North American Retailers and Their Impact on Food Chains

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INTRODUCTION

Food retail chains are becoming more global, extending both their distribution and supply networks around the world. Some changes are in response to consumer expectations of greater variety and year-round availability, but others are in response to advances made in extending, managing, and capturing the value associated with global food chains. This has allowed retailers to offer consumers more choices in products and greater availability of seasonal products, all at competitive prices. Since the creation of NAFTA, the food retail industry has changed in all three countries, but the changes have been most dramatic in Mexico, where retail chains on a national level are relatively new.

As retail chains become larger and more global, their changing requirements drive change throughout the food chain, right down to the producer level. Although food retailers exert considerable control and influence over food supply chains, they generally do not develop them. In most cases, food supply chains are created and evolve over time to meet the changing needs and expectations of food retailers. In some cases, their purchasing preferences and patterns simply influence directions and mandates for food chains; in others, retailers may dictate standards and conditions for suppliers.

In this chapter, we examine the factors driving change in the North American food retail industry and the impact on food supply chains, specifically the implications for shippers and producers. Most of the

[1] The views expressed in this chapter are those of the authors, and may not be attributed to the Economic Research Service or the US Department of Agriculture.

work looks at the produce industry. This chapter pulls together new and existing work on this topic including two new studies that look at small produce growers in Mexico facing new retail and food safety standards (Cervantes-Godoy; Avendaño and Narrod); older work on the US produce industry that examines the impact of retail consolidation on shippers, but not producers (Calvin et al.); and another new study that examines the efforts of small veal producers in Canada trying to target increasing retail demands for differentiated products (Snoek and Sparling).

The chapter begins by looking at trends in the food retail industry. Trends in Mexico are following the same pattern as in the United States and Canada. Retail demands in all three countries have affected the marketing options of shippers. If shippers do not or can not comply with retail demands, they have well-established alternative markets such as smaller stores and wholesale markets. These alternative venues are particularly important in Mexico where national and international retail chains are not yet as pervasive as in the United States and Canada. Then we look generally at the impact of changes at the retail and shipper level on producers.

The chapter next delves into several cases studies. The first looks at the changing retail situation in the fresh produce industry in Mexico, and the implications for producers, particularly small producers who make up such a significant proportion of the industry. Using a case study of four producer groups, the conditions necessary for small producers to participate in retail food chains are analyzed. Then the focus turns to another case study looking at food safety and small Mexican produce growers. Food safety for produce has been a growing concern for retailers. Now, several commodity groups in all three countries have introduced or are facing government-imposed mandatory food safety standards. The US and Canadian mandatory food safety programs are self-imposed and apply to all production within a certain region regardless of final buyer. In Mexico, mandatory standards affect only export markets so far. An analysis of how Mexican cantaloupe producers fared when food safety demands increased in export markets demonstrates the challenges, particularly for smaller growers. Some Mexican growers, mainly smaller growers, are being forced out of the lucrative export market and having to refocus their efforts on the Mexican domestic market. As retail demands for food safety in Mexico increase, small growers that can not adapt may be forced out of that market too. The final case examined in this chapter looks at the development of value chains for high quality veal in Canada and considers the impacts of

adding another level to the chain supplying the retailer. The chapter ends with brief summary comments.

TRENDS IN THE NORTH AMERICAN RETAIL INDUSTRY

Changes at the retail level have led to numerous changes in the food supply chain, right down to the growers. In the relatively mature retail food markets of Canada and the United States, competition is intense and growth is slow. Expansion-oriented firms have two options – take over competitors in current markets or enter new markets. Over the last decade, retail firms have been doing both, becoming larger, transnational organizations in the process (Barkema, Drabenstott, and Novack; Dobson, Waterson, and Davies; Tittleson). The change has been significant. By 2003, the top five retail companies in the world accounted for one-third of the modern global food market and had operations in 85 countries, compared to only 15 countries in 1993 (Reardon and Timmer).

The movement of large retailers into developing countries has also been facilitated by more liberal foreign direct investment (FDI) regulations (Reardon 2005). There is still considerable room for growth. While many retailers have gone global, none have had as much impact as Wal-Mart, the largest retailer, and now the largest "food" retailer in the world. In 1998, Wal-Mart had just 3.2 percent of the US market, but by 2005 it dominated the US market with 19 percent of grocery sales (Cotterill; Turock and Rogers). The company is making similar inroads in Canada and Mexico. In Mexico, Wal-Mart controlled roughly 20 percent of the total Mexican food retail sector in 2005 (Datamonitor).

