Supply Chain Management. A 'first principles' consideration of its application to wool marketing.

S.C. Champion[1] and A.P. Fearne[2]

[1]Tasmanian Institute of Agricultural Research, University of Tasmania, GPO Box 252-54, Hobart, TAS 7001, Australia

[2]Department of Agricultural Sciences, Imperial College at Wye, Wye, Ashford, Kent, TN25 5AH, United Kingdom

Summary

This paper examines the differential characteristics of commodities and products and their respective marketing systems. It identifies the circumstances under which wool and/or its derivatives might be classified as either a commodity or a product and argues that in today's dynamic consumer markets where intangible factors are increasingly important purchase drivers, consumer value may be lost through the use of inappropriate marketing systems. The paper examines the theory of supply chain management (SCM) and proposes that the adoption of SCM may be a useful mechanism for dealing with these problems under certain conditions.

Keywords: wool, supply chain management, marketing, product, commodity

Introduction

During the 1990's the various sectors of the world's wool production and processing pipeline have faced a period of declining demand and correspondingly poor prices, a declining share of the world textile market and changing consumer tastes, resulting in reduced household expenditure on clothing. The impact of these changes has been acutely felt by the world's largest wool exporters, Australia and New Zealand, which together account for 92% of world wool exports (IWS, 1997). In response to this period of environmental uncertainty, major wool industry reviews were commissioned in Australia (Wool Industry Future Directions Taskforce, 1999) and New Zealand (McKinsey and Company, 2000). Both reviews included recommendations relating to the need for woolgrowers to get closer to their downstream customers, in order to better understand their requirements for raw wool. In this sense the wool industry is beginning to move from a production to a market orientation and hence mirrors changes in other agri-food industries (Meulenberg and Viaene, 1998). However, there are few concrete ideas on how to achieve this transition

quickly, efficiently and effectively and recent history is scattered with failed attempts on behalf of various growers and grower groups, to add value to their wool in various ways (Seaman, 1998). This paper examines the potential for supply chain management (SCM) as a means of bringing growers and processors closer together in order to improve the competitiveness of the wool supply chain through the development of a more consumer orientated approach to wool production and processing.

This paper examines the fundamental concepts of 'product' and 'commodity' (termed 'unit type' throughout) in an effort to identify the attributes required in an effective marketing system for wool fibre. After considering the definitions of 'product' and 'commodity', it examines which of these best fit the characteristics of wool. The paper then examines the concept of SCM and comments on some important misconceptions with respect to its application in the wool industry. Finally, it examines the potential impact of a shift to SCM on the upstream chain members, that is, the woolgrowers.

Commodities, products and markets

Commodities can be defined as "materials in their natural state which are often termed 'primary commodities'" (Barker, 1992). They may be described readily and objectively, and hence purchased without visual inspection, they are produced in large quantities, and are available from many sources. The key factor driving the commodity purchase decision is price. In contrast, products can be described as "a bundle of physical, service and symbolic attributes that satisfies consumers wants and needs" (Kohls and Uhl, 1990). The important feature of this definition is the reference to consumer wants and needs, which are not homogeneous and thus permit the producers of products to differentiate their offering in a number of ways, in response to the needs and wants of specific consumer segments, and thereby reduce the influence of price in the purchase decision. Moreover, commodities are physical materials only whereas a product also consists of intangible attributes (for example, various aspects of service, safety, image, welfare standards etc.) which may be of value to the consumer.

The concept of products meeting customer needs is developed further by Altmann (1997), who stresses that the product must primarily solve the problems of the consumer, then those of the middlemen and finally those of the producer. This differs from a commodity where the producer, determines the nature of what is produced. From this, it follows that the formulation of a product's characteristics must be shared between the marketing system participants in order to meet consumer needs. To do this, effective communication channels are required between the participants. However, in commodity markets, relationships and therefore the level of communication between the stakeholders is weak, whereas in a more co-ordinated or integrated marketing system it is (potentially) strong. These differences between product and commodity markets are illustrated in Table 1.

Characteristics	Participant	Marketing system for: Product	Commodity
Priority in determining value/characteristics	Consumer Trader/Processor/Retailer Primary Producer	High Medium Low	Low Medium High
Role of information		Determines quality through both 'tangible' and 'intangible' factors	Provides description
Relationships required in the market		Strong and multi-faceted	Weak and trading orientated
Market type		Differentiarted/Unpredictable demand	Homogeneous/predictable demand
Industry Structure		Competition between supply chains	Competition between individual firms

Table 1. Differences between commodity and product marketing systems.

The importance of the determination of unit type is that it guides marketing system choice. When a product is treated as a commodity or vice-versa, a mismatch and resultant inefficiency occurs, with value lost through the inability to exploit or develop non-material aspects of the product such as service and brand as a commodity system does not allow efficient communication of these attributes and their implications.

