines 1999), there is little doubt that they are inadequate to describe the breadth of strategies pursued by beef and sheep finishers in the far South West.

It is evident from this study that educational attainment is linked to the derived typologies and perceived success. If agricultural economists, farm management

consultants or agencies are interested in designing programmes to assist farmers to upgrade their competencies in relation to skills and decision making, it is important that researchers clearly understand the strategic and marketing behaviour of farmers.

Research of this nature is a useful step in understanding the integrated nature of the marketing and business orientations of farmers and their decision-making. As Porter (1980) and McLeay *et al* (1996) note, strategic group analysis is aligned to a set of latent strategic dimensions. Thus, identification of key strategic dimensions is important to develop and give a clear understanding of the profiles and strategies that farm businesses follow.

The results of this research may also have efficiency and equity implications because farm businesses in a specific group may be affected by government policy in different ways. If farmers in a particular group are following a strategy that is best suited to their internal business competencies and resource endowments, as well as, the environment in which they operate then policymakers should consider both the implication and effect of policymaking on each distinct strategic group separately. For example, as Regional Development Agencies gear up towards the implementation of cluster development frameworks within the food cluster (*i.e.* plough to plate), a better understanding of farm business strategic orientation would give regional policy makers a greater understanding of how to implement policy in terms of workforce development, skills and training, agri-food co-ordination, marketing and supply chain benefits.

APPENDIX 1

Regional Definitions

APPENDIX 1: REGIONAL DEFINITIONS

England regions are defined by the Government Office Regions (GORs) established in 1995 (Office for National Statistics 1998).

East Midlands GOR: Derbyshire, Nottinghamshire, Lincolnshire, Leicestershire & Rutland, Northamptonshire.

Eastern GOR: Norfolk, Suffolk, Cambridgeshire, Bedfordshire, Hertfordshire, Essex.

Greater London GOR: Greater London.

North East GOR: Northumberland, Tyne & Wear, Durham, Cleveland & Darlington.

North West GOR: Cumbria, Lancashire, Cheshire, Greater Manchester, Merseyside.

South East GOR: Oxfordshire, Buckinghamshire, Berkshire, Surrey.

South West GOR: Gloucestershire, North Somerset and South Gloucestershire, Wiltshire Somerset, Dorset, Devon, Cornwall and the Isles of Scilly.

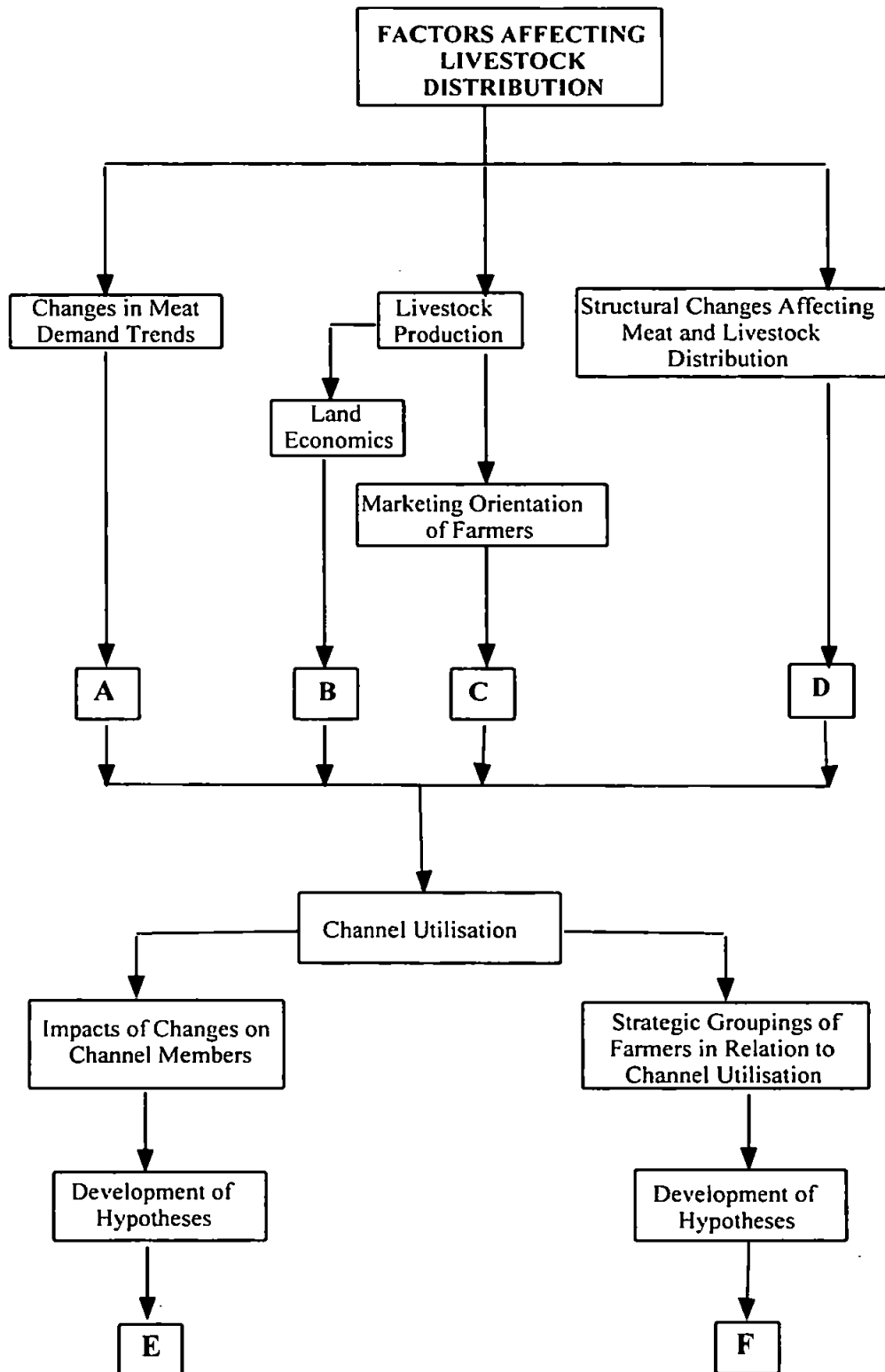
West Midlands GOR: Staffordshire, Shropshire, Hereford & Worcestershire, West Midlands, Warwickshire.