Retail markets are quite concentrated in all three North American countries. In Mexico, supermarkets controlled 45 percent of the retail food market in 2002 (Traill). Merger and acquisition activity has increased the level of concentration, with the US market share of the five largest firms (CR5), doubling from 24 to 48 percent between 1997 and 2006. Table 6.1 highlights some of the differences in the food industries among North American countries. Retailers in Canada are more concentrated than those in the United States. In Canada, the top three controlled 61 percent of retail food sales in 1998 (Boylaud and Nicoletti). In 2002, that percentage had increased only 0.5 percent and the CR4 was 68.5 percent.

THE NORTH AMERICAN MARKETING CHAIN FOR PRODUCE FACES CHANGES

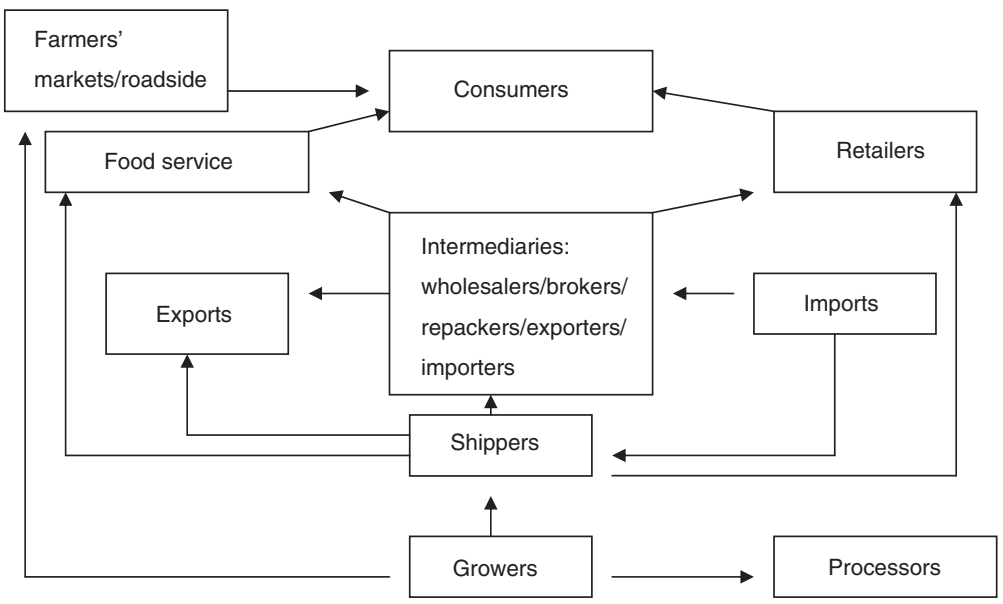
In general, growers can market their fruit and vegetables through shippers (including cooperatives) or sell directly to consumers at farmers' markets

Table 6.1: Key country statistics.

Country	Population (2005)	% Urban	% Involved in agriculture	Food Industry Revenue ($ US 2005)	% of retail share of market	Trends in retail	Number of farmers	Key trends
Canada	32.8 M	81.1%	2.2% GDP 2% employment	$ 62 B	Supermarkets - 47.6% Hypermarkets - 23.7% Discounters - 12.2%	High value Organic Online	246,923 More than 50% sell less than $C 100,000	Consolidation, expansion into other products, entry of Wal-Mart into food retail
Mexico	106.2M	76%	3.4% GDP 15.1% employment	$45.2B	Supermarkets - 43.5% Food Specialists - 18.7% Hypermarkets - 10.8%	New Formats Product Innovation	4,437,863 6% commercial, 18% transition 76% subsistence	Urbanization and income growth support supermarket expansion
US	295.7M	80.8%	1% GDP 0.7% employment	$678.2B	Supermarkets - 55.8% Convenience Stores - 14.5% Warehouse Clubs and Super Centers - 9.1%	High value Organic	2,121,107 1,231,378 sell less than $10,000 per year	Consolidation of traditional formats, rapid growth of natural/organic formats, online developing

Sources: Kaiser Family Foundation; Central Intelligence Agency; World Services Group; Statistics Canada; Institute of Agri-food Policy Innovation; Federation of International Trade Associations; Hoppe and Banker.

Figure 6.1: North American fresh produce market chain.



