Postharvest Handling of Fresh Vegetables

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West Timor Mandarin Marketing Case Study — Implications for Supply-chain Management in Developing Countries

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Abstract

Changes in the external environments in food and fibre products in developed countries have brought increased interest in supply-chain management. The global competitive environment is one impetus driving demands for cost-effective food and fibre supply chains. In addition, quality requirements, strict product specification, and food safety issues can be achieved only if food supply chains are transparent and traceable all the way to retail chains. In spite of the interest in developed countries, little supply-chain research has been done in the context of developing countries. This study looks at marketing in the mandarin industry in West Timor, Indonesia and outlines potential participants in supply chains in the industry. With the assistance of non-government organisations, the social constituents of West Timor, like many other developing countries in Asia, can be utilised to foster supply chains, even though their drivers are different from those in developed countries. Traders rather than retailers are often the channel managers and are able to appropriate more values from the chain.

WHILE there has been increased interest in supply-chain management in food and fibre products in developed countries (e.g. Hobbs 1998; van Duren et al. 1998; Westgren 1998), little research has been done in the context of developing countries. This study looks at the marketing system of the mandarin industry in West Timor Indonesia and outlines factors which favour and hinder the development of supply-chain management of agricultural products in West Timor. Much of the discussion in this case study is relevant to other developing countries in Asia that have similar 'natural-social constituents' in the supply of agricultural products (Murdoch 2000).

Supply-chain management refers to the management of the entire set of production, distribution, and marketing processes that deliver competitive products to consumers. In a traditional spot market, business-to-business transactions are decentralised. A producer supplies several wholesalers; a wholesaler purchases from various producers; and likewise retailers have various sources of supply for a given product. Business entities often change their sources of supply and lose and win new customers over time. In a supply-chain environment, the number of actors involved in transactions is reduced and the business-to-business relationship is relatively lasting and more centralised. At one end of the continuum, a supply chain may function close to a situation of vertical integration (for example, the aircraft industry or, to a lesser extent, the automobile industry). In the most streamlined chain, one producer supplies product to one wholesaler, who supplies to one retailer (though the wholesaler may be bypassed). In reality, most chains for agricultural

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products are loose, fragmented, and unstable over time. A successful chain often has an effective ‘channel manager’, a role often taken by supermarkets in developed countries. The absence of a channel manager often means the delivery of products is a result of a series of decentralised, dyadic interactions, with no purposeful intention to best serve the end consumers.

Depending on the focus of research interest, supply-chain research may target channel member relationships, information flow among members, and logistical coordination. While these foci are not entirely exclusive, channel member relationships are arguably the most important aspect of the management of the supply chain since good information flow and logistics can better be coordinated once a sound working relationship has developed. This study focuses on channel member relationships in the West Timor mandarin industry. The materials from the case study were obtained during 2000 from interviews with key players in the industry, including producers, traders, government officers, and non-governmental organisations (NGOs).

Background to Supply-chain Management

Supply chains of food and fibre products emerged in developed countries in parallel with a number of interrelated trends and changes in the external environments. Increasing competition has seen horizontal consolidation at the producer, wholesaler, and retailer levels. Advances in telecommunications, transport, and other technologies have enabled competition at a global level, encouraged by declining, albeit slowly, tariff and non-tariff trade barriers. As their lifestyles change, consumers are becoming more particular about quality standards and equitable sources of supply. This demands greater efficiency, transparency, and traceability on the supply of food products. These emerging market requirements have reinforced existing chains by raising entry barriers or by encouraging the formation of new supply chains (Westgren 1998). These new supply chains must not only achieve cost efficiency but also meet quality and traceability requirements in the developed economies.

Properly managed supply chains reduce transaction costs compared with open, spot markets (Williamson 1971), in which transaction costs include product cost, negotiation cost, and information cost associated with continuously finding the best supplier in the open market. Vertical integration in the marketing chain offers the potential to simplify supply chains through fewer transactions, and reductions in lead times, stock, and waste (Fearne 1994). Alternatively, alliances with other channel members can offer similar benefits to integration while capital costs of integration by acquisition are shared among the partners (Hughes 1994). However, alliances do not necessarily bring about increased profit for the firms or the chain, unless the parties involved have a commitment to interdependence and achieving a shared alliance strategy to create both short- and long-run value (Fearne 1998; Inkpen and Li 1999).