The problem of marketing system mismatch are further developed by Fearne and Hughes (1998), where 'unit type', marketing system, innovation and the structure of agriculture, typified by the family farm, are linked. They comment:

"In a highly competitive market…characterised by over supply and a commodity orientation, innovation is the only long-term source of competitive advantage…The lack of product innovation is a feature of commodity markets. In the fresh produce industry, it is also a result of the proliferation of entrepreneurial (often family owned) businesses, in which the injection of creativity and an open mind – essential ingredients for innovation – is often lacking."

Here, the implications of marketing system mismatch are further extended to include the failure of business drivers such as innovation. This interaction between 'unit type' and the market is also noted by Boehlje *et al*. (1998), below, who comment on the factors driving the change from a commodity market with minimal interaction between stakeholders, to a more interactive, co-ordinated form which trades products.

"…in traditional commodity markets where specific attributes are not demanded, supplies are fully adequate and can be obtained from various sources, and information flow between the stages are minimal, traditional spot commodity markets can function quite effectively and efficiently. As one deviates from these conditions - which is

increasingly the case with more specificity in raw materials and information flows, and with fewer potential sources of acceptable supplies – various forms of negotiated coordination systems become more effective and necessary for efficient functioning of the production and distribution system."

Auction markets currently dominate as the preferred method of sale in the Australian wool and animal industries. Despite their popularity, auctions perpetuate communication problems through the separation of buyer and seller, producer and processor, by creating difficulties for both parties in understanding the actions of the other (O'Keeffe, 1998). However, auction systems do not represent communication vacuums. While almost all commodities, are regarded as homogeneous, they typically display significant variability in product characteristics which are of importance to buyers. As a result, even in auction systems, sellers use grading systems in an effort to improve price and to communicate this variability to buyers, the various grades often being viewed as equivalent to quality (Carman, 1997). Grades lower buyer and seller search and transaction costs and foster a more efficient price discovery mechanism (Kohls and Uhl, 1990). As a result of this most marketing systems exist on a continuum between the extremes of pure commodity trading on the one hand, and complete vertical integration on the other.

But what is missing from the auction system in some cases? To answer this, it is useful to consider Altmann's (1997) broad definition of quality, which while intended for food products, can easily be applied to wool fibre. Quality is defined as the summation of objective quality (chemical and physical analyses) and subjective quality that includes characteristics such as taste, enjoyment and satisfaction. Other factors such as freshness and absence of toxic agents can be viewed in both an objective and subjective way. These 'hard' and 'soft' or intangible product characteristics vary in importance, with consumer income being the major driver in determining the balance between the two (see Figure 1), that is, at the high income end, the intangible characteristics may be major drivers of purchasing decisions, while at the lower income end, price is the major driver (Ray and Hughes, 1994; von Alvensleben, 1997) (see Figure 2).

Figure 1. Changing consumer preference with economic growth (developed from von Alvensleben (1997)).

As retailers and consumers become increasingly interested in and concerned about safety, provenance, welfare and the environment, it is important to ensure marketing systems convey messages relating to these intangible aspects, effectively. If they do not, the result is lost value for the consumer through a loss of intangible identity as the product transits the marketing system.

This increased importance of 'intangibles' is captured well by Dagevos (2000) when he describes tomorrow's economy as one characterised by the importance of 'emotion', with 'hard' product characteristics and price acting only as part-drivers of consumer choice. It is a process of transformation from 'real goods' to 'feel goods'. Quality and price are no longer enough to persuade people to purchase as

these characteristics are often in abundance and may no longer be a point of differentiation between products. As a result, aspects of emotional, ethical, aesthetic or ecological origin, become important influencers of purchase decisions.

These intangibles are having increasing impact on the farming sector, as over time market signals flow more directly from the consumer to the primary producer (Shadbolt and Morriss, 2000). This change is seen even in the simplest, least transformed, agricultural products, with consumers becoming increasingly involved with the food purchasing and consumption process (Viaene *et al*. 1998). Similar changes are being seen in the wool industry, the recent marketing materials of Merino New Zealand, which feature images of New Zealand's spectacular South Island high country, perhaps being the best example.

Is wool a product or a commodity?

Given the implications for marketing system mismatch discussed previously, it is important to determine whether wool is a commodity or a product in a given situation. To do this, an assessment must be made of the nature of the wool, its heterogeneity and the impact of intangibles.

It is clear that wool sits in a peculiar place. It is a raw material produced in an animal production system and shares some characteristics with other animal-based and agricultural systems. As a fibre product however, it competes in the textile and apparel, rather than food market. Some wool types compete at high price-points where choices for consumer spending may not be between garments, but are set against other discretionary consumer spending such as holidays, entertainment and consumer electronics. Other wool types compete at lower price-points. Coupled to this is its presence in a market where fashion and other intangible product characteristics appear to potentially have a significant influence on purchasing decisions.

With respect to heterogeneity, McKinsey and Company's (2000) recent inquiry into the New Zealand wool industry was clear, stating;

"Different types of NZ wool have very different markets and end uses. Understanding the major markets and the competition that wool faces is the first step in assessing the potential for demand growth or the opportunities to service more attractive market segments.