Source: Golan et al.

and roadside stands (figure 6.1). Shippers market produce from growers or others such as importers. Grower-shippers, vertically integrated growers who also pack and market their products, are common. Some grower-shippers market only their own products. But other grower-shippers pack and market for other growers as well. Shippers may sell directly to retailers and the foodservice industry (restaurants, hospitals, military institutions, schools, etc.) or to a range of market intermediaries who in turn sell to retailers and the foodservice industry. So while small farmers are unlikely to sell directly to a large retail chains, they could market to retailers through shippers. Of course, a small local farmer could be a grower-shipper selling to a nearby retailer. In some cases, marketing cooperatives act as shippers.

Changes in retail, not all due to retail consolidation, affect the entire food marketing chain including shippers and growers. We first discuss the changes in retail and how that affects produce shippers. While much of this section is based on analysis of the US produce industry, the trends apply to both Canada and Mexico, as well (Calvin et al.). Many of these changes are thought to favor larger shippers. Choices may be more limited for smaller shippers without the volume to serve big retail chains but there are still many marketing options including wholesale markets, regional chains, and local stores. Then, we turn to ideas of how these changes might affect growers.

Changing Consumer Demand

Many changes in retail needs are driven by changes in consumer demand. Consumers now demand more produce items. The typical grocery store carried 345 produce items in 1998, compared with 173 in 1987. Retailers are more likely, all other things being equal, to use a supplier that can provide a wide range of products rather than just one or two. As a result, many shippers offer wider lines; for example firms that sell a wide range of vegetables; specialized firms that sell the complete range of berry products; and firms that sell the complete range of tree fruit.

Consumers now also demand many produce items on a year-round basis. Improvements in transportation and technologies to improve the life of fresh produce have brought prices down to levels that consumers will accept. Cherries from Chile during the December holidays are just one example of this phenomenon. Retailers may prefer to buy from shippers that have put together a year-round supply through investment in production in different regions (including foreign countries) or through marketing arrangements with suppliers in other regions. Larger shippers are more likely to be able to handle the logistics and risks of such an operation. Some retailers may prefer to play this role themselves,

particularly if they are multinational firms sourcing for their own stores all over the world.

Consumers are also demanding more convenience in their produce and the fresh-cut industry (e.g., bagged salads, bagged baby carrots) is booming. The bagged lettuce industry has very high capital costs which act as a barrier to entry. In 1999, the two largest US bagged salad firms accounted for 76 percent of retail sales. By 2006, their share increased to about 90 percent (Calvin 2007). Fresh-cut products are more akin to regular grocery items than traditional commodities with consumer brand names, supply contracts, and fixed prices over the year – features requiring more sophisticated management.

Consumers are buying many new differentiated products. A banana is not just a banana anymore. It may be a fair trade banana or an organic banana. With more characteristics, vertical integration or coordination to maintain the integrity of the product through the supply chain may become more important. With the market for organic products growing at roughly 20 percent per year, retail organizations cannot ignore organics. Many retailers have embraced organic products wholeheartedly as a means to shift their focus to high-value products and away from direct price competition with Wal-Mart.

Movements promoting local food consumption have developed from concerns over the environmental impacts of shipping food around the world. The local food movement places different consumer pressure on food chains and in some cases has changed both the buying and shipping patterns of food retail organizations. Interest has grown recently with increasing awareness of global warming and concern over the long-term viability of local farmers. Guptill and Wilkins also found that many retailers make an effort to promote local products (e.g., dairy, seasonal fruits, and vegetables). Some governments have taken more interest, implementing preferred purchase programs for local foods and promoting regional food consumption. For example, the government of Ontario recently implemented several programs to encourage consumption of local foods including government purchase programs and support for urban agriculture. Books like the "100-Mile Diet" are encouraging consumers to "buy local" for environmental reasons and to support local producers (MacKinnon and Smith).

Retail Growth and Product Volume

Competitive pressure for retailers to continually lower prices has had an impact on how retailers and shippers interact. New retail requirements are the same for all shippers but the ability to meet the requirements

varies; many large shippers may be able to adjust on their own but some smaller shippers may be at a considerable disadvantage.

With many stores to supply, retailers have also developed their own distribution centers, taking over many of the wholesaling activities previously done by others, such as purchasing goods from suppliers, arranging for shipment to distribution warehouses, and replenishing store-level inventory. Supply-chain management practices such as continuous inventory replenishment are becoming more common. Under this system, shippers have access to retail sales data and are responsible for providing the correct amount of produce, on a just-in-time basis, to each distribution center served, potentially reducing the size and cost of retail distribution centers. It also allows retailers to streamline and downsize their produce buying offices. Shippers typically must control substantial volume to meet the needs of distribution centers and to undertake the management such an operation demands.