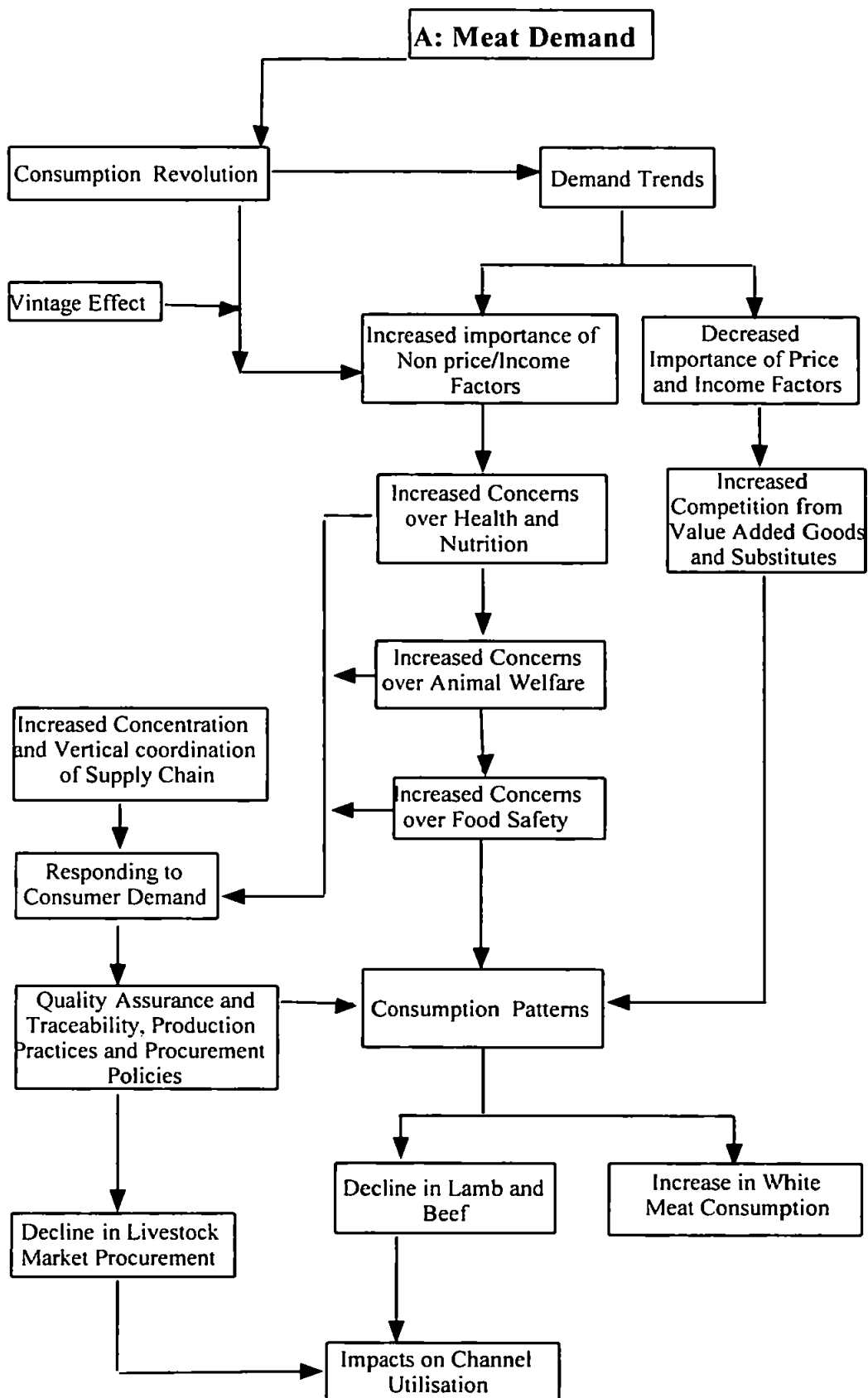
Yorkshire & the Humber GOR: North Yorkshire, East Riding & Northern Lincolnshire, West Yorkshire, South Yorkshire.