The same diversity is evident in Australian wool and in the industry as a whole, the Wool Industry Future Directions Taskforce (1999) stating that:

"There is a tendency in general discussion to refer to the wool industry as though it were a single commercial entity. It is not…It is merely the statistical aggregation of independent businesses. Those businesses are characterised by diversity not homogeneity…The same is true of other businesses along the textile chain."

This diversity translates in the auction system to various premiums and discounts. However, the auction system is unable to convey data relating to intangible attributes and there is increasing anecdotal evidence underlining the importance of intangibles; for example the interest in eco- and organic wool. This view of the importance of intangibles is further reinforced by data suggesting that the characteristics of Merino wool apparel consumers include high GDP per head. They also have a cultural acceptance of wool, are responsive to fashion and have a recognition of wool fabric qualities (Ward, 1998).

Despite all this, wool is treated largely as a commodity through the continued dominance of the auction system as the point of communication between the on- and post-farm sectors. This fails to recognise the need for holistic marketing systems that efficiently transmit market signals and add value through preserving and identifying important intangible characteristics. Auctions further limit communication as they entrench the adversarial 'win-lose' arrangement between buyer and seller. This arises as the sum of value in the marketing system is fixed and the variability in income for individual stakeholders stems from the division of value between members along the chain (O'Keeffe, 1998).

Given these problems, the task is to capture value through systems that allow effective communication and the transmission of 'hard' and 'soft' product characteristics from raw material to the consumer. Supply chain management is a potential mechanism for doing this.

Supply chain management – what is it?

To understand SCM we need first to look at the supply chains themselves. Supply chains can be defined variously as:

"The process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information from point-of-origin to point of final consumption for the purpose of conforming to customer requirements" (Council of Logistics Management, 1986)

"A network of connected organisations aimed at the fulfillment of specific consumer needs…in conjunction with the fulfillment of needs of other stakeholders of such an entity" (Beers et al.1998).

"An integrated approach that aims to satisfy the expectations of consumers, through continual improvement of processes and relationships that support the efficient development and flow of products and services from producer to consumer" (DPIE, 1998)

"The planned, continuous improvement of processes and relationships that exist to support the movement of goods and services through the physical chain" (DIST, 1998).

Supply chain management is a general philosophical approach to developing the collaboration described in these definitions and is sometimes referred to as 'value chain' management, to emphasise its role in building value, focussing on the customer and being demand-led. For the purposes of this paper, supply chains and value chains are considered to be the same, and the term 'supply chain' is used throughout.

Central to SCM is the dual flow of products and information, the drive to meet the needs of the consumer and the importance of the relationships between participants in the marketing system. There is often a tendency to focus solely on the immediate economic aspects when firms are building supply chains, as typically these are the most accessible benefits initially. For example, initial cost savings of 5-7% are often reported when firms adopt a supply chain management approach (O'Keeffe, 1997). However, this negates the fact that following the establishment of a chain, its success will depend upon the building of relationships with both internal colleagues and other firms (Janzen and de Vlieger, 2000). Chain relationships must be truly two-way in nature and equally meaningful for both the buyer and the seller (Chadwick and Rajagopal, 1995). As a result, social aspects such as trust, information transfer and learning capability will influence the performance, development and survival of chains. This does not deny that commercial drivers and goals are important, but rather sees aspects of relationship as central to sustained competitive advantage, and the current view that organisations conduct their transactions based on autonomous decisions, ignores their interdependencies with other organisations (Migchels, 2000).

Marketing system change is also driven by the fact that purchasers are realising the problems associated with the traditional concept of maximising short-term gain, in an environment where suppliers are kept guessing (information asymmetry). A better strategy is to work with the supplier so that they can act to enhance factors such as on-time delivery, lead-time reduction, total quality management, flexibility and new product introduction (Chadwick and Rajagopal, 1995) and it is often simple changes in these factors which bring about the initial cost savings. However, these interactions also facilitate the flow of information and resources between participants and the relationships themselves become a stable vehicle through which to conduct further transactions and develop new products and chains (Migchels, 2000). These differences in inter-organisational information exchange are detailed in Figure 2.

Figure 2. Type and volume of inter-organisational information flows (Storer, 2000).

A major impediment to chain formation can be the lack of willingness of the various actors to co-operate effectively and their insufficient knowledge about methods of co-operation which ensure 'win-win' outcomes (van Beek *et al.* 1998). Often, chain members bring 'philosophical baggage' with respect to the

nature of markets and this interaction within them. This can be a problem and slow the process of change management as the change from a traditional to the SCM approach is marked as can be seen in Table 2.

Table 2. Differences between traditional and SCM approach in markets.

Factor	Traditional	Value Chain
Information Sharing	Little or none	Extensive
Primary Focus	Cost/price	Value/quality
Orientation	Commodity	Differentiated product
Power relationship	Supply Push	Demand pull
Organisational structures	Independent	Interdependent
Philosophy	Self interest	Chain optimisation
Individual organisational boundaries	Hard	Fuzzy
Supply chain boundary	Fuzzy	Hard
Points of inter-organizational contact	Few	Many
Mode of operation	Tactical	Strategic
Communication between stakeholders	Formal and slow	Informal and fast
Relationships between stakeholders	Low	High
Trust between stakeholders	Short-term	Longer-term
Knowledge diffusion amongst stakeholders	Low	High
Stakeholders/actors/players in the system	Many	Few
Organisational models employed	Predominantly mechanistic	Predominantly organic
Organisational visions and values among stakeholders	Different, diverse and divergent	More common, focussed and convergent

Source: DIST (1998); Newton (2000) citing Engelbart F.