Large retailers are increasingly using contracts to guarantee steady supply and to specify product characteristics to maintain consistency across their many stores. Use of contracts can also have structural impacts, as shippers often need to increase their procurement to ensure sufficient supply to guarantee volume commitments.

As product volumes increase, large retailers are relying more and more on larger shippers that can supply their needs and reduce total procurement transaction costs. In 1999, a survey of US retailers found that they used just four shippers or suppliers to provide between 85 and 97 percent of total supplies for a number of produce items (Calvin et al). Shippers are also consolidating to meet the purchase requirements. For example, in 1999, there were 25 fresh-market tomato shippers (excluding greenhouse tomato shippers) in California, but by 2007 there were only 15.

Supply Chain Processes and Technologies

Retailers are interested in working with shippers to improve category profitability by designing effective sales, product mix, and pricing strategies, potentially benefiting preferred suppliers as well as the retailer. Investing in the human resources and technology necessary to analyze category information, however, may be difficult for smaller shippers to finance. The California Tomato Commission, a grower-shipper mandated marketing program, developed category management programs with several retailers, enabling shippers of all sizes to share in the benefits.

Technological improvements which generate greater efficiency and/or higher quality provide a competitive advantage for adopters. Consequently,

retailers often force new technologies on their suppliers. The most recent example has been with radio frequency identification tags (RFID). Wal-Mart, for example, mandated that its suppliers move to RFID at the case level, although this may not affect most produce suppliers at this point. Systems will be phased in over several years, beginning with the largest suppliers. RFID also improves traceability, an important management tool and critical component of food safety.

Pressure for technological change isn't only coming from retail chains, consumers are also looking for technologies that make their shopping experience easier and quicker. A recent poll by TNS Canadian Facts found that 75 percent of shoppers were interested in trying RFID checkout at the supermarket, primarily to save time at checkout (Backbone).

The Growth of Private Labels

Use of private labels adds a new dimension to retailer efforts to differentiate themselves from their competitors. The expansion of retailer private label products has changed supermarket involvement in product development and delivery. Private label sales in Canada accounted for 20 percent of consumer products, compared with 15 percent in the United States and only one percent in Mexico (AC Nielson). There is still considerable room for private label growth in North America. Globally, private labels accounted for 28 percent of refrigerated and frozen food sales, and 17 percent of shelf food sales, with growth rates of four to six percent for those segments (ACNielson).

When supermarkets put their names on products, their level of concern and participation in the process to determine the quality of those products naturally increases. Larger shippers may be able to respond more easily to providing a wide range of products. Alternatively, for small retailers, a small shipper may be able to fill a particular product line. These products might offer a distribution alternative for small producers without the marketing capabilities to support national or regional brands. They can use the retailer's brand power to market their products, but to do so they must meet strict quality, pricing, and development criteria.

Changing Food Safety Requirements

Large retailers, as well as large foodservice firms, are more and more concerned with food safety. With well known brand names to protect, they are not willing to take risks. Many large retailers demand third-party audits for compliance with Good Agricultural Practices (GAPs), the US Food and Drug Administration's (FDA) voluntary guidelines for food safety practices in the field to minimize the risk of microbial contamination for

fresh produce. Many retailers and foodservice buyers require additional food safety and quality practices above the GAP guidelines.

Buyers are most likely to require GAPS for a group of produce items that have been associated with previous foodborne illness outbreaks, including leafy greens, tomatoes, cantaloupe, green onions, and herbs. This is a relatively new phenomenon beginning in the late 1990s after several well publicized foodborne illness outbreaks in the United States associated with fresh produce. There are no statistics on adoption of these food safety programs, but the conventional wisdom is that most of the larger firms use them, but not all smaller producers do. Buyers may also require Hazard Analysis Critical Control Point (HACCP) systems and other food safety systems for produce packing houses.

IMPACT OF CHANGE AT THE RETAIL AND SHIPPER LEVEL ON GROWERS

The impact of change at the retail and shipper level on growers is not well understood. Shippers aggregate supplies; this insulates growers, to some degree, from demand for larger volumes. Clearly, growers will have to adjust to new demands for quality and food safety. Some growers may not be able to comply with new standards and will drop out of the market.

