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A qualitative description of the benefits and costs associated with agribusiness supply chain management: A producer's perspective

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Abstract

Supply Chain Management is attracting increasing attention in agribusiness worldwide. Growing consumer concerns over food safety and quality together with retailer demands for large volumes of consistent and reliable product are driving the need for closer supply chain integration. By analysing a number of existing case studies this paper seeks to identify some of the supply chain related strategies or tactics available to agribusiness companies, contextual factors related to their use, and the likely types of benefits and costs associated with their implementation.

Introduction

The increasing development of collaborative marketing ventures within agribusiness supply chains appears to be a global phenomenon. Changing consumer preferences, food safety legislation, competitive pressures and the market share dominance of large retailers together with the rationalisation of their supply bases are driving supply chain innovation and encouraging greater vertical and horizontal coordination (Fearne and Hughes 1999).

The idea of supply chain management (SCM) has been approached from many angles and no universally accepted terminology for, or definition of, the supply chain concept exists (New 1996). Similarly, from a practical perspective there is no generic implementation strategy that can be considered appropriate to all supply chain situations. The best supply chain strategy will depend on contextual factors involving the end market, the individual firms within the chain and the infrastructure that supports their activities.

This paper seeks to provide a practical guide for agribusiness firms considering a supply chain approach for their business. Existing case studies are analysed in order to identify key supply chain strategies and tactics, and their outcomes. By considering the findings and relevant theory from the academic literature, this paper suggests a framework outlining the characteristics influencing supply chain options and the likely benefits and costs associated with their implementation.

Four supply chain focussed case studies were selected for analysis. The firms and industries involved included one British (beef), one Canadian (grain) and two Australian (beef and fresh fruit) agribusiness companies. Each case was considered in terms of key strategies, supporting tactics, and related costs and benefits. Tables 1 to 4 contain a summary of each case study in tabular form. By combining the findings from these four cases a generic checklist was developed (refer table 5) which outlines the likely costs and benefits associated with three broad strategic objectives:

- Improving horizontal coordination;
- Improving vertical coordination; and
- Positioning.

Supply Chain Management

SCM, as defined by the Global Supply Chain Forum (1998), is 'the integration of business processes from end user through original suppliers, that provides products, services, and information that add value for customers'. This definition highlights the large scope encompassed within the concept. Typically, SCM is concerned with the needs of all stakeholders including the objectives of any number of independent businesses.

The term 'independent' businesses used in this context demands qualification. Supply chain management actually relies on the recognition of interdependencies within chains and the ability to perceive business relationships within the context of a coherent supply chain system. By establishing common goals and developing meaningful business relationships and processes with which to pursue those goals, firms seek to generate collective efficiencies and gain competitive advantage. There is a growing realisation amongst firms that they no longer compete as autonomous entities but as members of rival supply chain networks (Lambert, Cooper and Pagh 1998).

There is wide recognition in agribusiness sectors internationally of the need for greater supply chain integration. Consumer concerns for food safety are driving the need for identity preservation and quality assurance. Short product shelf life and the special requirements of cold chains emphasise the need for greater chain coordination (Wilson 1996). The increasing market shares of fewer larger retailers and distributors, and the trend in procurement policies to reduce the supply base is underlying the need for producers to group together to achieve critical mass and product variety (Fearne and Hughes 1999).

Although SCM is increasingly regarded as an important issue and considered by some academics as a strategic imperative (Chandra and Kumar 2000), significant barriers to implementation exist within the Australian agribusiness context. Successful SCM initiatives often rely on business relationships built on mutual trust, openness and commitment. Traditional commodity markets encourage adversarial attitudes and isolate chain participants. The change to collaborative relationships can represent a major paradigm shift for many businesses (Fearne 1998; O'Keefe 1998).

Supply Chain Structure

At the simplest level of analysis collaborative supply chain structures can be considered as either vertical alliances, horizontal alliances or a combination of these arrangements. Horizontally aligned entities like cooperatives have existed for a long time and allow individual members to effectively out-source marketing activities, achieving economies of scale and specialization (Palmer 1996).

Traditional producer cooperatives however, have typically operated as agents for an open membership of commodity producers separated from customers through a system of spot markets. As scope for market segmentation increases and with it enhanced opportunities for product differentiation there is growing interest in achieving better vertical coordination.

Anecdotal evidence suggests that the more successful supply chain arrangements have a primary focus on the customer and concentrate on the creation of profitable customer value through margin discovery rather than pure price negotiation. This has led to the notion of a value chain network, (Hobbs, Cooney and Fulton 2000) which extends Porter's (1985) original concept past first tier suppliers and customers to include the entire supply chain.

Case Studies

Implementing any supply chain initiative represents an important decision for an organisation and often involves major changes in the way a firm does business. In order to effect sound business strategy, supply chain options need to be assessed in terms of their potential benefits and costs, both short-term and long-term. Quantifying these factors is very difficult and any specific undertaking must be considered on its own merits. Nevertheless, the first step is to identify the most likely ways in which potential benefits and costs might impact the organisation in a qualitative sense. With this in mind four agribusiness case studies were selected for analysis.