Not only is the change in outlook significant, but it needs to be realised form the start of any SCM project, that motives for the development of SCM systems are likely to vary between actors (Mäkimattila and Marttila, 2000). As a result, the implementation of chain management principles and the implications for the firms involved will vary between firms and between chains. Chain structures, the degree of coordination and an individual company's perception of its role will vary due to the factors detailed in Table 3.

Table 2. Impact of a SCM approach on various chain members.

Chain member	Role	Attitude	Knowledge
Retailer/distributor should be…	• The concept and formula leader • Translating consumer wishes • Moving from information protection to information sharing	• Balancing cooperation and power • Providing continuity • Ensuring there is more than price (eg. supply assurance)	• Investing in new IT technologies • Developing marketing and branding • Developing chain information and chain quality systems • Sharing with the production and processing partners
Processor/industry should be…	• Organising instead of following the chain • Branding and added value	• Having an internal and external focus • Ensuring customer satisfaction paramount • Developing a process orientated business operations i.e. operate in teams • Based around external deliverables eg. (service the needs of a major customer) rather than work units based around internal functions	• Tracking and tracing, logistics concepts • Ensuring efficient consumer response and shelf management • Developing product, concept and production innovation • Moving to chain management
Trader should be…	• Moving from trader to organiser of finance, logistics and information • Moving from information protection to information sharing	• Moving from high margins to continuity • Moving from transaction oriented to long-term partnerships	• Tuning demand and supply • Developing consumer marketing and micromarketing • Developing chain information and chain quality systems • Developing contract forming, price setting and business strategy
Primary producer should be…	• Moving from product to market orientation • Changing from all-rounder to specialist • Changing from daily to long-term planning	• Moving from transaction oriented to long-term partnership • Developing new forms of horizontal cooperation • Ensuring they're customer and consumer orientated	• Developing product planning and logistics • Developing new or strengthened skills in contract forming and risk management

Source: Newton (2000) from Frank Engelbart, Rijnconsult, June 2000.

Once a chain is established, a chain strategy must be chosen, around which the project is progressed. To guide this process, careful consideration and determination of the most appropriate strategy for a specific product is important. The literature details four chain strategies (Hagelaar *et al.* (1998); Newton, (2000)) which mirror the cost, focus and differentiation strategies developed for individual businesses by Porter (1980):

1. Cost-leadership strategy: supply oriented. Tries to preserve the market share it already has. Products remain unchanged but investment in machinery is required to comply with the standards set by the chain partners.
2. Differentiation strategy: chain redefines and improves products, in order to meet the needs of a market segment. Demand oriented.
3. Diversification strategy: chain designs new product ranges. Demand oriented.
4. Specialisation strategy: reverses the focus of the diversification strategy, narrowing the product range to a few targeted products for a specialised customer base. Focuses on innovation and quality. Demand oriented.

Supply chain management – what it isn't

Having discussed the nature of SCM, it is useful to briefly consider what SCM is not. It is important to re-state that SCM is an overarching philosophy not a prescribed description of a marketing system. It is not about eliminating marketing systems, as different products will be suited to the different systems that exist along the continuum described earlier. Equally it is not about eliminating participants from the chain, as while it is possible to eliminate the 'middlemen', it is not possible to eliminate the marketing functions they fulfil. Their elimination requires the transferal of the function and therefore the associated costs, to someone else (Kohls and Uhl, 1990). As a result each case of chain re-engineering should be considered on its merits. To do this, the assessment process proposed by Boehlje *et al.*, (1998) is helpful (see Table 4). Three factors are described which should be considered when determining the appropriate marketing system for a specific product or commodity, with high/low value allocated for each.

1. Asset specificity or uniqueness. This refers to the specialised nature of the human or physical assets that are required to complete the transaction. The more unique or specialised the asset, the stronger the inter-firm bond required to encourage investment.
2. Task programmability. This indicates that a transaction is well understood by all parties and is often repeated and has predictable outcomes, without the need for discussions or negotiation.
3. Separability. This refers to the ability to determine and measure the value of the contribution and hence reward for each player in the transaction. If it is easy to measure value creation at each stage of the chain, the transactions are said to be separable.

Table 4. Choice of marketing system based on asset specificity, task programmability and separability of performance assessment and award incentives.