What are the shippers' incentives with respect to growers? A shipper could be a vertically-integrated grower-shipper and only ship his or her own production. This would give ultimate control over production which is a particular benefit for traceability and food safety. This arrangement would also minimize transaction costs, including traceability costs which are a critical issue for food safety. Not using other farmers also eliminates a particular type of business risk. Shippers often provide production credit to their growers. Small producers, without many alternative sources of credit, can pose a risk and a shipper may not want to be too exposed. This credit issue is of particular concern in Mexico. However, many large shippers are unlikely to be able to control enough production to make selling just their own product feasible. A grower-shipper could also market for other producers in addition to his or her own production. There are other factors that would lead a shipper to want to diversify production with a number of growers. When putting together a portfolio of producers, a shipper would consider several factors that would favor using a number of growers. Shippers need a number of growers to: 1) reduce production risk; 2) extend the season (particularly important for a perishable product with limited storage options); 3) provide a full range of products, varieties, and qualities; and 4) reduce business risk. In many produce industries there is keen competition for good growers, regardless of farm size. Land for horticultural production is often in small parcels so small producers may be essential for a shipper. Some commodities are

dominated by very small producers (e.g., snow peas, some berries, some organic products, etc.).

A study of US imports of Mexican winter vegetables through Nogales, Arizona from Sinaloa provides detail about produce shippers (Calvin and Barrios). Originally, most imports from Mexico were sold by US importers – shippers with no production of their own. Over the years, as this industry matured, vertically integrated or coordinated Mexican grower-shippers took over much of the importing business with offices on the US side of the border. In 1996, Mexican grower-shippers accounted for a large percentage of the total volume of imports of tomatoes (63 percent), peppers (71 percent), eggplant (78 percent), and snap beans (60 percent). Turning to statistics on all shippers importing winter vegetables from Mexico, at least 76 percent of a shipper's volume for each commodity came from their largest grower. The average number of growers per shipper per commodity ranged from 3 to 4. Squash imports were quite different. On average, only 18 percent of sales of squash came from one grower and the largest grower only accounted for 59 percent of sales. The average squash shipper sells for 11 growers. Squash is an easy crop to grow, matures rapidly, and can be planted before other crops – many farmers grow squash. Shippers could be grower-shippers only selling their own production for one product and possibly only a shipper for another product.

What are the growers' options? They always have a choice between just production, and production and marketing. The two strategies require different skills, resources, and inclinations. A grower could start with one strategy and later transition to another. Growers could operate as grower-shippers and sell directly to retail or foodservice buyers. With the growth of interest in local produce, some retailers buy directly from small local growers (a very small grower-shipper) but this is usually just a small part of a retailer's sales during the summer months. But these sales can be a critical marketing outlet for small growers. The enthusiastic demand for local produce compensates retailers for the extra costs of dealing with small purchases. Retailers are also interested in unique items that could be exclusive to their stores. In this situation, small producers might receive more marketing help than if they sold a product that could easily be purchased from a large national shipper. However, more and more, retailers require the same food safety standards from small local producers that they require for big commercial suppliers. It is too risky to make exceptions.

Growers can market through local shippers. That might not be as lucrative as being a grower-shipper, but it is also a less complicated business. A farmer might want to concentrate just on growing and leave the marketing to someone else. Another possibility for growers is to band together with

other growers to market jointly as part of a cooperative. Many famous American produce brands are cooperatives – Ocean Spray Cranberries, Inc. and Sunkist Growers, Inc.

New standards can change the competitive position of farmers. After the 2006 foodborne illness outbreak in the United States and Canada associated with bagged spinach, the California leafy green industry developed a new State marketing agreement (Calvin 2007). This marketing agreement requires all participants selling California leafy greens to sell only product grown with new food safety standards. In 2007, the first year of operation, shippers representing about 99 percent of California leafy green production have volunteered to participate in the program. Several components of the new program will raise costs. More frequent water testing will raise costs for growers, but it is not yet clear whether this will affect any particular size grower more than another. Farmers with the fewest number of wells per acre will be in the best position. Distribution of field sizes and location will also be important. Growers must maintain buffer zones around their fields when they are adjacent to livestock or wildlife. The particular buffer size depends on many site-specific factors. All things equal, this would have a more detrimental impact on those with small fields. For example, a grower with a five-acre, square field (467 feet by 467 feet) and a 100-foot buffer would only be able to use 62 percent of the field for leafy green production. A grower with a ten-acre, square field (934 feet by 934 feet) would be able to use 80 percent of the field for production.