Panda Ranch

Panda Ranch® is a fruit growing, packing and shipping company which supplies both domestic and export markets. Panda Ranch® is controlled by directors Michael and Jason Silm. Panda Ranch® was established in 1993 as Panda Ranch Marketing. The original impetus for the venture was product-specific and involved establishing a reliable supply of white flesh nectarines for export to Taiwan. White flesh nectarines were a new acid-free variety developed in the US that had proved popular with Asian consumers. Panda Ranch® recognised an opportunity to supply the fruit during the US off-season.

Table 1 Panda Ranch

OBJECTIVE: Achieve greater market responsiveness

TACTICS	COSTS	BENEFITS
Establish and maintain close relationship with importers and/or retailers	· International travel expenses · Close ongoing communication with importers/retailers	· Enhanced market knowledge · Builds trust with importers and retailers which provides: · price stability · reliable demand · longer planning horizon · less reliance on contractual mechanisms which can reduce legal costs
Identify and assess new varieties and production techniques	· Travel to international production areas · Communication with industry members/breeders · Communication with US producers/exporters	· Access to new product varieties and production techniques · Knowledge of potential threats from substitute products

OBJECTIVE: Capitalise on opportunities, respond to threats and achieve growth

STRATEGY: Develop supply and execute marketing programs based on market knowledge

TACTICS	COSTS	BENEFITS
Establish brand identity	· Legal costs · Increased packaging costs	· Ability to differentiate product · Ability to create brand loyalty · Economies of scale
Develop sufficient volume/longevity of supply of the appropriate product	· Conduct information seminars for potential new growers	· Improved market access · Increased volume of supply · Increased continuity of supply
Ensure consistent product quality and identity preservation	Administer/maintain quality assurance system	· Increased brand equity · Price premiums · Added customer value
Participate in retail promotions	Travel and marketing expenses	· Experience and feedback enhances market knowledge · Increased demand
Educate/inform growers of market developments and	· Planning and conducting overseas grower trips · Develop...	· Growers understand customer requirements and market trends · High grower involvement

To capitalise on this market opportunity, Panda Ranch® recognised the need to create their own brand identity. The positioning strategy was to establish Panda Ranch® as a high quality, innovative supplier of the latest varieties. This strategy required the development of a reliable supply of the appropriate product in sufficient volumes with consistent quality.

Forming a horizontal alliance through a network of committed growers, enabled Panda Ranch® to develop a critical mass of product that could be collectively marketed under the Panda Ranch® brand. Quality assurance is managed with a quality system based on HACCP (Hazard Analysis Critical Control Point) and SQF2000 (a generic quality standard for the fruit industry). Growers are audited to become approved suppliers of SQF2000 standard produce.

Membership is not open and growers are chosen according to their ability to supply the required quality while working within a collaborative environment. Information is shared between producers with the satisfaction of customer needs as the primary focus. No formal contracts exist between Panda Ranch® and its suppliers. The group prefers relationships built on trust.

The group also relies on vertical coordination. To support the brand positioning strategy Panda Ranch® recognise the need for ongoing market research. Constant contact with customers and other chain members, and frequent overseas visits help the company to remain aware of any significant market developments.

Panda Ranch® have also forged links with fruit breeders, producers and exporters in the United States. By developing and maintaining these lines of communication Panda Ranch® ensure they are aware of the latest product innovations and this facilitates planning in order to stay ahead of their competitors in the southern growing cycle.

The strategic link to the US fruit industry represents a rare case of inter-chain cooperation. According to Michael Silm, a Panda Ranch® director, Australian stone fruit growers are three to four years behind their US counterparts when it comes to varieties. But thanks to the different growing periods in Australia and the United States, US suppliers are prepared to share markets for mutual gain. Sharing product development information and providing access to new varieties allows for a longer period of supply for similar, albeit differently branded product. This means Panda Ranch® can piggyback on the trends that the US growers have already established.

Panda Ranch® now extends its supply chain approach into a number of international markets and their focus spans the entire supply chain from coordinating supply arrangements, trademarks, licences, varieties, and the export of fruit, to partnerships with retailers in delivering in-store promotions. Specific strategies depend on market characteristics; in Singapore, Hong Kong and Europe Panda Ranch® is happy to align itself with major chain stores, but the structures in Taiwan are different. Michael Silm explains, 'the chain stores in Taiwan only account for 15-20 percent of the market and don't handle the premium end. Importers can target the gift and premium dealers in the wholesale markets and extract the highest margins on offer', so for the time being they are monitoring the situation and deal only with the Taiwanese importers.