	Low programmability		High programmability	
	Low asset specificity	**High asset specificity**	**Low asset specificity**	**High asset specificity**
Separable	*Spot market*	*Long-term contract*	*Spot market*	*Joint venture*
Not separable	*Cooperation (strategic alliance)*	*Cooperation or vertical ownership*	*Inside contract (hybrid)*	*Vertical ownership*

Source: (Boehlje *et al.*, 1998)

305
306
307 **What might SCM mean for upstream stakeholders in the wool chain?**
308
309 To understand potential impacts of SCM, it is helpful to consider some of the problems currently faced by
310 the wool industry. A significant factor contributing to recent poor returns has been identified as the poor
311 level of productivity improvement. Annual productivity increases in Australia of between 0.5 and 1%,
312 compare poorly to 1.6% in beef and between 3 and 4% p.a. in the cereal and cotton industries (Ward, 1998;
313 Wool Industry Future Directions Task Force, 1999). In New Zealand, the report by McKinsey and
314 Company (2000) suggests a similar value of 1% p.a. for woolgrowers. Further analysis suggests these gains
315 have mostly come about through reduced labour use and deferred investment, rather than through
316 productivity gains or due to the impact of improved genetic material. More telling perhaps is the
317 comparison of these values to wool's competing synthetic fibre industries where annual productivity
318 improvements have been in the order of 5 to 6% (Ward, 1998).
319
320 Recent studies (O'Keeffe and Fletcher, 1998; Samson, 1999) have identified differences in management
321 practice and philosophy between high and poorly performing wool producers. The authors noted that the
322 ability of a farm to be a high or low performer was independent of land, rainfall and scale of enterprise.
323 Critical factors for performance included; leadership and decision-making, the presence of production and
324 business plans, the use of active risk management and product marketing, the holding of a customer focus,
325 managing sustainably with a high stocking rate, participation in groups and the use of consultants, the use
326 of information on new practices and farming techniques, a focussed breeding strategy, and the use of
327 quality control strategies (Samson, 1999). Other work (O'Keeffe and Fletcher, 1998) has identified that
328 while some farmers principally view woolgrowing as a business, many place their emphasis on its
329 'lifestyle' aspects.
330
331 Given the low levels of productivity gain in the wool industry and the established link between innovative
332 farm management practice and farm profitability, all available levers to enable innovation must be utilised.
333 Supply chain management potentially provides a useful pathway for the dissemination of best-practice
334 models (Newton, 2000), and Faulkner (1995) states that the nature of a true strategic alliance (or supply
335 chain) is to develop joint sustainable competitive advantage and to extend individual and joint core
336 competencies. When these circumstances are linked to those of being demand, rather than supply driven

(Janzen and de Vlieger, 2000) so that customers needs are clearly defined, as is the case with SCM, a stable environment for innovation, productivity improvement and the reduction of price volatility is created.

So how might the adoption of SCM be useful in the wool industry? To answer this it is important to examine the question from the point of view of the customer. From their perspective, a whole range of product attributes may be valuable in a garment or other wool product and these can be placed into three categories:

1. Those which are purely technical in nature (the 'hard' attributes), e.g. raw wool quality measures such as mean fibre diameter.
2. Those which have both technical and intangible aspects, e.g. pesticide residues. These can be measured but may carry a range of intangible attributes also, especially when terms such as 'organic' or 'eco-' are applied.
3. Those which are entirely intangible in nature (the 'soft' attributes), e.g. imagery related to region which adds some value in the consumers' minds.

It is this third category, the solely intangible, that deals with those factors where the auction system as the only point of communication, has great difficulty conveying relevant information. This could relate to factors as diverse as growing region (eg. New Zealand Merino and its associated imagery) or the expansion of QA into animal welfare, as has been the case in other animal industries. It could relate to other factors that add value for downstream chain participants, e.g. aspects of service such as holding of raw wool stock. Information with respect to all these attributes is difficult to distinguish or is not available in the auction system. They are better managed through a more interactive marketing system.

The critical decision point with respect to marketing system choice is whether further value could be added, that is the customers' needs could be better met by moving to a more interactive or collaborative system such as SCM. It is recognised however that SCM will not benefit all wool supply chains. While it can be argued that wool is a 'product' (i.e. not a commodity) and has inherent heterogeneity, SCM approaches appear most appropriate where the current marketing system does not transmit the required product attributes, be they 'hard' or 'soft'.

For all members of the wool supply chain the implications of more widespread adoption of SCM principles may be variable and depend upon the response of individuals and firms to this new way of doing business. The shift from the 'win-lose' relationship to the 'win-win' is fundamental. Again, Kohls and Uhl (1990) remind us that marketing functions cannot be eliminated, only transferred, therefore the impact on individuals will depend on their ability to bring their core competencies into the more collaborative business partnership. Where the current system does meet needs adequately, a move to SCM, with its significant initial time/cost expenditures at start-up, and the ongoing challenge of building and maintaining

the relationships between supply chain partners, may not be warranted. However a less adversarial and more transparent approach in existing systems, may bring cost savings in the short-term.

Conclusions

Given wool's position as a natural textile fibre, its high price relative to its competitors and its potential vulnerability to fashion, there appears to be a case for the further development of the intangible product characteristics of the wool fibre in an effort to better meet consumer demand. This is already occurring in some sectors, but the commonly used marketing systems have not reflected this change and are potentially unable to transmit these new and important product characteristics. Marketing systems are required which effectively transmit both the 'hard' and 'soft' product attributes and do so with the aim of meeting the needs of the consumer. An apparently effective way of gaining the coordination required to meet this goal, where it is appropriate given the attributes of the product, is through the adoption of SCM principles.