RETAIL CHAINS IN MEXICO

In Mexico changing demographics and incomes have facilitated the rapid expansion of supermarkets. Urbanization has increased in Mexico with two important consequences for the food system. Consumers in urban areas have higher average incomes than their counterparts in rural areas and less time to shop and prepare meals. Consequently, they have a strong preference for a one-stop shopping alternative. A Pacific Economic Cooperation Council (PECC) study in 2005 concluded that as per capita income approaches $10,000, supermarket penetration reaches about 50 percent of the food retail market, and at income levels above $20,000, this share tends to level off at 70 to 90 percent.

The expansion of supermarkets in Mexico has imposed requirements that are often at odds with the capabilities and structure of much of Mexico's agriculture. While the food retail picture is becoming more similar across NAFTA, the population of farmers and the distribution of wealth among farming families varies dramatically. Although Canada and the United

States have large populations of small farms, most are not subsistence farms; the owners often have off-farm jobs.

In Mexico the situation is different. More than three quarters (76 percent) of Mexican farms would be considered subsistence farms; another 18 percent are transition farms, producing some surplus food which can be sold. Only six percent are commercial farms. For most small farms off-farm income is important. Among ejidatario households, off-farm income contributes more than one-half of family income (de Janvry and Sadoulet). Major changes to food chains may dramatically affect Mexico's more than three million farmers, particularly those already involved in retail food chains. For this reason, the impact of retail changes on Mexican producers as members of retail supply chains is a major focus of this chapter.

In general, supermarkets have different and more stringent transaction requirements than traditional markets. Shippers and growers must be able to meet these standards if they want to sell to retail markets. Those who are not prepared to market to these retail chains may become increasingly more marginalized (IFPRI). The alternatives for these farmers are the traditional street markets and public markets which do not impose any special requirements but pay lower prices. These traditional markets pass on lower prices to consumers because of lower fixed costs and the fact that some are officially tax exempt. As long as traditional markets continue to exist, most small-scale farmers will keep selling to them.

There have been recent initiatives to connect small farmers to supermarkets, including the federal government, through its "Comercio Directo" (direct trade) program from Apoyos y Servicios a la Producción Agropecuaria (ASERCA), or the joint initiative undertaken by the National Peasants' Confederation (CNC) and the National Association of Supermarkets and Departmental Stores (ANTAD), and with Wal-Mart. The idea of these agreements was to show supermarkets' interest or willingness in buying directly from farmers, however given the stringent marketing requirements, such agreements have not produced notable results; small-scale farmers still have trouble selling to these markets.
Supermarkets around the world are moving to larger distribution centres to achieve economies of scale, more efficient inventory management, reduced intermediation costs, and to assure product consistency and supply. Figure 6.2 illustrates the flow of fruits and vegetables to supermarkets in Mexico based on interviews with six major retail chains in 2006 (Cervantes-Godoy). About 80 percent of fruits and vegetables going to supermarkets in Mexico moves through distribution centers, sourced from CEDAs (Central de Abasto),[2] imports, and large farmer/

[2] CEDAs or wholesale markets are trusts created with federal, state, and municipal resources in the 1970s or early 1980s to provide efficient distribution of fresh produce to

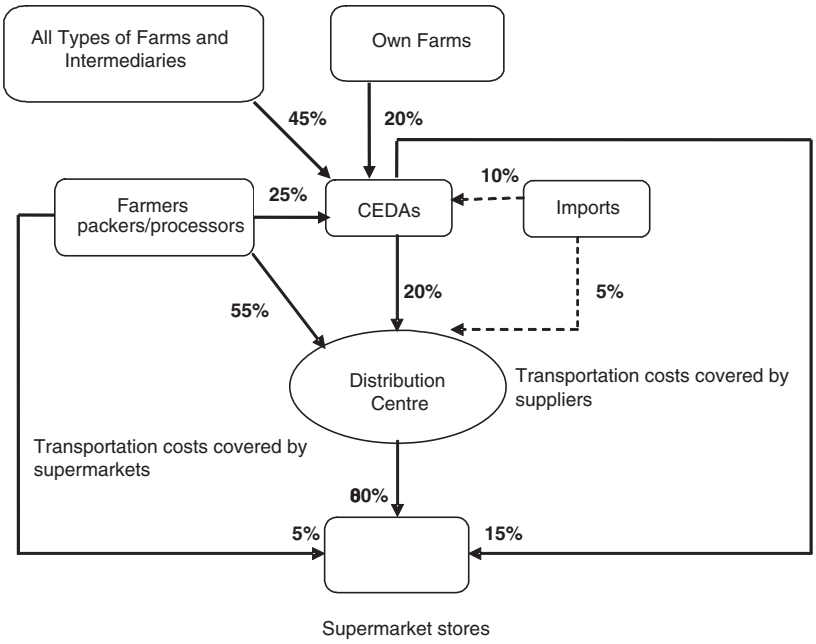
packers. Roughly 15 percent comes directly from CEDAs and five percent is shipped directly from grower/packers (Cervantes-Godoy).