Michael Silm believes the success of Panda Ranch® depends on understanding the market requirements, the retailing trends and the role of each supply chain partner. Effective market research is critical and helps ensure that relationships are developed with the right importers and distributors who in turn supply the right retailer. Furthermore, Panda Ranch® has developed open and transparent relationships with all of its supply chain partners (growers, transporters, importers, distributors and retailers). The company believes that these partnerships are based on trust and understanding the needs of each other's business.

The success that Panda Ranch® has enjoyed through its supply chain approach is a result of sound business strategy involving considerable effort and investment. A key factor in the development of the business was the shift in focus from production to marketing. By embracing the marketing concept and adopting a strong customer focus, Panda Ranch® have built up a high level of brand equity. By maintaining relationships with chain partners, encouraging the free flow of information, and learning from their US counterparts Panda Ranch® plan to remain responsive to customer needs and aware of any new market opportunities or threats.

In 1998, Panda Ranch® secured funding of $83 000 from the Federal Department of Agriculture, Fisheries and Forestry Australia. With Panda Ranch Marketing's own investment of $447 000 the group had $530 000 of development capital. They proposed to use the funding to undertake market research, including an overseas market visit, and to develop marketing strategies. The project plan they submitted highlights some of the main implementation expenses associated with their business strategy:

- Quantify the market demand in alternative Asian markets.
- Select new importers for these new potential customers.
- Develop workshops to educate growers in market needs, trends and dynamics.
- Implement quality assurance.
- Expand the grower networks by conducting informational conferences.

The ongoing operating costs for Panda Ranch® are also considerable. Maintaining close channel relationships and building market knowledge throughout the chain requires time, effort and money. Travel expenses and telephone charges can be high, particularly for export markets, and add to the administrative costs required to coordinate and manage the group.

Individual growers also incur some costs to participate in the group. Adoption of a recognised quality system is mandatory and although the system should result in production cost reductions over the longer term, it represents a significant short-term investment for individual growers. There is also a loss of autonomy for growers; their success is dependent on the fortunes of the whole group and in particular the success of Panda Ranch® marketing programs.

The benefits seem to have outweighed the costs thus far. The group enjoys a reputation for top quality fruit with strong demand in the Taiwanese market during Southern Hemisphere supply periods. With 25-30% of the Taiwanese market for Australian white flesh nectarines, Panda Ranch® is effectively a price setter not a price taker.

The price premium growers received in 1998 was about $1.00 per kilo over the domestic price for normal yellow flesh nectarines. As the investment for each crop is similar, the premium equates to an increased return of about $30 000 per hectare. The benefits for growers also include access to new fruit varieties accompanied with the information sharing between producers that allow them to work through any problems associated with growing these new varieties. Panda Ranch® also organise overseas trips for the group. Growers get the opportunity to see new varieties and observe the market place in Taiwan. This helps the group as a whole to better understand their target market.

Turnover from Panda Ranch® has increased tenfold since the project began, with an expected turnover of more than $10 million by 2002/2003. The Panda Ranch® white flesh nectarines are the flagship of the group, and are helping to establish a worldwide reputation for the Panda Ranch® brand. This brand equity affords Panda Ranch® a strong position in business negotiations and helps to ensure continued demand at premium prices.

OBE Company

The OBE Company was founded in 1995, the joint initiative of a regionally based group of beef producers. The plan was to market organic beef into Japan. In 2000 the company represented more than 30 producer members who together cover over 7 million hectares of outback Australia's Channel Country and represents the largest organic beef project in Australia.

Table 2 OBE Company

OBJECTIVE: Investigate business opportunity for producing and marketing organic beef **STRATEGY:** Identify customer requirements, potential partners and necessary systems		
TACTICS	COSTS	BENEFITS
Establish regional network of interested cattle producers	Communication and travel	Sufficient volume of supply
Research organic beef market, identify market requirements and assess opportunities in Japan	Consultancy fees	***Enhanced market knowledge*** ***Sound marketing strategy and business plan***
Develop organic production and quality system and achieve international organic certification (3 yrs)	***Consultancy fees*** ***System administration and compliance expenses***	***Market credibility*** ***Quality assurance*** ***Price premium (+30%)***
Identify appropriate processor	***Time and effort evaluating potential options and talking to processors*** ***Consultancy fees***	Selected processor willing to accept high producer involvement throughout chain with demonstrated commitment to organic product
Identify appropriate Japanese business partners	***Travel to Japan*** ***Extensive negotiations***	Japanese partners willing to assist in market development for organic beef

To ensure organic credibility OBE gained accreditation from IFOAM (International Federation of Organic Agricultural Movements). It takes three years to become certified as an organic producer by IFOAM and its Australian representative, the National Association for Sustainable Agriculture in Australia (NASAA), but OBE anticipated immediate benefits in improved marketing potential.

From the beginning OBE recognised the potential of marketing an augmented product and saw an opportunity to build a brand image that capitalised on a strong regional identity and proven organic status. By enlisting the help of consultant Howard Hall, the group developed a professional and measured business plan.