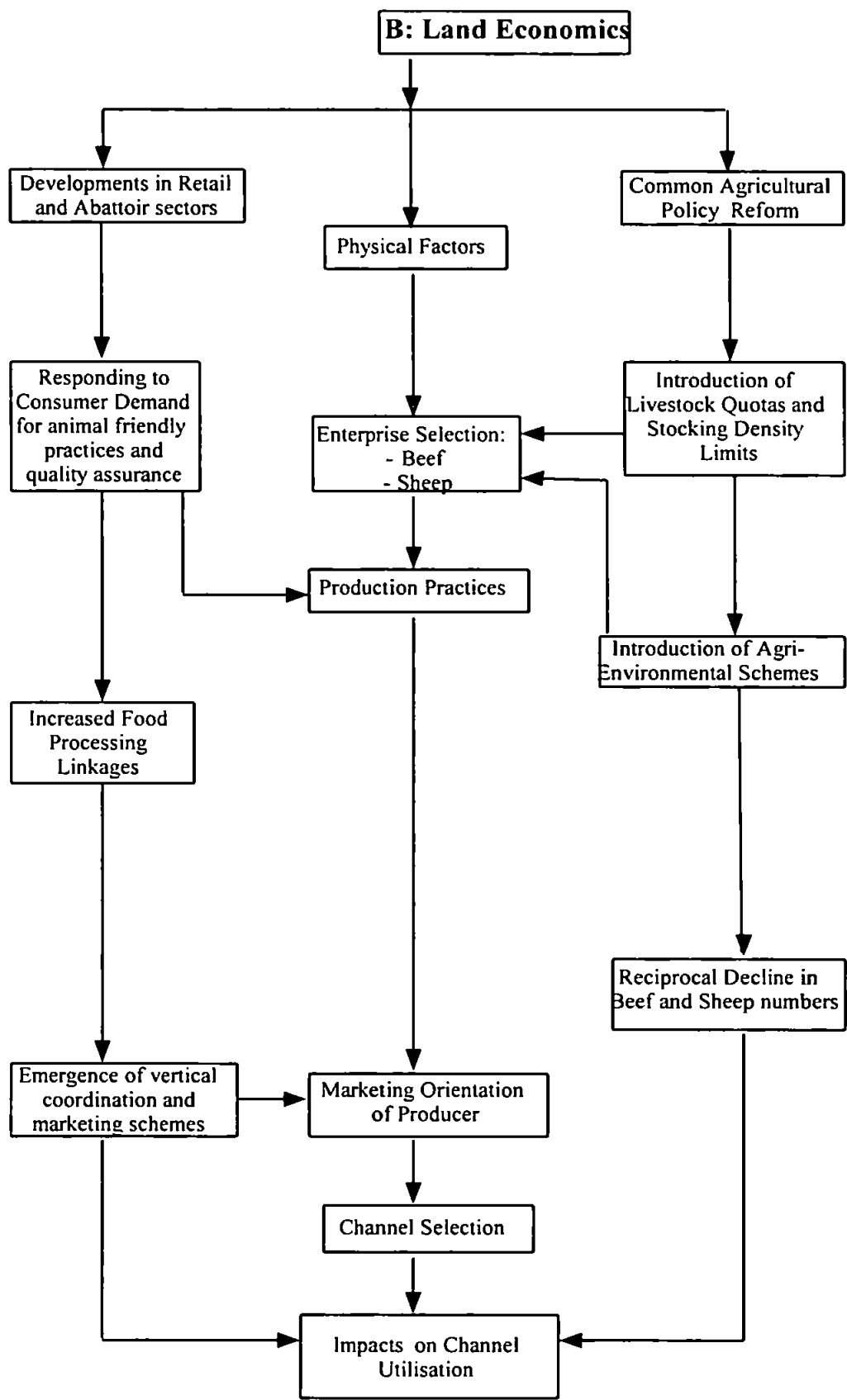
APPENDIX 2

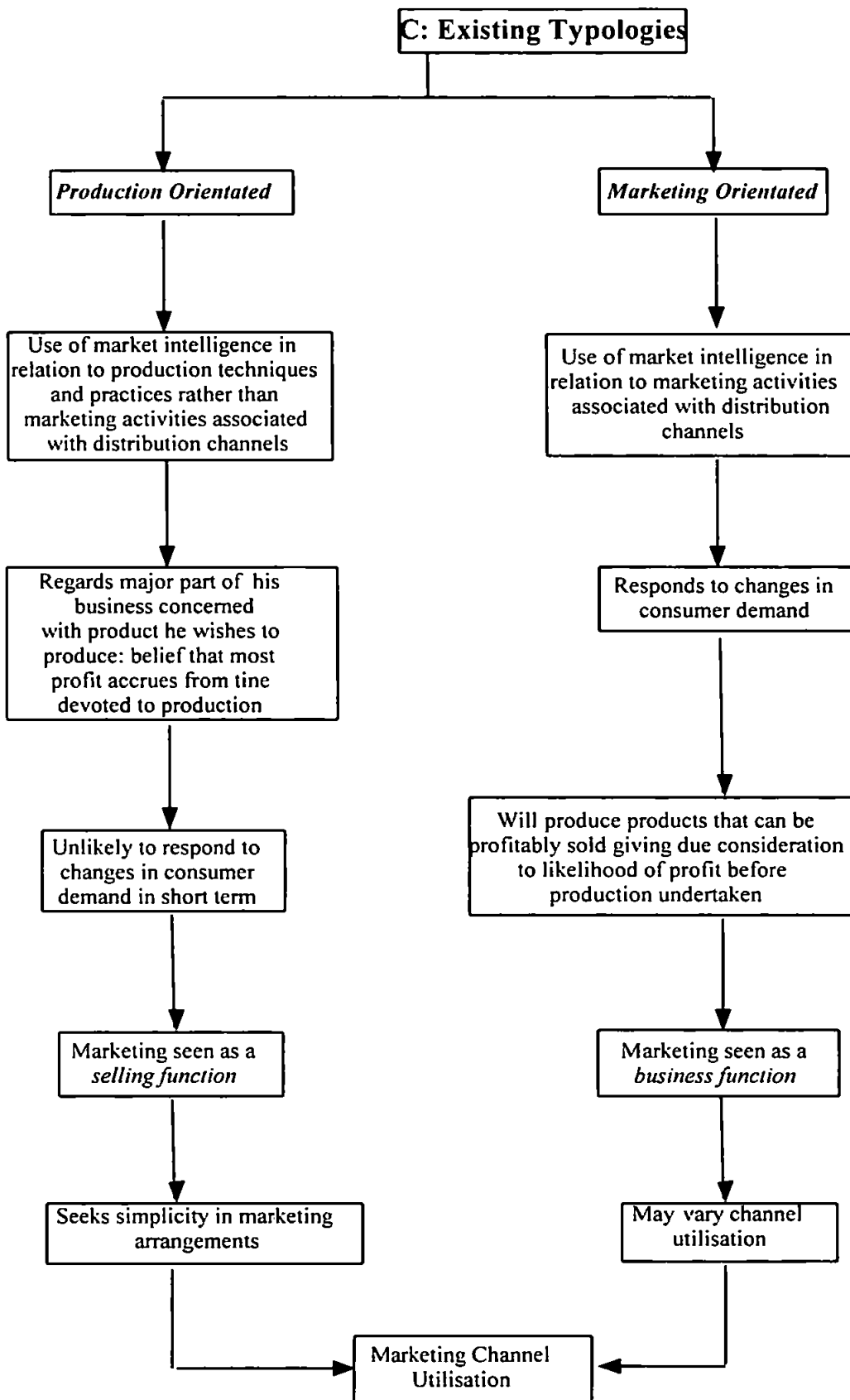
The Conceptual Model

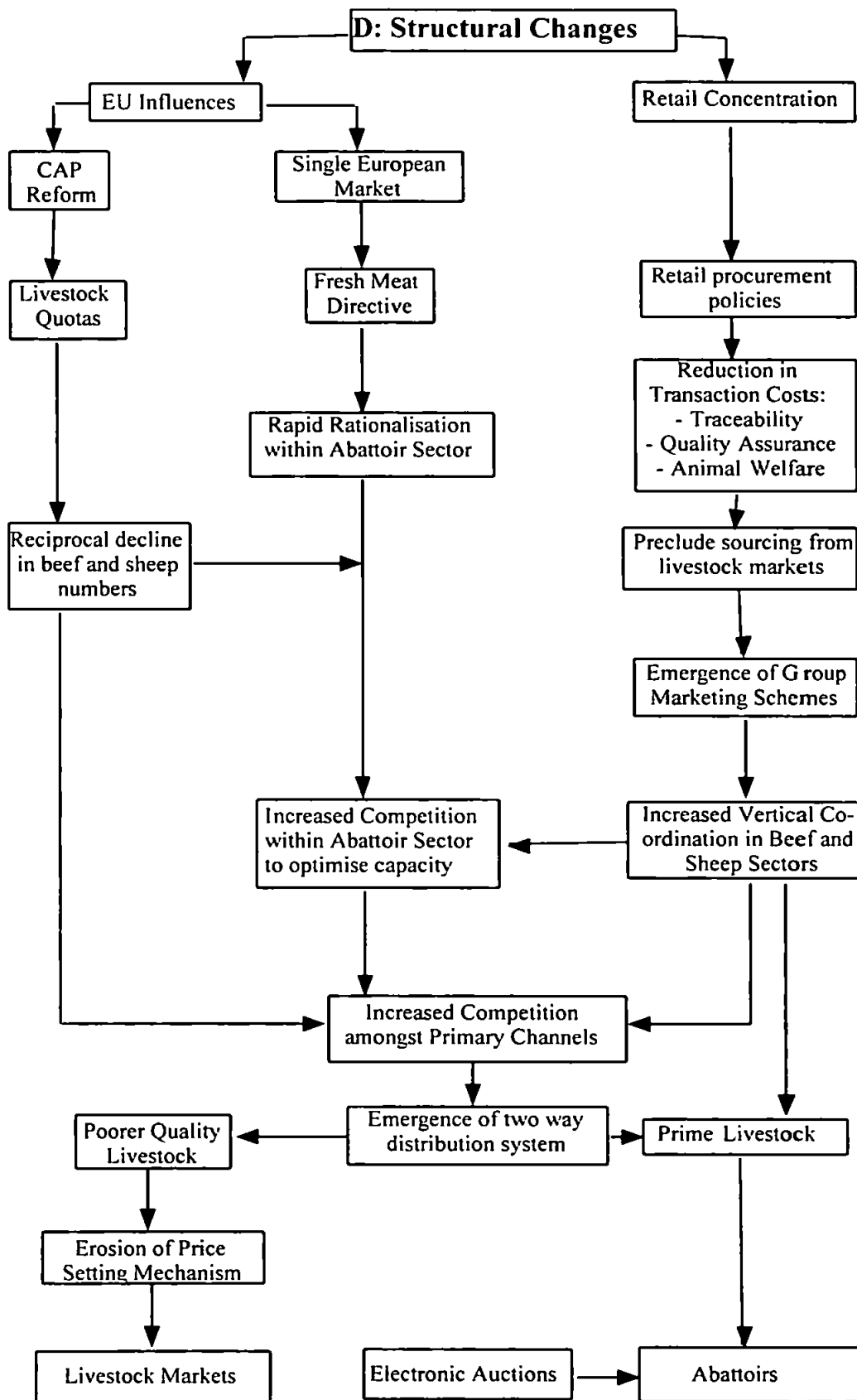
APPENDIX 2: THE CONCEPTUAL MODEL











E: Development of Hypotheses

- H₁ Livestock producers in Devon and Cornwall can be categorised into strategic groups in relation to their marketing activities and business orientations.
- H₂ It is unlikely that existing agricultural and/or generic business typologies can adequately describe farm business marketing strategies in the late 1990's
- H₃ The increased need for quality assurance and traceability will affect livestock producers choice of marketing channels.
- H₄ The importance of market intelligence will vary according to the type of strategic group that a farmer is in.
- H₅ The majority of livestock producers fail to acknowledge the marketing concept of integrating the marketing channel from the point of production to the final point of sale.

F: Development of Hypotheses

- H₆ Vertical co-ordination within the meat and livestock sector will lead to further erosion of the livestock market sector and lead to the emergence of a two way supply chain.
- H₇ Retailers preferences for preferred suppliers will be influenced by the transaction costs which arise from dealing with these suppliers, these in turn are likely to affect channel utilisation.
- H₈ The countervailing power held by the livestock market sector is steadily eroding in light of increased vertical co-ordination.
- H₉ Increased retail concentration will lead to increased strategic alliances with members in the marketing channel and put increasing pressures on producers to comply to retailers preferences.
- H₁₀ There is a mutual interdependence between members of the marketing channel.