Acknowledgments

This paper is an outcome from a project supported by the Australian Government and Australian woolgrowers through funding provided to the project by The Woolmark Company. The authors would also like to thank Tasmanian Quality Wool (TQW) for their support and assistance with the project.

References

Altmann, M. (1997) Product Policy. In 'Agro-food marketing'. (Eds. Padberg D.I., Ritson C. and Albisu L.M.) pp. 279-294. (CABI Publishing: Wallingford, U.K.).

Barker, M.J. (1992) Marketing – An Introductory Text. (5th Edition) (Macmillan: London, U.K.).

Beers, G., Beulens, A. and van Dalen J. (1998) Chain science as an emerging discipline. In 'Chain Management in Agribusiness and the Food Industry', Proceedings of the Third International Conference. (Eds. Ziggers G.W., Trienekens J.H. and Zuurbier P.J.P.) pp. 295-308. (Wageningen Pers: Wageningen, The Netherlands).

Boehlje, M., Schrader, L. and Akridge, J. (1998) Observation on formation of food supply chains. In 'Chain Management in Agribusiness and the Food Industry', Proceedings of the Third International Conference. (Eds. Ziggers G.W., Trienekens J.H. and Zuurbier P.J.P.) pp. 393-403. (Wageningen Pers: Wageningen, The Netherlands).

410 Carman, H.F. (1997) Agricultural Price Analysis. In 'Agro-food marketing'. (Eds. Padberg D.I., Ritson C.
411 and Albisu L.M.) pp. 51-84. (CABI Publishing: Wallingford, U.K.).
412 Chadwick, T. and Rajagopal, S. (1995) Strategic supply management: An implementation toolkit.
413 (Butterworth-Heinemann: Oxford, U.K.).
414 Council of Logistics Management (1986) What is it all about? (Oak Brook, Illinois, U.S.A.).
415 Dagevos, H. (2000) The emerging emotion economy. KLICT Newsletter 7. p. 10.
416 DIST (1998) Improving your supply chain partnership. A self-help manual. (Department of Industry,
417 Science and Tourism, Supply Chain Partnerships Program: Canberra, Australia).
418 DPIE (1998) Chains of Success. Case studies on international and Australian food businesses, co-operating
419 to compete in the global market. (Agribusiness and Community Branch, Commonwealth Department of
420 Primary Industries and Energy: Canberra, Australia).
421 Faulkner, D. (1995) International Strategic Alliances. Co-operating to Compete.
422 Fearne A. and Hughes D. (1998). Success factors in the fresh produce supply chain: Some examples from
423 the UK. (Food Industry Management, Wye College, University of London: Wye, Kent, U.K.).
424 Hagelaar, G., Horbeek, A., Spee, R. and Don, H. (1998) Chain entry strategies and chain identity. In 'Chain
425 Management in Agribusiness and the Food Industry', Proceedings of the Third International Conference.
426 (Eds. Ziggers G.W., Trienekens J.H. and Zuurbier P.J.P.) pp. 463-475. (Wageningen Pers: Wageningen,
427 The Netherlands).
428 IWS (1997) Wool Marketing and Productivity: A Guide for Wool Grower Groups. (International Wool
429 Secretariat: Melbourne, Victoria, Australia).
430 Janzen, R. and de Vlieger, J.J. (2000) Social Network Theories as a Tool for Chain Building. From the
431 Promise of Profit to the Promise of Persons. In 'Chain Management in Agribusiness and the Food Industry',
432 Proceedings of the Fourth International Conference. (Eds. Trienekens J.H. and Zuurbier P.J.P.) pp. 121-
433 127. (Wageningen Pers: Wageningen, The Netherlands).
434 Kohls, R.L. and Uhl, J.N. (1990) Marketing of Agricultural Products. (Macmillan Publishing Company:
435 New York, U.S.A.).
436 Mäkimattila, M. and Marttila, J. (2000) Vertical Co-ordination and Competitiveness of Finnish Oats and
437 US Rice (2000). In 'Chain Management in Agribusiness and the Food Industry', Proceedings of the Fourth
438 International Conference. (Eds. Trienekens J.H. and Zuurbier P.J.P.) pp. 625-632. (Wageningen Pers:
439 Wageningen, The Netherlands).
440 McKinsey and Company (2000) Report to New Zealand Woolgrowers on Improving Profitability.
441 Summary of Recommendations. (http://www.woolboard.co.nz/mckinsey/dwnlds/wools_summary.pdf).
442 Meulenberg, M.T.G. and Viaene, J. (1998) Changing food marketing systems in western countries. In
443 'Innovation of Food Production Systems. Product Quality and Consumer Acceptance'. (Eds. Jongen W.M.F.
444 and Meulenberg M.T.G.) pp. 5-36 (Wageningen Pers: Wageningen, The Netherlands).