To guarantee organic continuity OBE needed to develop systems that covered on farm production, transportation, processing and packaging. The group also wanted to build market knowledge and achieve control of their product through the entire chain. For these reasons it was important for OBE to develop close relationships with intermediaries. The selection of appropriate business partners and creating a clear understanding between the parties assumed critical importance.

OBE found the appropriate processor in Stockyard Pty Ltd. Stockyard showed a willingness to make changes, gain organic accreditation, and perhaps most importantly expressed a strong belief in the entire concept. The relationship is geared towards greater customer focus, flexibility, transparency and trust. Stockyard is now an integral part of the OBE project with a demonstrated commitment to the product.

A business relationship was also established with a Japanese wholesaler who is equally committed to further developing the growing organic beef market in Japan. Many producers have already travelled to Japan to interact with customers and gain a clear understanding of their requirements. OBE believe the producers' presence is a powerful influence in this marketplace and will continue to encourage this level of interaction.

The visit of Japanese customers to the Channel Country led to cooperation between OBE representatives and their clients in redesigning point-of-sale material to communicate the feel of the unique region. Today OBE is involved in direct and ongoing collaborative marketing programs in Japan which are funded jointly by OBE and their Japanese trading partners.

OBE's goals are to generate more income from their enterprises and, at the same time, increase the knowledge base of their producers. They are constantly improving information management, so that individual producers can determine the influence of genetics, grazing management, and handling processes on the end product.

In recent years, OBE producers have moved from dealing with local stock agents and processors, to being part of a group which involves processors, transport operators, trading companies, wholesalers, advertising agents, graphic designers, retailers, and processors and consumers in Japan. They market their own successful brand and command a 30 percent premium over conventional product. Evidence suggests that their marketing strategy has also increased tourism in the region and could provide significant flow on effects.

Marketing a differentiated product like OBE organic beef does enable the creation of brand equity and helps to generate a sustainable price premium but the strategy is not without cost. Part of the premium paid for the OBE Organic Beef is used to continue the operation of the group.

OBE established a self-levying model to deduct a marketing levy (in cents per kilogram of organic meat shipped) from payments to producers. These funds are used to maintain systems and processes, to provide travel costs to support the product in Japan, for education and communications functions with producers and for property inspections.

The increased running costs associated with OBE's production systems are significant. Producers have had to make a number of changes to their normal mode of operation and sometimes make sacrifices by selling stock early or withholding stock to meet OBE marketing programs. Ensuring year round supply effectively reduces stocking levels because producers cannot vary stock levels with conditions due to the need to maintain organically certified herds.

OBE directors see it as important to continue to educate their fellow producers about the need to keep their cattle for the organic market and the threat outside sales pose to the viability of the project. Maintaining the commitment of all producers requires constant attention.

Anglo Beef Producers

Anglo Beef Producers (ABP) is part of the Goodman International Group – one of Europe's largest meat processing companies – and is the largest meat processor in the UK, with a 10 percent share of the UK market. J. Sainsbury (JS) is one of the United Kingdom's largest fresh meat retailers, with over 300 stores nationwide and an annual supermarket turnover in excess of £10 billion. Their ‘ Traditional Beef ‘ product is a good example of a successful partnership between retailer, processor and producers.

Table 3 Anglo Beef Producers

OBJECTIVE: Participate in supply chain for retailer J. Sainsbury's ‘Traditional Beef'
STRATEGY: Establish necessary operational systems and supply chain infrastructure

TACTICS	COSTS	BENEFITS
Become exclusive supplier for J. Sainsbury's traditional Beef	Time and effort in negotiations	· Access to growing market with guaranteed demand and customer feedback · Price premium & fast payment · Reduced marketing expenses · High barriers to entry for competitors
Invest in dedicated processing plant for traditional Beef	· Major capital expenditure · Volume subject to Sainsbury's marketing success	· Ability to produce to customer requirements · Technology transfer
Develop specification requirements for producers	Technical expertise and consultation with stakeholders	Customer focussed producers
Facilitate information sharing through chain	· Co-development of internet site · Participate in workshop programs	· Enhanced market knowledge for all chain members · Builds trust and understanding throughout chain · Helps reduce conflict

OBJECTIVE: Develop reliable supply of appropriate quality cattle

STRATEGY: Attract producer members and ensure quality system compliance

TACTICS	COSTS	BENEFITS
Offer price premium to producers (£6 per animal) jointly funded by retailer	Funding for share of premium	· More attractive to producers · Increased supply
Employ additional staff to build membership base	Salaries and overheads	· Increased supply · Increased goodwill
Offer extra premium to distant farmers to offset transport costs	Funding of premiums	Increased supply & perceived equity among producers
Farm accreditation	Site visits and technical assistance	· Higher quality-conformance · Dictating production processes to producers can create conflict
Payment to producers according to grading schedule	· System administration · Potential for conflict with producers	· Encourages production of top-grade animals · Customer preferences communicated through chain

Costs and Benefits for Individual Producers	
COSTS	BENEFITS
· Less autonomy. Must produce to processor specifications and commit proportion of output · Grading system creates uncertainty in profit levels and potential conflict with processor (cost limited due to reasonably generous specs)	· Access to growing market in light of reducing opportunities in spot markets · Price premiums & more stable demand · Increased market knowledge and access to information and assistance from chain members

'Traditional Beef ', a premium grade own-label product exclusive to Sainsbury, was made possible by product development research undertaken by JS that identified a process to improve the eating quality of fresh beef. To market the new product JS decided to form an exclusive arrangement with a select processor and chose ABP. For their part ABP were willing to invest in a state-of-the-art plant at Ellesmere dedicated to JS and ' Traditional Beef '.