APPENDIX 3

Survey Press Release

APPENDIX 3: PRESS RELEASE

LIVESTOCK MARKETING SURVEY FOR FINISHED BEEF AND LAMB IN DEVON AND CORNWALL

A PhD research project is currently being undertaken by Dafydd Davies, at the Department of Land Use and Rural Management, Seale-Hayne Faculty, University of Plymouth which investigates the factors determining the distribution of meat and livestock in Devon and Cornwall.

Major structural changes have occurred in the meat and livestock industry in recent years for a variety of reasons resulting in significant changes in the way livestock is sold. If farmers are to survive the very difficult period which lies ahead, it is essential that finished stock is sold to the best advantage.

The primary aim of the research is to establish why livestock producers select particular marketing channels (e.g. livestock markets, direct to abattoir, electronic auctions) and to investigate the link between farm/ farmer types in relation to the channels that they select. The research has the full support of the National Farmers Union and Livestock Auctioneers' Association. Very little research has been undertaken in this area and both the NFU and LAA recognise the importance of developing a greater understanding of the types of marketing strategies that farmers adopt in response to the ever increasing pressures that confront them.

The primary source of information for the research is a major postal survey which will be despatched at the beginning of November 1997 to NFU members. Information gathered in the survey will contribute towards achieving the research objectives.

It is hoped that NFU members receiving the questionnaire will be able to spare a few minutes of their valuable time to complete the survey. Every completed questionnaire that is returned will make the research results just that little bit more effective and accurate.

APPENDIX 4

Survey Covering Letters

APPENDIX 4: SURVEY COVERING LETTERS

Survey supported by:



Department of Land Use
and Rural Management
Seale-Hayne

University of Plymouth
Newton Abbot
Devon TQ12 6NQ

Tel 01626 325661
Fax 01626 325657
WWW Server <http://141.163.121.36/>

Head of Department
Martyn Warren BSc MSc MIAgrM

12 November 1997

Dear NFU member

LIVESTOCK MARKETING SURVEY FOR FINISHED BEEF IN DEVON AND CORNWALL

I am a currently studying for a PhD entitled '*An investigation into the factors determining the distribution of meat and livestock in Devon and Cornwall*'. As you are no doubt aware there have been major structural changes in meat and livestock distribution over recent years for a variety of reasons resulting in significant changes in the way livestock is sold.

The primary aim of the enclosed survey is to establish why livestock producers select particular marketing channels (e.g. livestock markets, direct to abattoir, electronic auctions) and to investigate the link between farm/farmer types to the channels that they select.

The research has the full support of the National Farmers Union (who have kindly allowed me access to their membership database), the Livestock Auctioneers' Association and the Royal Institution of Chartered Surveyors (copies of the supporting letters may be viewed overleaf). Very little research has been undertaken in this area and all the supporting organisations acknowledge the importance of developing a greater understanding of the types of marketing strategies that farmers adopt in response to the ever increasing pressures that confront them.

I would be extremely grateful if you would complete the questionnaire and return in the enclosed pre-paid envelope. Every completed questionnaire that is returned to me will make the research results just that little bit more accurate and effective. Whilst I realise that the questionnaire is long, you will see that the majority of questions may be simply answered by either entering a number in a box or by a tick and should take approximately 20 minutes to complete.

I would like to emphasise that all the information collected will be treated in the strictest confidence and it will not be possible to identify any data given by any particular producer in the research results.

I would like to thank you in advance for your co-operation and assistance and look forward to receiving the questionnaire by the closing date : Friday 12 December 1997.

Yours sincerely

Dafydd Davies
Postgraduate Research Student

Enc.

Survey supported by:



Department of Land Use
and Rural Management
Scale-Hayne

University of Plymouth
Newton Abbot
Devon TQ12 6NQ

Tel 01626 325661
Fax 01626 325657
WWW Server <http://141.163.121.36/>

Head of Department
Martyn Warren BSc MSc MIAgrM

26 November 1997

Dear NFU member

LIVESTOCK MARKETING SURVEY FOR FINISHED BEEF IN DEVON AND CORNWALL

I wrote to you little while ago asking if you would kindly help me with the above survey.

If you have returned the questionnaire, I thank you very much indeed for your help and apologise for troubling you unnecessarily.

If, however, you have not been able to reply, I very much hope that you will find it possible to answer the questionnaire and return it to me in the pre-paid envelope provided. I appreciate that you have pressures on your valuable time but in order to make the research results as effective and accurate as possible I would like to ensure that the survey is as complete as possible.

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Head of Department
Martyn Warren BSc MSc MIAgrM

12 November 1997

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I am currently studying for a PhD entitled '*An investigation into the factors determining the distribution of meat and livestock in Devon and Cornwall*'. As you are no doubt aware there have been major structural changes in meat and livestock distribution over recent years for a variety of reasons resulting in significant changes in the way livestock is sold.

The primary aim of the enclosed survey is to establish why livestock producers select particular marketing channels (e.g. livestock markets, direct to abattoir, electronic auctions) and to investigate the link between farm/farmer types to the channels that they select.

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Yours sincerely

Dafydd Davies
Postgraduate Research Student

Enc.

Survey supported by:



Department of Land Use
and Rural Management
Seale-Hayne

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WWW Server <http://141.163.121.36/>

Head of Department
Martyn Warren BSc MSc MIAgrM

26 November 1997

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I wrote to you little while ago asking if you would kindly help me with the above survey.

If you have returned the questionnaire, I thank you very much indeed for your help and apologise for troubling you unnecessarily.

If, however, you have not been able to reply, I very much hope that you will find it possible to answer the questionnaire and return it to me in the pre-paid envelope provided. I appreciate that you have pressures on your valuable time but in order to make the research results as effective and accurate as possible I would like to ensure that the survey is as complete as possible.

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Yours sincerely

Dafydd Davies
Postgraduate Research Student

Enc.



SOUTH WEST REGION
Agriculture House-Pynes Hill-Rydon Lane
Exeter EX2 5ST

Our Ref: AAG/7A
Date: 10 November 1997

Dear NFU member

FARM SURVEY FOR FINISHED BEEF & LAMB IN DEVON & CORNWALL

The NFU is very happy to support this survey.

If livestock farmers are to survive the very difficult period which lies ahead, it is essential that they sell their finished stock to the very best advantage. Having the widest possible choice of marketing outlets will be vital in that context.

Information gathered in this survey should contribute towards achieving that objective, and I very much hope that you may be able to spend a few minutes completing the questionnaire.

Yours faithfully

ANTHONY GIBSON
Regional Director



THE LIVESTOCK AUCTIONEERS' ASSOCIATION

Surveyor Court, Westwood Way, Coventry CV4 8JE

Coventry:
Tel: 0171 334 3832
Fax: 0171 334 3800

Ashford:
Tel/Fax: 01233 627009
Mobile: 0831 336714

15 August, 1997

Mr D Davies
Department of Land Use & Rural Management
Seale-Hayne
University of Plymouth
NEWTON ABBOT
Devon TQ12 6NQ

Dear David

FARM SURVEY

I am writing to endorse your research work among livestock producers in Devon and Cornwall, and confirm the LAA's support for it, which we have demonstrated by making a financial contribution. We urge all livestock auctioneers to help as much as they can.