445 Migchels, N.G. (2000) That's What Friends are for…, the development of chain co-operation. In 'Chain
446 Management in Agribusiness and the Food Industry', Proceedings of the Fourth International Conference.
447 (Eds. Trienekens J.H. and Zuurbier P.J.P.) pp. 429-441. (Wageningen Pers: Wageningen, The Netherlands).
448 Newton, D. (2000) Supply Chain Learning for Australian Agribusiness. Chain reversal and shared learning
449 for global competitiveness. (Agriculture, Fisheries and Forestry, Australia (AFFA): Canberra, Australia).
450 O'Keeffe, M. (1997) Supply Chain Management: The Concept and Implementation. (Rabo Australia Ltd:
451 Sydney, Australia).
452 O'Keeffe, M. (1998) Establishing supply chain partnerships: lessons from Australian agribusiness. *Supp.*
453 *Chain Man*. 3 (1), 5-9.
454 O'Keeffe, M. and Fletcher, M. (1998) Towards a new perspective on productivity gains in the wool
455 industry: A qualitative market research project. (Rabo Australia Ltd for the International Wool Secretariat:
456 Melbourne, Australia).
457 Porter, M.E. (1980) Competitive strategy. Techniques for analysing industries and competitors. (The Free
458 Press: New York, U.S.A.).
459 Ray, D. and Hughes, D. (1994) Forces driving partnerships and alliances in the European Food Industry. In
460 'Breaking with tradition: Building partnerships and alliances in the European food industry'. (Ed. Hughes
461 D.) pp. 10-32. (Wye College Press: Wye College, University of London, Wye, Kent, U.K.).
462 Samson, D. (1999) Wool Profit Map. Where are you? (The Woolmark Company: Melbourne, Victoria,
463 Australia).
464 Seaman, S. (1998) Alliance Development. In 'Marketing the Wool that the Customer Demands'. Session 4,
465 Selling Alternatives and Avoiding Risk. Access to the Experts Program. pp. 1.1-1.5. (The Cooperative
466 Research Centre for Premium Quality Wool: Melbourne, Australia)
467 Shadbolt, N.M. and Morriss, S.D. (2000) Green as Just Another Quality Attribute; Delivering to Intangible
468 and Tangible Specifications Successfully. In 'Chain Management in Agribusiness and the Food Industry',
469 Proceedings of the Fourth International Conference. (Eds. Trienekens J.H. and Zuurbier P.J.P.) pp. 657-
470 660. (Wageningen Pers: Wageningen, The Netherlands).
471 Storer, C.E. (2000) Inter-Organisational Information Systems (IOS) in Supply Chains: Exploring a
472 Theoretical Framework. In 'Chain Management in Agribusiness and the Food Industry', Proceedings of the
473 Fourth International Conference. (Eds. Trienekens J.H. and Zuurbier P.J.P.) pp. 283-289. (Wageningen
474 Pers: Wageningen, The Netherlands).
475 van Beek, P., Beulens, A.J.M. and Meffert, H.F.Th (1998) Logistics and ICT in Food Supply Systems. In
476 'Innovation of Food Production Systems. Product Quality and Consumer Acceptance'. (Eds. Jongen W.M.F.
477 and Meulenberg M.T.G.) pp. 117-138 (Wageningen Pers: Wageningen, The Netherlands).
478 Viaene J., Verbeke W. and Gellynck X. (1998). Chain behaviour and chain reversal of the processed
479 vegetable chain. . In 'Chain Management in Agribusiness and the Food Industry', Proceedings of the Third
480 International Conference. (Eds. Ziggers G.W., Trienekens J.H. and Zuurbier P.J.P.) pp. 159-168.
481 (Wageningen Pers: Wageningen, The Netherlands).

482 von Alvensleben R. (1997). Consumer behaviour. In 'Agro-food marketing'. (Eds. Padberg D.I., Ritson C.
483 and Albisu L.M.) pp. 209-224. (CABI Publishing: Wallingford, U.K.).
484 Ward L. (1998). A Global Perspective of the Australian Wool Industry. (The Co-operative Research Centre
485 for Premium Quality Wool: Melbourne, Victoria, Australia).
486 Wool Industry Future Directions Task Force (1999). Diversity and Innovation. Report of the Wool Industry
487 Future Directions Task Force. Volume 2: Main report and Appendices. July 1999. (Commonwealth of
488 Australia: Canberra, ACT, Australia).
489

Figures

Figure 1.