Demand quickly outstripped supply and the premium product provided the essential impetus for Sainsbury's Partnership in Livestock; a tripartite link between JS, ABP and beef producers, which had been difficult to establish but took off on the back of a successful premium priced product which offered tangible benefits for the entire chain – a guaranteed market and a guaranteed premium.

Sainsbury's partnership in livestock is the largest and most well established of the livestock partnerships in the UK. Established in 1987, it is administered entirely by ABP. Sainsbury staff have no direct contact with producer members – even the taste tests are conducted by ABP staff at Ellesmere. This makes ABP's role in facilitating information flow critical.

Initially ABP struggled to attract producer members to their tri-partite partnership with JS, despite the bonus of £6 per animal which ABP and JS funded jointly. However, the Government recognised the considerable potential of the scheme and awarded ABP a grant of £102,000, spread over three years, to improve the communication of the scheme to beef producers and attract new members. The grant was small in the context of the establishment costs that ABP undertook, but its effect was significant, enabling ABP to employ staff to work specifically on building up the membership base. Senior management at ABP believe that the grant made a substantial contribution to the establishment of a critical mass of producer members.

The partnership in livestock currently has around 500 farmer members with more than 35,000 cattle (approximately 5 percent of the UK herd). Conditions for membership are not exclusive – lighter than average animals (500-600kg), full traceability, guaranteeing a proportion of production, and delivery direct to Ellesmere are the key distinctions. Producer specifications are fairly broad because the key difference is in the maturation process not the raw material.

ABP estimate the marketing costs for their Livestock Partnership amount to around £5 per animal, compared with costs of up to £20 per animal when selling through an auction market. Presumably these savings accrue because reliable long-term supply/demand relationships help to reduce promotional and procurement related expenditures throughout the chain.

ABP also benefits from the increased switching costs imposed on JS. As retailers (the dominant players in the supply chain) like JS work with their suppliers to develop differentiated products and establish brand loyalty, the more reliant they become on their suppliers, who become the providers of brand integrity. This makes entry for competing processors difficult and reduces the risk associated with investing in relationship specific assets including dedicated processing capacity.

ABP needs access to supermarket meat counters in an environment where retail options are distinctly limited, particularly as retailers are increasingly looking for exclusive access. The guaranteed demand inherent in "Traditional Beef" and the high trust context of the partnership in livestock allows for a longer planning horizon and richer information flow.

Most of the benefits in this tripartite arrangement seem to accrue to JS and ABP, but then they also bear the major cost burden. ABP need reliable supplies of top quality beef animals with complete traceability. For the moment, price premiums do reflect the need to attract new members and retain existing ones, as competing schemes evolve. However, as the options open to producers diminish with the demise of the livestock auctions, the balance of dependency can be expected to move in favour of the processor unless producers join forces to establish a critical mass. Nevertheless supply chain arrangements like this appear to be the most likely situations in which UK beef producers can differentiate their product, add value and generate selective demand.

Agricore

Agricore was formed in 1998 through the merger of the Alberta and the Manitoba Wheat pools and serves nearly 80,000 members. The merger was prompted by a number of emerging tends in the grain handing industry largely relating to changing grain transportation legislature, growth in agri-food processing and anticipated changes in the role of the Canadian Wheat Board (CWB).

Table 4 Agricore (Identify Preservation for Warburtons Bakery)

OBJECTIVE: Enable supply of identity preserved contracts with specific variety and quality **STRATEGY:** Develop necessary systems and procedures		
TACTICS	COSTS	BENEFITS
Establish contractual arrangements	Negotiations with CWB and Warburtons	· Guaranteed demand for premium grade wheat · Price premiums
Develop handling, storage and transportation procedures	· Technical expertise · Increased logistics costs	Maintain identity preservation
OBJECTIVE: Ensure adequate supply of appropriate grain **STRATEGY:** Establish special production contracts with individual growers		
TACTICS	COSTS	BENEFITS
Develop procedures for growers	· Technical expertise · Negotiation/travel expenses	High quality grain supply
Attract individual growers	· Payment of premium price · Guarantee purchase	Adequate volume of supply
Ensure use of certified seed	Administration & procurement	Satisfy contractual obligation
Monitor and record weather conditions for growing crops	Administration	More accurate production planning and control
Record use of inputs used in crop production	Administration	Added customer value
Monitor expected crop yields	Administration	More accurate production planning and control
Test production samples	Technical expertise and use of facilities	Quality control
Award contracts to long standing members	Potential animosity from shorter-term members	Enhances trust and confidence in quality of supply
Provide assistance through producer service representatives	Wages and administration	Enhanced production efficiencies and member goodwill

The removal of the Western Grain Transportation Act has fuelled expectations of a market-based grain transportation system being established and emphasised the need for grain handling companies to pursue greater economies of scale and improved logistical efficiencies.