Yours sincerely

JOHN R F MARTIN
EXECUTIVE SECRETARY

APPENDIX 5

Main Survey Instruments

APPENDIX 5: MAIN SURVEY INSTRUMENTS

Survey supported by:



*Department of Land Use and Rural Management
Seale-Hayne Faculty of Agriculture, Food and Land Use
University of Plymouth*



**LIVESTOCK MARKETING SURVEY
FOR FINISHED BEEF IN DEVON AND CORNWALL**



PART 1: CHOICE CRITERIA FOR SELECTING MARKETING CHANNELS

- 1. a Please indicate, in box 1a, the methods of sale you used in 1997 in percentage terms for each channel selected: (e.g. direct sales to abattoir: 60% livestock markets: 35% electronic auction: 5%)
- 1. b Please indicate, in box 1b, how many different sales channels did you use during 1997: (e.g. I used 3 different livestock markets, 2 different abattoirs and 1 electronic auction)

	1a	1b		1a	1b
Livestock Market	<input type="checkbox"/>	<input type="checkbox"/>	Direct Sales to Abattoir	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Auctions	<input type="checkbox"/>	<input type="checkbox"/>	Private Sales	<input type="checkbox"/>	<input type="checkbox"/>
Direct to Abattoir via Group Marketing Schemes	<input type="checkbox"/>	<input type="checkbox"/>	Livestock Dealer	<input type="checkbox"/>	<input type="checkbox"/>

- 2. Please indicate the relative importance of factors taken into account when selecting a marketing channel: Please respond to every factor and print the appropriate number between 1-5 in every box.

Not Important	2	Moderately Important	4	Very Important
1		3		5
Sale Price	<input type="checkbox"/>			Higher expected returns
Transportation Costs	<input type="checkbox"/>			Quality of livestock
Your Time	<input type="checkbox"/>			Social Aspects
Marketing Costs	<input type="checkbox"/>			Animal Welfare
Price Information	<input type="checkbox"/>			Proximity to Farm
Loyalty	<input type="checkbox"/>			Contractual Obligations
Convenience	<input type="checkbox"/>			Speed of Payment
Competitive Bidding	<input type="checkbox"/>			Grading Uncertainty
Access to wider pool of buyers	<input type="checkbox"/>			Bargaining Strength
Experimenting with different marketing channels	<input type="checkbox"/>			Ability to withdraw livestock

Other Reasons: _____
(Please state) _____

3. Please rank in order of importance the three most important factors taken into account when selecting a marketing channel (e.g. marketing costs:1, price:2, animal welfare:3):

Sale Price	<input type="checkbox"/>	Higher expected returns	<input type="checkbox"/>
Transportation Costs	<input type="checkbox"/>	Quality of livestock	<input type="checkbox"/>
Your Time	<input type="checkbox"/>	Social Aspects	<input type="checkbox"/>
Marketing Costs	<input type="checkbox"/>	Animal Welfare	<input type="checkbox"/>
Price Information	<input type="checkbox"/>	Proximity to farm	<input type="checkbox"/>
Loyalty	<input type="checkbox"/>	Contractual Obligations	<input type="checkbox"/>
Convenience	<input type="checkbox"/>	Speed of Payment	<input type="checkbox"/>
Competitive Bidding	<input type="checkbox"/>	Grading Uncertainty	<input type="checkbox"/>
Access to wider pool of buyers	<input type="checkbox"/>	Bargaining Strength	<input type="checkbox"/>
Experimenting with different marketing channels	<input type="checkbox"/>	Ability to withdraw livestock	<input type="checkbox"/>

4. Please indicate if you are a member of a Group Marketing Scheme and/or FABBL:

Yes No

If Yes, please indicate which group marketing scheme/s you are a member of:
(e.g. Cooperatives: Cornwall Quality Lamb, FABBL, Producer Clubs: Tesco and St Merryn Meat)

5. Please indicate the distances (miles) your livestock travel to your main marketing channel:
(e.g livestock market, abattoir)

1-50	<input type="checkbox"/>	151-200	<input type="checkbox"/>	301-350	<input type="checkbox"/>
51-100	<input type="checkbox"/>	201-250	<input type="checkbox"/>	350-400	<input type="checkbox"/>
101-150	<input type="checkbox"/>	251-300	<input type="checkbox"/>	400+	<input type="checkbox"/>
If Not Known, Please Tick:		Don't Know	<input type="checkbox"/>		

6. Please enter on the Beef Carcase Classification Grid below which classification categories the majority of your livestock falls into: (e.g. 4LR, 4H-O)
(Please tick the appropriate categories)

If Not Known, Please Tick: Don't Know

Conformation	Fattness						
	1	2	3	4L	4H	5L	5H
E							
U+							
U							
R							
O+							
O							
P+							
-P							

7. Compared to other local livestock farmers, do you consider your livestock prices achieved to be:

Below Average

About Average

Above Average

PART 2: MANAGEMENT ACTIVITIES AND ATTITUDES

Please print the appropriate number in the box beside each of the following questions.

1. To what extent do you orientate your farm business operation towards each of the following:

No Extent

1

2

3

4

High Extent

5

- a. I plan my production decisions by continually monitoring market prices.
- b. I simultaneously plan production and sales decisions.
- c. I have the lowest possible input costs.
- d. I am aware of the exact costs and returns for the livestock I produce.
- e. I produce livestock which meet market requirements.
- f. I continually update the production techniques I use to produce my livestock.
- g. I have extremely flexible production plans.
- h. I meet market requirements by adapting my production methods
- i. I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.
- j. I produce speciality, niche market livestock e.g. organic
- k. I produce livestock which requires specialist knowledge, equipment or facilities that other farmers do not have.
- l. I understand detailed market requirements for the livestock I produce.
- m. I continually monitor market information other than price to plan my sales and production decisions.
- n. I am personally involved in off farm marketing activities. e.g. producer groups
- o. I maximise carcase quality by using specialist techniques. e.g artificial insemination
- p. I deal with a minimum number of marketing outlets so that I can maintain a good relationship with these channel members. e.g. livestock market, abattoir
- q. I own or manage facilities that are normally owned by middlemen further down the distribution chain. e.g. farm shop, slaughterhouse, haulage business
- r. I use specialist techniques to gain the highest quality premiums for my livestock.
- s. I continually seek out new market outlets to sell to. e.g. new producer groups, direct to butchers
- t. I work out the differences in returns resulting from selling livestock via different marketing outlets. e.g. livestock markets, direct to abattoir.
- u. I plan my production to coincide with seasonal fluctuations.

2. To what extent do you agree with the following statements:
Please print the appropriate number in the box beside each of the following questions.

Strongly Disagree Strongly Agree
1 2 3 4 5

- a. Maximising profits is my most important farming goal.
- b. I have no influence over the price I receive for my produce.
- c. I produce livestock which are of a different quality than those produced by other farmers.
- d. Policies of other countries have little influence on my farm profitability.
- e. I am not in competition with overseas livestock producers.
- f. I adapt my enterprise mix to minimise risk.
- g. I increase my farm profitability by satisfying the buyers of my produce.
- h. I have easy access to capital and so I farm in a less constrained way compared to other farmers.
- i. My main competitors are a small number of specialist producers.
- j. Disease is the major cause of fluctuations on my farm returns.
- k. The Common Agricultural policy has a most important influence over my farm profitability.
- l. Budgeting and planning to obtain the lowest possible farm costs is the most important management activity I undertake.
- m. When I have finished my livestock I must sell immediately and cannot afford to wait for prices to improve.
- n. I always set aside a proportion of my production flock to experiment with livestock techniques of which I am unfamiliar.
- o. Devon and Cornish farmers are my main competitors.
- p. My most important production activity is continually monitoring the quality of my livestock.
- q. I increase my farm business success by producing quality livestock which I sell by formal or informal contract.
- r. I produce livestock on a trial basis for feed companies or retailers.
- s. Keeping knowledge I have from other producers is essential to my farm business operation.
- t. I increase my farm business success by understanding the needs and wants of the final consumer.
- u. High animal welfare standards are important to my production methods.
- v. Being able to trace livestock back to source is essential to my farm business operation.
- w. Intensive production methods are important to my farm business operation.