A central issue for supply-chain members is disproportionate appropriation of profits from the value chain. In a competitive marketplace (where there is no distortion such as state protection or related intervention), each channel member performs certain indispensable functions in the chain to deliver the product. Profits for a firm at one level of the chain depend on the relative bargaining power of that firm in two dyadic relationships: one with the channel member one level up the chain and one with the member one level down (Cox 1999). Bargaining power of a firm is contingent upon competition on the same level, availability of substitute products, and the likelihood of alternative supply and outlets.

In developing countries, many of the drivers for food and fibre supply chains in the developed countries are not yet emerging. Businesses are less consolidated horizontally, as there are myriads of unorganised producers, collectors, and retailers. Based on a power perspective, the delivery of goods is a by-product of numerous dyadic negotiations between channel members, and the profit for a business is a reflection of its relative bargaining power with its supplier on the one hand and with its customer on the other. Marketing is likely to be pushed through the chain by suppliers rather than pulled by consumers (Treadgold 1995). Channel members often perform complex rather than specialised channel functions. Farmers can be retailers; first-level collectors may be wholesalers; or collectors can be retailers etc.

Given the infrastructural conditions in most developing countries, such as narrow and poor roads, a lack of cool storage and, in many instances, no telecommunications, the supply of agricultural products is thought to be very efficient because of competition in the open spot market. Farmers in developing countries are often regarded as the weak players relative to their input suppliers and business customers, be it first-level collectors or wholesalers. They are often price takers and not price negotiators. However, this consequence has to be looked at from a social perspective rather than just from a power perspective. Farmers are often in urgent need of cash owing to lack of business opportunities, planning, and skills. The absence of cool-chain storage in developing countries means they must sell their perishable products at the earliest opportunity after harvest. Alternatively, farmers also enter into forward contracts at very low prices with their business customers. Basically, farmers in many developing countries perform the pure labour function in production. Social structural factors such as their inferior ability in business planning, lack of market knowledge, and the perishability of their products combine to contribute to their weak bargaining position in the supply chain.

Given that making a profit is the primary aim of doing business, it would be unrealistic to expect innovation from within a supply chain to improve information flow and coordination when costs and profits cannot be shared in a satisfactory fashion. In many developing countries, sources of improving the status quo coming from outside the supply chain include international assistance and government aid and training programs designed to lift farmers' knowledge (information and business) to the same level as other channel members.

The West Timor (Indonesia) Mandarin Industry

West Timor is one of the poorest regions in Indonesia and has been targeted by the Indonesian Government and a few NGOs for rural development. Many of the villages in West Timor rely heavily on mandarins as a main source of income. One special variety of mandarin, Keprok Soe (literally 'mandarin from Soe') is grown in West Timor, particularly around Soe Regency. Keprok Soe grows in areas above 800 metres altitude with poor road conditions. Keprok Soe is admired by the local people for its good taste, attractive skin colour (predominantly gold, while most other domestic varieties are green), and relative ease of peeling. Based on its good agronomic performance in West Timor, the Government of Indonesia has promoted Keprok Soe exclusively in West Timor since the 1990s by providing grafted plants of Keprok Soe to farmers. The government uses the strategy of scarcity marketing by not encouraging the growing of other varieties in West Timor and discouraging other regions from growing Keprok Soe. Although the product is relatively scarce, the area has not attracted exogenous investment owing to poor living conditions and very poor infrastructure.

In the face of competition from imported mandarins in late 1990s, a few traders in West Timor started to sell small quantities of Keprok Soe to more prosperous cities in other islands of Indonesia. Loosely defined supply chains for mandarins have since started to emerge for fruit going to other islands. Their emergence is vastly different from those explanations and drivers offered in developed countries. Mandarin producers are not consolidated or formally organised; there is no obvious increased competition in the industry; and there are no strict specification or traceability requirements in Indonesia.

Other factors have contributed to the development of supply chains in the mandarin industry in West Timor.

Firstly, as in many other developing countries, there are different kinds of informal social groups in Indonesia. Traditional self-help farmer groups still exist in West Timor, whereby farmers of one group help each other in planting and harvesting by sharing equipment and spreading information. Many of the group members go to the same church. Although there is no legal, reciprocal obligation between farmers, behaviour deviating from expected norms would attract a high social cost. These spontaneous farmer groups were not organised for collective action such as to increase the volume of supply, to engage in group selling, or to enhance their bargaining position in relation to collectors. This network of farmers is the 'natural-social' constituent (Murdoch 2000) that has often been useful for interaction between farmers and traders and as a source of mutual learning and innovation. Developing countries appear to have a reservoir of 'relational assets' such as social capital, trust relations, and reciprocity (Storper 1993). All of these have been identified as important aspects favouring supply-chain management in developed countries.