Similarly, the growth in processing activities is attracting companies and increasing the importance of reliable sourcing directly from farmers. Although the CWB continues to provide single-desk selling as the exclusive agency for Canadian milling wheat it is expected that it may lose this authority within the next decade. Grain handling companies like Agricore are positioning themselves for this possibility.

This case focuses on the specific arrangement between Agricore and Warburton's Ltd. Warburton's Ltd. is a century old family firm and Britain's largest independent bakery, producing more than three million loaves of bread a week. Warburton's bread is known to be of high quality, and is often twice the price of a regular loaf. To guarantee its quality, Warburton's has always used Canadian Western Red Spring (CWRS) wheat.

In the late 1980s they began to notice a decline in their product quality, which threatened their ability to charge premium prices. Their research revealed that particular varieties of CWRS (specifically Teal, Pasqua, and Columbus) worked best in their system, producing bread better suited to their customers' tastes. To ensure that they would get only these varieties, Warburton's began discussions with the CWB to use “identity preserved contracts” to source specific varieties of wheat.

The resultant contracts are administered by Agricore and Paterson Elevator Co. Warburton's specifies the amount of wheat it requires (well over 100,000 tonnes annually) and the elevator companies are responsible for obtaining it from Manitoba farmers through production contracts. Warburton's contracts are awarded annually to farmers who have a reputation for growing consistently good quality CWRS crops. Under the contract, farmers agree to produce a particular variety. Crops have to be grown from certified seed, and the farmer must employ good farming practices to grow the crop and properly store and protect the harvest. The producer also submits a report on weather conditions, use of inputs, and crop yield, along with a sample of the wheat. If the elevator company is satisfied, it agrees to purchase the entire crop.

In reality, detailed tests on every sample are not practical, so trust and reputation are critical; contracts tend to be awarded to longstanding members and customers. In return for meeting these standards, Warburton's contract farmers receive a $20/tonne premium over the regular CWB price for identical grain. This premium is paid in cash, direct from Warburton's, along with the regular CWB payment. For their part, Warburton's accepts all the contracted wheat that meets the agreed-upon standards. They buy direct from the CWB, and are charged more to cover additional administrative and logistical costs, particularly in handling.

Shipments of Canadian wheat are exported to Warburton's every six to eight weeks, and the elevator companies have to ensure that the wheat is “identity preserved” so that it maintains the correct characteristics and remains separate from other varieties through the entire grain-handling system. Warburton's pays a management fee to the elevator companies for administering contracts and preserving the identity of the wheat through shipment.

Warburton's has set up a research laboratory and pilot bakery, Warburton's Technical Centre, in Brandon, Manitoba, where they conduct their own quality tests, refine their baking technology, and experiment with new wheat varieties. The Technical Centre is also in constant contact with the elevator companies and the producers as they approve shipments based on their analysis of harvest samples and the farmers' reports.

Analysis and Discussion

The objective of any profit-making marketing organisation is to add value in order to increase the consumer's willingness to pay. Moreover, this increase must exceed the costs associated with generating it, at least over the long-term. When this differential is difficult for other firms to duplicate it becomes a sustainable competitive advantage. Supply chain strategies can help firms to generate and capture added value, and when successful can result in a collective competitive advantage (Chopra and Meindl 2001). Furthermore, Rosenbloom (1999) suggests that these advantages can be difficult to duplicate by virtue of their multi-organisational scope and long-term nature, and subsequently they have the potential to provide sustainable competitive advantage.

While four individual case studies could never capture the diversity of agribusiness supply chain structure or strategy, these cases were selected according to the extent to which the central firm's strategic direction is attributed to supply chain principles. Although every effort was made to identify appropriate cases across a wider range of agribusiness industries, these proved elusive and interestingly a significant number of commonalities appear to exist between the four cases.

The four cases all involve food production. A number of characteristics appear to make food products particularly relevant in agribusiness supply chain contexts. Food is usually perishable, making it difficult to stockpile and reducing the ability of firms to manage demand through inventory control (van Hoek 1999). Similarly, food is highly sensitive to consumer health concerns. This increases customer interest in the entire chain and all processes back to the original source.

Raw fibre production is under-represented in the supply chain literature, perhaps because it is largely regarded as a commodity product and less sensitive to consumer health issues. Although a number of supply chain focussed cases involving fibre production were identified, they invariably failed to include the original producers and focussed on processors and textile manufactures. Supply chain approaches seem particularly suited to those areas that add value and effect product differentiation, and this is where supply chain strategies are likely to deliver the greatest benefits.