PART 3 INFORMATION SOURCES

1. Please indicate the relative importance of the information sources you use. Please respond to each information source and print the appropriate number between 1-5 in every box.

Not Important 1	2	Moderately Important 3	4	Very Important 5
Land agents/Auctioneers	<input type="checkbox"/>		Newspapers	<input type="checkbox"/>
Agricultural journals	<input type="checkbox"/>		My own records	<input type="checkbox"/>
Radio/television	<input type="checkbox"/>		Farmer group meetings	<input type="checkbox"/>
My bank manager	<input type="checkbox"/>		Meat and Livestock Commission	<input type="checkbox"/>
Other farmers	<input type="checkbox"/>		My accountant	<input type="checkbox"/>
My farm budget	<input type="checkbox"/>		National Farmers Union	<input type="checkbox"/>
Family members	<input type="checkbox"/>		Producer group information	<input type="checkbox"/>
Livestock dealers	<input type="checkbox"/>		Abattoir agents	<input type="checkbox"/>
Feed Company Reps	<input type="checkbox"/>		Trade Literature	<input type="checkbox"/>

Other Sources: (Please state) _____

2. Please indicate the relative importance of the types of information you use. Please respond to each information type and print the appropriate number between 1-5 in every box.

Not Important 1	2	Moderately Important 3	4	Very Important 5
UK livestock prices		<input type="checkbox"/>	Management practices	<input type="checkbox"/>
Local livestock prices		<input type="checkbox"/>	Animal diseases	<input type="checkbox"/>
Overseas livestock prices		<input type="checkbox"/>	Consumer information	<input type="checkbox"/>
Quality premia/penalties		<input type="checkbox"/>	Financial	<input type="checkbox"/>
Production techniques		<input type="checkbox"/>	Producer group information	<input type="checkbox"/>

Other Sources: (Please state) _____

PART 4: MARKETING OR VALUE ADDED QUESTIONS:

If you produce specialist or niche market livestock, or further process, market or add value to your produce please give brief details:

PART 5: GENERAL FARM AND FARMER CHARACTERISTICS

1. How many hectares of land do you farm?
2. Approximately how many hectares of land are allocated to your beef enterprise?
3. Please indicate the size of your production herd:
4. What area of land do you:
 - a. own
 - b. rent or lease from others
 - c. rent or lease to others
5. Do you lease in or out any livestock quota?
(Please indicate amount of quota)
 - a. lease to others
 - b. lease from others
6. How many working days a month do you usually spend away from the farm:
(Please print number of days)
 - a. doing farm related activities
(e.g. NFU meetings, producer group meetings, at market, or others)
 - b. working and earning income at another job
(e.g. for other farmers, in a business, or others)
7. Since the age of 16, approximately how many years have you:
(Please print a number)
 - a. been involved with livestock farming
 - b. been in charge of making decisions on a livestock farm
 - c. worked on your current farm
 - d. been in charge of making decisions on your current farm
8. Please indicate if you hold positions of more responsibility than normal voting members:
(Please tick the relevant boxes)
 - a. with a marketing co-operative e.g. Cornwall Quality Lamb or other
 - b. with a farming organisation e.g. NFU or others
 - c. with a non-farm business you own
 - d. by directing or managing a non-farm business you do not own
9. If you have previous non-farm work experience please state:

Type of Job	Years Worked
_____	_____
_____	_____
10. What is your approximate debt servicing (interest and principal payments) as a proportion of your farm income for the financial year 1997-1998?

0-9%	10-19%	20-29%	30-39%	40%+	Don't Know
<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>

11. Approximately what percentage of your farm income comes from your beef enterprise for the year 1997?

0-24%	25-49%	50-69%	70-79%	80-89%	90%+
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Compared to other livestock farmers do you consider your financial performance to be:

Below Average	About Average	Above Average
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please indicate your age: (tick one box)

Under 30	31-40	41-50	51-60	61-70	Over 70
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Please indicate the level of education achieved: (tick one box)

Secondary	A Levels	National Diploma	HND	Degree	Postgraduate
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Please add any further comments you may have:

16. Please enter your name and address below:

THANK YOU VERY MUCH FOR COMPLETING THE SURVEY. YOUR TIME AND EFFORT IS VERY MUCH APPRECIATED.

ALL RESPONSES WILL BE TREATED IN THE STRICTEST CONFIDENCE

If you require any further information with regard to this survey please contact:

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Respondent No. :

Date Received:

Survey supported by:



Department of Land Use and Rural Management
Seale-Hayne Faculty of Agriculture, Food and Land Use
University of Plymouth



**LIVESTOCK MARKETING SURVEY
FOR FINISHED LAMB IN DEVON AND CORNWALL**



PART I: CHOICE CRITERIA FOR SELECTING MARKETING CHANNELS

1. a Please indicate, in box 1a, the methods of sale you used in 1997 in percentage terms for each channel selected:
(e.g. direct sales to abattoir: 60% livestock markets: 35% electronic auction: 5%)
1. b Please indicate, in box 1b, how many different sales channels did you use during 1997:
(e.g. I used 3 different livestock markets, 2 different abattoirs and 1 electronic auction)

	1a	1b		1a	1b
Livestock Market	<input type="checkbox"/>	<input type="checkbox"/>	Direct Sales to Abattoir	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Auctions	<input type="checkbox"/>	<input type="checkbox"/>	Private Sales	<input type="checkbox"/>	<input type="checkbox"/>
Direct to Abattoir via Group Marketing Schemes	<input type="checkbox"/>	<input type="checkbox"/>	Livestock Dealer	<input type="checkbox"/>	<input type="checkbox"/>

2. Please indicate the relative importance of factors taken into account when selecting a marketing channel:
Please respond to every factor and print the appropriate number between 1-5 in every box.

Not Important	2	Moderately Important	4	Very Important	
1		3		5	
Sale Price	<input type="checkbox"/>			Higher expected returns	<input type="checkbox"/>
Transportation Costs	<input type="checkbox"/>			Quality of livestock	<input type="checkbox"/>
Your Time	<input type="checkbox"/>			Social Aspects	<input type="checkbox"/>
Marketing Costs	<input type="checkbox"/>			Animal Welfare	<input type="checkbox"/>
Price Information	<input type="checkbox"/>			Proximity to Farm	<input type="checkbox"/>
Loyalty	<input type="checkbox"/>			Contractual Obligations	<input type="checkbox"/>
Convenience	<input type="checkbox"/>			Speed of Payment	<input type="checkbox"/>
Competitive Bidding	<input type="checkbox"/>			Grading Uncertainty	<input type="checkbox"/>
Access to wider pool of buyers	<input type="checkbox"/>			Bargaining Strength	<input type="checkbox"/>
Experimenting with different marketing channels	<input type="checkbox"/>			Ability to withdraw livestock	<input type="checkbox"/>
Other Reasons:	_____				
(Please state)	_____				

3. Please rank in order of importance the three most important factors taken into account when selecting a marketing channel (e.g. marketing costs:1, price:2, animal welfare:3):