Secondly, the nature of the relationship that exists between traders and farmers is qualitatively different from the dyadic relationship that characterises the channel member relationship in developed countries. Traders and farmers in West Timor know each other relatively well. Traders, based in Kupang (the capital city of West Timor), have informational assets and networking capabilities and are respected by farmers. Because farmers are located remotely from cities and cannot access telecommunications, they cannot take over the functions of traders. Traders also recognise that vertical integration by taking over the production function of farmers is not an option; it is better to try to assist farmers to produce superior products. In this interdependent relationship, traders feed market information back to farmers, lend money to credible farmers, and assist farmers with harvesting, grading, and packaging techniques under the auspices of NGOs. One trader has an 'open book' policy, showing the margin he gets in the value chain. In the West Timor mandarin industry, there appears a mutual interest for farmers and traders to work cooperatively to improve the production, harvesting, and packaging of Keprok Soe, with a view to selling beyond the local market. What has limited progress is predominantly technical issues of plant protection, an ineffective credit system, and poor infrastructure of roads and transport in the region.

Thirdly, because West Timor is one of the poorest regions in Indonesia, international development funds are available for rural development. For example, the multinationally funded NGO Alpha Omega has been in West Timor since the 1970s. Though its activities are not specifically for the mandarin industry, mandarin farmers are often included for workshops in business skills and general farm-management principles. NGOs and other aid agencies (such as the Australian Centre for International Agricultural Research) often involve farmers and traders as a team to improve the performance of the industry. The presence of these third parties moderates the potentially adversarial relationship between traders and farmers and enhances the already less confrontational relationship.

Unlike developed countries where retailers often control the chain, in developing countries, traders are often the channel managers. In developed countries, because products are pulled by consumers, it is not surprising that the chain member with routine contact with consumers has the greater power. In developing countries, as products are pushed through the channel, the business skills and foresight of traders are crucial to the linkage between farmers and retailers, and consequently the success of a chain. This does not necessarily mean traders are ignorant of consumer preferences. In fact, traders are quite knowledgeable on consumer needs and wants because of the network they have and the relatively homogeneous sensory preference in many developing countries in Asia. In the case of mandarins, fruit with sweeter taste, softer fibre, and gold colour is preferred in some parts of Indonesia (Wei et al. 2001).

In most developing countries, farmers are perhaps the ones who have received least value from the chain, and traders, particularly wholesalers, are often the ones that are able to extract more value. This is partly because traders often perform the critical functions of channel managers for the chain. Wholesalers often take the initiative to link production and distribution, and to invest in innovations such as branding, packaging, and promotion. Farmers often perform the routine labour function of production.

Discussion and Conclusion

Overall, the West Timor supply chain for mandarins to other islands is an example that is not dissimilar to many industries in developing countries. While there are some ingredients conducive to the development of supply chains, rural economic actors cannot hope to be ahead in relation to international competitors. The challenge for them is to catch up without accentuating the weakness present in the chains of the developed world.

In the West Timor case, there appears to be a mutual interest for farmers and traders to work together to improve the performance of the supply chain. Like many other rural areas in developing countries, West Timor rural areas are dominated by traditional, farm-based economic units, which are integrated with social ties. Consistent with the agrarian traditions, rural areas in West Timor have residual strengths in social norms which are trust-based and emphasise cooperation. Many other developing countries in Asia, such China, Vietnam, and Thailand, have similar relational assets for collective behaviour once it is properly managed.

Rural development in developing countries is often facilitated by the involvement of third parties such as NGOs. The role of the third parties has largely been ignored by researchers, perhaps because their involvement is project based and short term, and their impact is difficult to assess. Aid agencies can effectively achieve more by targeting not only farmers but also the channel manager in the chain, such as wholesalers in developing countries.

To improve farmer income in developing countries, farmers need to offer more than labour input through innovations resulting in cost reduction, product differentiation, and development. The role of the state and NGOs may focus on the provision of 'soft infrastructure', such as business service provision, training, and knowledge acquisition, and the related capacity-building services (Morgan 1997).

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