All the cases are concerned with the marketing of differentiated product. In the two Australian cases (Panda Ranch® and OBE) brand ownership and differentiation lie at the producer end of the chain while in the two international cases (ABP and Agricore) retailers own the brand. Agricore is subtly different in this regard since in a way they can claim part ownership over the brand image associated with

Canadian Western Red Spring wheat and the specific varieties of which are so critical to their relationship with Warburton's bakery.

Brand ownership seems to be an important factor associated with the roles chain members play. In each case the firm that initiated and championed the supply chain approach was the firm holding ownership of the brand name. It could be argued that this is because the long-term benefits of supply chain strategies are likely to manifest in enhanced brand equity, and the firms with brand ownership stand to capture most of the gains. However the long-term nature of the relationships and the high levels of trust and transparency typically associated with supply chain approaches (and mentioned in each case) suggest an environment conducive to a fair and equitable distribution of benefits along the chain.

Another feature common to all but the ABP case is a significant focus on export markets. Although this may be largely coincidental, strong evidence exists to suggest that the successful internationalisation of firms depends on the strength of the relationships they can establish (Coviello and McAuley 1999). Supply chain strategies seem well suited in this context, particularly when cultural factors favour a strong relationship centred approach, a situation common in Asian markets (target markets for Panda Ranch® and OBE).

Each of the four cases involves some sort of horizontal collaboration in the form of a producer group. Managing these arrangements obviously has a significant cost of administration but buyers increasingly demand reliable delivery of large volumes of quality product with minimum fuss. Typically these volumes are beyond the scope of individual producers. Producer groups allow suppliers to generate sufficient volume and/or continuity of supply and can deliver improved production/marketing efficiencies (Palmer 1996).

Common strategies supporting the management of producer groups include implementing quality systems, controlling all financial flows, coordinating packing and shipping, keeping members informed of market developments and market driven quality demands, encouraging new members through information workshops and promoting a customer-focussed approach.

Customer-focus and demand-driven supply chains or value chains are concepts well represented in the literature. In the simplest analysis these terms merely reflect the traditional marketing concept of responding to customer needs applied in a coordinated and cooperative manner throughout the chain. This vertical collaboration is usually predicated on the existence of mutually beneficial objectives and supported by the reduction of adversarial attitudes through the development of strong, long-term relationships characterised by high levels of trust and commitment (Hobbs, Cooney and Fulton 2000).

The adoption of a supply chain approach based on chain interdependencies and underpinned with strong relationships can represent a major shift in the way a firm does business. Probably the main enabling factor in such situations is a change in management attitudes, typified by a clear recognition of chain interdependencies, a long-term view and a genuine belief in supply chain principles across the entire enterprise (O'Keefe 1998). While these factors are hard to measure directly, they are evident in the tactics firms employ and the relationship-specific investments or commitments they are willing to make.

Any firm that initiates and promotes a genuine supply chain alliance or partnership clearly demonstrates a desire to operate according to those principals. Other chain members however, may not be as committed. If a firm is setting up new channels with the aim of establishing a collaborative business environment, then the selection of business partners becomes a critical decision central to effecting business strategy. The extent to which potential partners support a collaborative approach becomes a key selection criterion.

Under these circumstances firms might be expected to invest more time and effort negotiating with potential partners and, once a suitable candidate is identified, developing a deeper understanding between the parties. This may include (as with OBE and Stockyard) the drawing up of a memorandum of understanding. Typically this process will address the roles, responsibilities and accountabilities of chain members and may outline agreed standards and procedures. Often these negotiations will include a conflict resolution agreement, which according to Gooch (2001) is widely regarded by international supply chain experts as vital to long-term success.

Increased emphasis on communication with chain members is evident in all the case studies and applies to both the establishment of business relationships and their ongoing operation. Importantly, this does not necessarily mean increased complexity of or reliance on contractual mechanisms. On the contrary, all cases suggest that most of the understanding seems to lie outside the scope of any legally binding arrangements. Benefits include greater information flow, which facilitates market responsiveness, and increased trust and commitment, which reduces uncertainty, increases flexibility and encourages longer-term planning.

There are often increased administrative costs associated with these relationships including time, effort and travel expenses, particularly during early stages. However, Ford (1998) explains that since many relationship-handling costs are incurred by either party trying to avoid being abused by the other, developing trust can help to reduce the overall cost of doing business with any specific player over the long term.

A number of strategies from the case studies are consistent with goals of enriching communication, building market-related knowledge and enhancing market responsiveness. Tactics usually involve fostering a collaborative environment for chain members to share information, and maintaining regular contact with key chain partners. Specific activities include organising educational producer trips, distributing newsletters, hosting customer visits, planning shared promotional activities and utilising communication via the internet.