According to Schwentesius and Gomez (2002), supermarkets have moved through three phases of supply networks. They bought directly from growers and/or intermediaries during the 1960s and 1970s but since few growers were able to meet the supermarkets' requirements for quality, quantity, consistency, or continuity they moved to buying from wholesale centers known as CEDAs during the 1980s. Although CEDAs offer higher prices than middlemen, they are not a real alternative for small-scale farmers due to transportation costs to the CEDA and the demands among some wholesalers for selection and packaging beyond the capabilities of small farmers.

The third phase started in the 1990s when supermarkets diversified procurement, shifting back towards procurement in production regions and creating their own distribution centers, moving gradually away from CEDAs. Avoiding wholesalers can reduce costs between ten and 20 percent (Schwentesius and Gomez). However, CEDAs still supply from

Mexican consumers. The 60 wholesale markets in Mexico are located in major cities and are operated by private companies.

Figure 6.2: Flow of fruits and vegetables to Mexican retailers.



Source: Cervantes-Godoy.

50 percent of the produce required by large supermarkets to 95 percent of the fruits and vegetables needed by smaller chains.

In Mexico, leading chains like Wal-Mart, Soriana, Gigante, and Comercial Mexicana, have distribution centers strategically located in large cities such as Mexico City, Guadalajara, and Monterrey, among others. Some small chains, such as Chedraui, rent warehouses in CEDAs rather than creating their own distribution centers. As supermarket chains grow, producers will face demand for very large volumes from national procurement systems managed directly by the chains (Reardon 2004). Approximately 80 percent of produce bought by retailers passes through their own distribution centers. Supermarkets procure about 60 percent of their fruits and vegetables through individual large and medium farmers; 35 percent through CEDAs, and five percent through imports.

Not all product passes through distribution centers. About 15 percent comes directly from CEDAs, usually when there is no product available in the distribution center, or when the distribution center does not have the appropriate infrastructure to store the product. Lastly, five percent comes directly from farmers located in the same region as the stores they supply.

Ninety-five percent of product comes from large farms and only five percent is supplied by small-scale farmers. Small-scale farmers that are able to sell directly to supermarkets almost always belong to an association. Of the 35 percent supplied by CEDAs to supermarkets, 45 percent comes directly from farmers of all scales, but mostly small-scale via middlemen. About 25 percent comes from local and regional packers, and 20 percent from farms (owned or rented) by wholesalers operating in CEDAs (Cervantes-Godoy). Lastly, the remaining ten percent comes from imports.

In Mexico, the CEDAs, located in different strategic points across the country, have functioned as the default suppliers of supermarkets for more than two decades. Thus the short-term impact of supermarkets on small-scale farmers may be less observable, since intermediaries will gather, select, pack, and distribute the product according to the needs of their clients. Longer-term, the intermediaries will impose higher standards on their supplies to increase their ability to meet retail standards. Farmers unable to meet the standards will be forced to sell into shrinking traditional markets.

In Mexico, supermarkets have become major suppliers of produce, increasing their retail market share in fresh fruit and vegetables from 21 percent in 2002 to about 28 percent in 2004 (Schwentesius and Gomez;

Acosta). In 2005, supermarkets and self-service stores accounted for 25 percent of fruit and vegetable sales, the traditional markets accounted for 38 percent, and other small venues accounted for another 37 percent. Analysis of supermarket fruit sales shows interesting variation in consumer behaviour. In 2005, 44 percent of consumers with at least $3,000 in income bought fruit in supermarkets and only 26 percent of those with lower incomes did. The Mexican retail market share is expected to rise with future income growth (PECC). Supermarket sales also vary by city, ranging from 50 percent in Guadalajara to 45 percent in Mexico City, with an average of 26 percent in other cities (ANTAD).