Sale Price	<input type="checkbox"/>	Higher expected returns	<input type="checkbox"/>
Transportation Costs	<input type="checkbox"/>	Quality of livestock	<input type="checkbox"/>
Your Time	<input type="checkbox"/>	Social Aspects	<input type="checkbox"/>
Marketing Costs	<input type="checkbox"/>	Animal Welfare	<input type="checkbox"/>
Price Information	<input type="checkbox"/>	Proximity to farm	<input type="checkbox"/>
Loyalty	<input type="checkbox"/>	Contactual Obligations	<input type="checkbox"/>
Convenience	<input type="checkbox"/>	Speed of Payment	<input type="checkbox"/>
Competitive Bidding	<input type="checkbox"/>	Grading Uncertainty	<input type="checkbox"/>
Access to wider pool of buyers	<input type="checkbox"/>	Bargaining Strength	<input type="checkbox"/>
Experimenting with different marketing channels	<input type="checkbox"/>	Ability to withdraw livestock	<input type="checkbox"/>

4. Please indicate if you are a member of a Group Marketing Scheme and/or FABBL:

Yes No

If Yes, please indicate which group marketing scheme/s you are a member of:
(e.g. Cooperatives: Cornwall Quality Lamb, FABBL, Producer Clubs: Tesco and St Merryn Meat)

5. Please indicate the distances (miles) your livestock travel to your main marketing channel:
(e.g. livestock market, abattoir)

1-50	<input type="checkbox"/>	151-200	<input type="checkbox"/>	301-350	<input type="checkbox"/>
51-100	<input type="checkbox"/>	201-250	<input type="checkbox"/>	350-400	<input type="checkbox"/>
101-150	<input type="checkbox"/>	251-300	<input type="checkbox"/>	400+	<input type="checkbox"/>
If Not Known, Please Tick:		Don't Know	<input type="checkbox"/>		

6. Please enter on the Sheep Carcase Classification Grid below which classification categories the majority of your livestock falls into: (e.g. 3LR, 4LU)
(Please tick the appropriate categories)

If Not Known, Please Tick: Don't Know

Fatness							
Conformation	1	2	3L	3H	4L	4H	5
E							
U							
R							
O							
P							

7. Compared to other local livestock farmers, do you consider your livestock prices achieved to be:

Below Average

About Average

Above Average

PART 2: MANAGEMENT ACTIVITIES AND ATTITUDES

Please print the appropriate number in the box beside each of the following questions.

1. To what extent do you orientate your farm business operation towards each of the following:

No Extent
1

2

3

4

High Extent
5

- a. I plan my production decisions by continually monitoring market prices.
- b. I simultaneously plan production and sales decisions.
- c. I have the lowest possible input costs.
- d. I am aware of the exact costs and returns for the livestock I produce.
- e. I produce livestock which meet market requirements.
- f. I continually update the production techniques I use to produce my livestock.
- g. I have extremely flexible production plans.
- h. I meet market requirements by adapting my production methods
- i. I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.
- j. I produce speciality, niche market livestock e.g. organic
- k. I produce livestock which requires specialist knowledge, equipment or facilities that other farmers do not have.
- l. I understand detailed market requirements for the livestock I produce.
- m. I continually monitor market information other than price to plan my sales and production decisions.
- n. I am personally involved in off farm marketing activities. e.g. producer groups
- o. I maximise carcase quality by using specialist techniques. e.g. artificial insemination
- p. I deal with a minimum number of marketing outlets so that I can maintain a good relationship with these channel members. e.g. livestock market, abattoir
- q. I own or manage facilities that are normally owned by middlemen further down the distribution chain. e.g. farm shop, slaughterhouse, haulage business
- r. I use specialist techniques to gain the highest quality premiums for my livestock.
- s. I continually seek out new market outlets to sell to. e.g. new producer groups, direct to butchers
- t. I work out the differences in returns resulting from selling livestock via different marketing outlets. e.g. livestock markets, direct to abattoir.
- u. I plan my production to coincide with seasonal fluctuations.

2. To what extent do you agree with the following statements:
Please print the appropriate number in the box beside each of the following questions.

Strongly Disagree Strongly Agree
1 2 3 4 5

- | | | |
|----|--|--------------------------|
| a. | Maximising profits is my most important farming goal. | <input type="checkbox"/> |
| b. | I have no influence over the price I receive for my produce. | <input type="checkbox"/> |
| c. | I produce livestock which are of a different quality than those produced by other farmers. | <input type="checkbox"/> |
| d. | Policies of other countries have little influence on my farm profitability. | <input type="checkbox"/> |
| e. | I am not in competition with overseas livestock producers. | <input type="checkbox"/> |
| f. | I adapt my enterprise mix to minimise risk. | <input type="checkbox"/> |
| g. | I increase my farm profitability by satisfying the buyers of my produce. | <input type="checkbox"/> |
| h. | I have easy access to capital and so I farm in a less constrained way compared to other farmers. | <input type="checkbox"/> |
| i. | My main competitors are a small number of specialist producers. | <input type="checkbox"/> |
| j. | Disease is the major cause of fluctuations on my farm returns. | <input type="checkbox"/> |
| k. | The Common Agricultural policy has a most important influence over my farm profitability. | <input type="checkbox"/> |
| l. | Budgeting and planning to obtain the lowest possible farm costs is the most important management activity I undertake. | <input type="checkbox"/> |
| m. | When I have finished my livestock I must sell immediately and cannot afford to wait for prices to improve. | <input type="checkbox"/> |
| n. | I always set aside a proportion of my production flock to experiment with livestock techniques of which I am unfamiliar. | <input type="checkbox"/> |
| o. | Devon and Cornish farmers are my main competitors. | <input type="checkbox"/> |
| p. | My most important production activity is continually monitoring the quality of my livestock. | <input type="checkbox"/> |
| q. | I increase my farm business success by producing quality livestock which I sell by formal or informal contract. | <input type="checkbox"/> |
| r. | I produce livestock on a trial basis for feed companies or retailers. | <input type="checkbox"/> |
| s. | Keeping knowledge I have from other producers is essential to my farm business operation. | <input type="checkbox"/> |
| t. | I increase my farm business success by understanding the needs and wants of the final consumer. | <input type="checkbox"/> |
| u. | High animal welfare standards are important to my production methods. | <input type="checkbox"/> |
| v. | Being able to trace livestock back to source is essential to my farm business operation. | <input type="checkbox"/> |
| w. | Intensive production methods are important to my farm business operation. | <input type="checkbox"/> |

PART 3 INFORMATION SOURCES

1. Please indicate the relative importance of the information sources you use. Please respond to each information source and print the appropriate number between 1-5 in every box.

Not Important 1	2	Moderately Important 3	4	Very Important 5
Land agents/Auctioneers	<input type="checkbox"/>		Newspapers	<input type="checkbox"/>
Agricultural journals	<input type="checkbox"/>		My own records	<input type="checkbox"/>
Radio/television	<input type="checkbox"/>		Farmer group meetings	<input type="checkbox"/>
My bank manager	<input type="checkbox"/>		Meat and Livestock Commission	<input type="checkbox"/>
Other farmers	<input type="checkbox"/>		My accountant	<input type="checkbox"/>
My farm budget	<input type="checkbox"/>		National Farmers Union	<input type="checkbox"/>
Family members	<input type="checkbox"/>		Producer group information	<input type="checkbox"/>
Livestock dealers	<input type="checkbox"/>		Abattoir agents	<input type="checkbox"/>
Feed Company Reps	<input type="checkbox"/>		Trade Literature	<input type="checkbox"/>

Other Sources: _____
(Please state)

2. Please indicate the relative importance of the types of information you use. Please respond to each information type and print the appropriate number between 1-5 in every box.