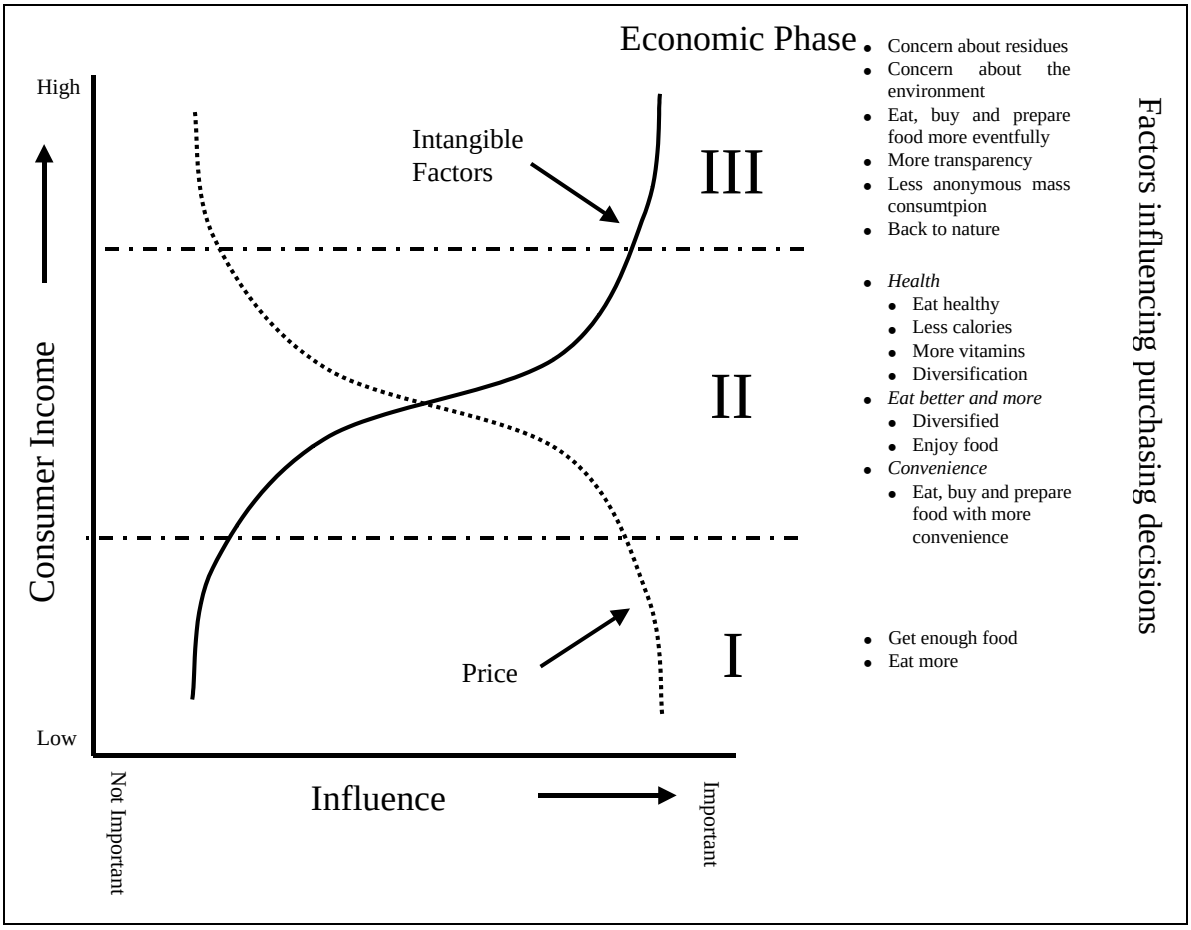
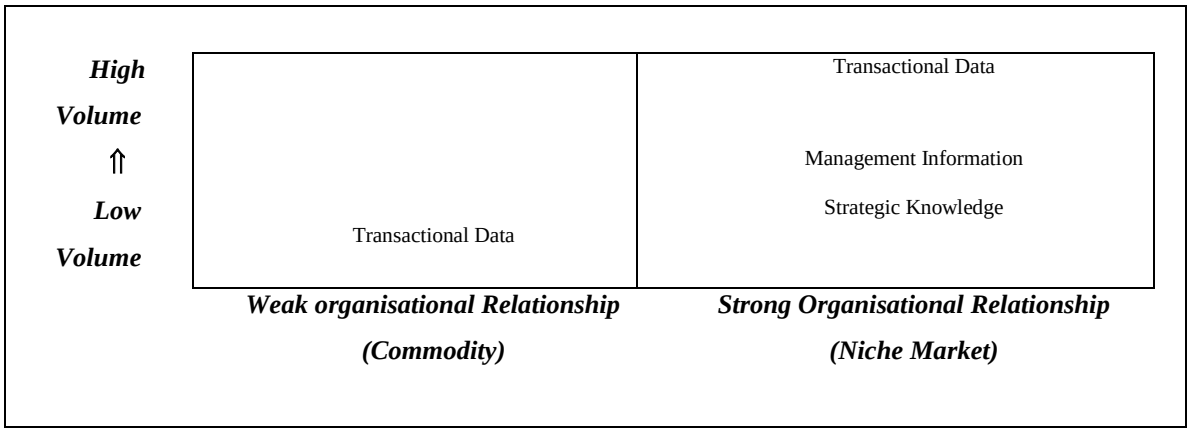


Figure 2.


High Volume
⇑
Low Volume
Transactional Data
Transactional Data
Management Information
Strategic Knowledge
Weak organisational Relationship
(Commodity)
Strong Organisational Relationship
(Niche Market)

499