The relative strength of vertical relationships and the functional position of those involved vary from case to case. However some contextual factors can be identified that may partly explain this variation. Business relationships appear to be strongest between those chain members who controlled processes that effect product differentiation and the firms who held ownership of the brand.

In the ABP and Agricore cases the retailer initiated the chain and also owns the brand. These two cases seem to involve less vertical interaction for producers. In the ABP case particularly, where product differentiation occurs primarily during processing, the strongest relationship exists between retailer and processor. This relationship is further underpinned by ABP's investment in a major relationship-specific asset in the form of a new processing plant dedicated to Sainsbury's “Traditional Beef”. Individual producers tend to interact primarily with the processor ABP, and direct interaction with Sainsbury's is limited.

In the Agricore case product differentiation does occur at the source, through varietal quality specifications. Warburton's discovered that their technology worked best with certain types of wheat and sought to secure a reliable supply. It is not a difference Agricore can monopolise however, and Warburton's currently have another supplier in Paterson Elevator Co. What Agricore (and Patterson) provide is identity preservation and quality assurance, and Warburton's is prepared to bear the associated expenses.

Individual producers do interact directly with the retailer but it appears that this interaction is primarily focussed on verifying conformance to contract specifications. This may change with the establishment of Warburton's technical centre in Manitoba. Establishing this centre demonstrates a significant commitment on the part of Warburton's and provides the opportunity for collaborative research and development programs, but no specific evidence in the case exists to suggest that this is already occurring.

Panda Ranch® and OBE are alike in that these firms come from a production background and product differentiation occurs with producers. Each of these companies initiated their supply chain relationships, all possess a significant export focus and all maintain ownership and marketing control of brand identity. Producers in these cases appear to play a more active role in building and sustaining relationships.

The producer groups of Panda Ranch® and OBE each appear to exhibit a sense of regional identity. This is particularly strong in the OBE case where brand image relies heavily on that regional identity. Under these circumstances producers may share a greater sense of community, be more supporting of a team-based approach and more likely to be actively involved with other chain members. Tactics common to Panda Ranch® and OBE include publishing newsletters for members, organised producer trips, hosting customer visits, and developing collaborative promotional campaigns with other chain members.

In OBE's case the primary point of differentiation and hence competitive advantage depends on the product's organic status. Organic integrity (like Agricore's identity preservation) relies on all processes in production, transportation, processing, storage, handling and customer delivery. Furthermore these processes must be systematically verifiable. This emphasises the need for effective communication, and arguably, the importance of all relationships with intermediaries.

Unlike Agricore who can simply pass on system administration costs to the customer as a separate item, OBE must absorb these costs as normal operating expenses inherent in their core business strategy. However OBE may reap greater long-term benefits from developing systems and relationships that support product integrity than Agricore who manage identity preservation purely in response to contract requirements and face a greater risk of substitution.

Table 5 Combined Case Summary Checklist

Conclusions

Most of the strategies evident in the case studies are consistent with enhancing communication and trust between chain members. The benefits include greater information flow, price stability and reliable demand. Participating firms believe that over time these relationships help to improve market responsiveness and allow for longer planning horizons with less perceived risk. Intangible benefits were also evident, particularly amongst producer groups. These included a greater understanding of downstream processes, greater involvement and control in marketing related activities, and an enhanced sense of teamwork.

Although improved communication was one of the primary benefits identified in the case studies, there was no evidence of advanced communications systems like electronic data interchange. It seems that the parties were more interested in knowledge transfer and transparency in business dealings than operational data per se. High product perishability makes it difficult to manage demand through inventory control and this may reduce the need for high levels of data exchange. When product quality relies on speed to market and production scheduling is subject to seasonal constraints and long production times (planting to harvest or birth to butcher), firms are likely to value personal communication with reliable and committed intermediaries in whom they trust, more than high volumes of detailed real-time data. Nevertheless, any firm contemplating the application of EDI or the sharing of commercially sensitive information would probably only do so in the context of a strong business relationship similar to those evident in the case studies.

Close business relationships were particularly evident around those processes that effected product differentiation. When differentiation relies on the actions of intermediaries, proper management of the supply chain assumes critical importance. Here brand ownership appears to be an important factor in the roles chain members play. In each case the firm that initiated the relationships and championed the supply chain approach is the firm holding ownership of the brand.

Defining and allocating specific benefits and costs to different strategic objectives and tactical activities is difficult, and in some ways masks the synergies that effective supply chain management can deliver. It is also acknowledged that four case studies cannot be considered a representative sample. Nevertheless this study does highlight a number of commonalities in terms of contextual factors relating to strategy selection and the typical types of associated costs and benefits. While the generic checklist represented in the combined case summary (table 5.1) should not be regarded as exhaustive or prescriptive, hopefully it might serve as a practical suggestive tool that helps firms to consider the relevant costs and benefits associated with supply chain approaches, and to identify more specific concerns related to their situation.

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Footnotes

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