Not Important 1	2	Moderately Important 3	4	Very Important 5	
UK livestock prices		<input type="checkbox"/>		Management practices	<input type="checkbox"/>
Local livestock prices		<input type="checkbox"/>		Animal diseases	<input type="checkbox"/>
Overseas livestock prices		<input type="checkbox"/>		Consumer information	<input type="checkbox"/>
Quality premia/penalties		<input type="checkbox"/>		Financial	<input type="checkbox"/>
Production techniques		<input type="checkbox"/>		Producer group information	<input type="checkbox"/>

Other Sources: _____
(Please state)

PART 4: MARKETING OR VALUE ADDED QUESTIONS:

If you produce specialist or niche market livestock, or further process, market or add value to your produce please give brief details:

PART 5: GENERAL FARM AND FARMER CHARACTERISTICS

1. How many hectares of land do you farm?
2. Approximately how many hectares of land are allocated to your sheep enterprise?
3. Please indicate the size of your breeding flock:
4. What area of land do you:
 - a. own
 - b. rent or lease from others
 - c. rent or lease to others
5. Do you lease in or out any livestock quota?
(Please indicate amount of quota)
 - a. lease to others
 - b. lease from others
6. How many working days a month do you usually spend away from the farm:
(Please print number of days)
 - a. doing farm related activities
(e.g. NFU meetings, producer group meetings, at market, or others)
 - b. working and earning income at another job
(e.g. for other farmers, in a business, or others)
7. Since the age of 16, approximately how many years have you:
(Please print a number)
 - a. been involved with livestock farming
 - b. been in charge of making decisions on a livestock farm
 - c. worked on your current farm
 - d. been in charge of making decisions on your current farm
8. Please indicate if you hold positions of more responsibility than normal voting members:
(Please tick the relevant boxes)
 - a. with a marketing co-operative e.g. Cornwall Quality Lamb or other
 - b. with a farming organisation e.g. NFU or others
 - c. with a non-farm business you own
 - d. by directing or managing a non-farm business you do not own
9. If you have previous non-farm work experience please state:

Type of Job	Years Worked
<hr style="width: 80%; border: 0; border-top: 1px solid black;"/>	<hr style="width: 80%; border: 0; border-top: 1px solid black;"/>
<hr style="width: 80%; border: 0; border-top: 1px solid black;"/>	<hr style="width: 80%; border: 0; border-top: 1px solid black;"/>
10. What is your approximate debt servicing (interest and principal payments) as a proportion of your farm income for the financial year 1997 -1998?

0-9%	10-19%	20-29%	30-39%	40%+	Don't Know
<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>	<input style="width: 20px; height: 15px;" type="checkbox"/>

11. Approximately what percentage of your farm income comes from your sheep enterprise for the year 1997?

0-24%	25-49%	50-69%	70-79%	80-89%	90%+
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Compared to other livestock farmers do you consider your financial performance to be:

Below Average	About Average	Above Average
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please indicate your age: (tick one box)

Under 30	31-40	41-50	51-60	61-70	Over 70
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Please indicate the level of education achieved: (tick one box)

Secondary	A Levels	National Diploma	HND	Degree	Postgraduate
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Please add any further comments you may have:

16. Please enter your name and address below:

THANK YOU VERY MUCH FOR COMPLETING THE SURVEY. YOUR TIME AND EFFORT IS VERY MUCH APPRECIATED.

ALL RESPONSES WILL BE TREATED IN THE STRICTEST CONFIDENCE

If you require any further information with regard to this survey please contact:

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APPENDIX 6

Correlated Principle Component Analysis Variables – Beef

**APPENDIX 6: CORRELATED PRINCIPLE COMPONENT ANALYSIS
VARIABLES – BEEF**

- V₁ I plan my production decisions by continually monitoring market prices.
- V₂ I simultaneously plan production and sales decisions.
- V₃ I have the lowest possible input costs.
- V₄ I am aware of the exact costs and returns for the livestock I produce.
- V₅ I produce livestock which meet market requirements.
- V₆ I continually update the production techniques I use to produce my livestock.
- V₇ I meet market requirements by adapting my production methods
- V₈ I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.
- V₉ I produce speciality, niche market livestock e.g. organic
- V₁₀ I produce livestock which requires specialist knowledge, equipment or facilities that other farmers do not have.
- V₁₁ I understand detailed market requirements for the livestock I produce.
- V₁₂ I continually monitor market information other than price to plan my sales and production decisions.
- V₁₃ I am personally involved in off farm marketing activities. e.g. producer groups
- V₁₄ I deal with a minimum number of marketing outlets so that I can maintain a good relationship with these channel members. e.g. livestock market, abattoir
- V₁₅ I own or manage facilities that are normally owned by middlemen further down the distribution chain. e.g. farm shop, slaughterhouse, haulage business
- V₁₆ I continually seek out new market outlets to sell to. e.g. new producer groups, direct to butchers
- V₁₇ I work out the differences in returns resulting from selling livestock via different marketing outlets. e.g. livestock markets, direct to abattoir.
- V₁₈ I plan my production to coincide with seasonal fluctuations.

- V₁₉ I increase my farm profitability by satisfying the buyers of my produce.
- V₂₀ Budgeting and planning to obtain the lowest possible farm costs is the most important management activity I undertake.
- V₂₁ My most important production activity is continually monitoring the quality of my livestock.
- V₂₂ I increase my farm business success by producing quality livestock which I sell by contract.
- V₂₃ I increase my farm business success by understanding the needs and wants of the final consumer.
- V₂₄ Being able to trace livestock back to source is essential to my farm business operation.

APPENDIX 7

Correlated Principle Component Analysis Variables – Sheep

**APPENDIX 7: CORRELATED PRINCIPLE COMPONENT ANALYSIS
VARIABLES – SHEEP**

- V₁ I plan my production decisions by continually monitoring market prices.
- V₂ I simultaneously plan production and sales decisions.
- V₃ I have the lowest possible input costs.
- V₄ I am aware of the exact costs and returns for the livestock I produce.
- V₅ I produce livestock which meet market requirements.
- V₆ I continually update the production techniques I use to produce my livestock.
- V₇ I have extremely flexible production plans.
- V₈ I meet market requirements by adapting my production methods
- V₉ I have detailed knowledge of the distribution channels my livestock moves through after it leaves the farm.
- V₁₀ I produce speciality, niche market livestock e.g. organic
- V₁₁ I produce livestock which requires specialist knowledge, equipment or facilities that other farmers do not have.
- V₁₂ I understand detailed market requirements for the livestock I produce.
- V₁₃ I continually monitor market information other than price to plan my sales and production decisions.
- V₁₄ I am personally involved in off farm marketing activities. e.g. producer groups
- V₁₅ I own or manage facilities that are normally owned by middlemen further down the distribution chain. e.g. farm shop, slaughterhouse, haulage business
- V₁₆ I use specialist techniques to gain the highest quality premiums for my livestock.
- V₁₇ I continually seek out new market outlets to sell to. e.g. new producer groups, direct to butchers
- V₁₈ I work out the differences in returns resulting from selling livestock via different marketing outlets. e.g. livestock markets, direct to abattoir.

- V₁₉ I plan my production to coincide with seasonal fluctuations.
- V₂₀ I increase my farm profitability by satisfying the buyers of my produce.
- V₂₁ My main competitors are a small number of specialist producers.
- V₂₂ My most important production activity is continually monitoring the quality of my livestock.
- V₂₃ I increase my farm business success by producing quality livestock which I sell by contract.
- V₂₄ I increase my farm business success by understanding the needs and wants of the final consumer.
- V₂₅ Being able to trace livestock back to source is essential to my farm business operation.

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