The next sections of this chapter report on two studies looking at small Mexican produce growers. Cervantes-Godoy interviewed retailers in Mexico to identify suppliers who were small growers. She found only 12 examples of small-scale farmers who were able to directly supply supermarkets, and they accomplished this only through associations. These appear to be exceptional cases and not a generalized phenomenon. Undoubtedly, more small growers were supplying retailers via larger shippers or wholesale market operations. Avendaño took a different approach and interviewed small cantaloupe growers in a particular region and then identified their marketing strategies.

SMALL FARMERS AND STRINGENT RETAIL DEMANDS

The opportunities for farmers to sell directly to supermarkets depend on their ability to comply with marketing requirements (IFPRI). The principal marketing requirements imposed by supermarkets on their horticultural suppliers were identified as: 1) volume and consistency; 2) quality; 3) price; 4) registration process; 5) discounts; 6) internet services; 7) packing requirements; 8) transportation; 9) invoicing; and 10) payment system.

Four associations were selected for further analysis, two producing cactus pear and two producing mango. The analysis examines the characteristics of the associations and the farmers belonging to them. Table 6.2 summarizes the characteristics for all four associations.

Association “Cactus One” was created in 2001 and went into operation in 2002 in the State of Zacatecas. A farmer with entrepreneurial vision invited friends and relatives to organize themselves. They then invited other farmers with good reputations from the community to participate in a new association created to sell directly to differentiated markets in order to get better prices. Cactus One included 35 members, 25 cactus pear farmers and ten women who assembled boxes to pack the cactus pears. The project received state and federal government support at every stage from the feasibility study, to organizational training, construction

Table 6.2: Main characteristics of the organizations selected.

Variable	Cactus one	Cactus two	Mango one	Mango two
Product	Cactus Pear	Cactus Pear	Mango	Mango
Number of farmers	35	82	414	51
Number of active farmers	25	76	60	30
Clients	Supermarkets, CEDAs, processors/packers and export	Supermarkets, CEDAs, and export	Supermarkets and processors/packers	Supermarkets and CEDAs
State	Zacatecas	Zacatecas	Nayarit	Guerrero
Number of years selling to supermarkets	3	2	3	4
Percentage sold to supermarkets in 2004	53%	11%	41%	40%
Number of farmers interviewed	20	47	40	21
Average characteristics of farmers interviewed				
Age	47	57	54	52
Years schooling	7	4	5	8
Yield relative to state average	143%	70%	90%	114%
Hectares per farmer	11	9	8.5	10.7
Percentage that had gone to work in US at least once	80%	77%	50%	34%

Source: Cervantes-Godoy.

of packing facilities, credit, and marketing. The association built packing facilities in 2002.

Interviews were obtained from 20 of the 25 farmers in Cactus One. Most were male except for two women left in charge of their farms when their husbands emigrated to the United States. Cactus pear sales contributed an average of 43 percent of family income but off-farm income was critical; remittances from the United States contributed 23 percent, businesses such as butcher shops, tortilla shops, and convenience stores another 15 percent, and salaries from off-farm jobs 15 percent, and four percent from other sources.

Cactus One's main clients were national supermarket chains and CEDAs receiving 53 and 20 percent of sales in 2004, and 33 and 30 percent of sales in 2005, respectively. Remaining sales went to the US export market, processors, packers, and other intermediaries.

Association "Cactus Two", also in Zacatecas, was established in 1983, although in 2001 new members were added and the name and corporate

body changed in part to obtain access to government programs such as access to credit, training, and technical support. The association had two packing facilities, one built in the 1980s and another in 2005. Cactus Two consisted of four groups representing 82 members. One group of six women assembled wooden packing boxes. Of the 76 cactus pear farmers, 47 were surveyed. Eighty-seven percent of these farmers were male and 13 percent female. The distribution of family income was 36 percent from cactus pear sales and 32 percent from remittances from the United States.

Cactus Two sold primarily to CEDAs (81 and 67 percent of sales in 2004 and 2005, respectively) although they have focused on increasing supermarket sales recently (sales increased from 11 to 33 percent from 2004 to 2005). Cactus Two has also tried to export part of its production, but with no success since they were unable to find a broker they could trust (exports fell from eight percent of sales to nothing from 2004 to 2005). Stories abound of brokers who take the product and never pay the growers.

Members of "Mango One" lived in seven communities in the state of Nayarit in the lower northwest coast of Mexico. The association was created in 2001, integrating 18 groups in ten communities for a total of 600 farmers. After two seasons, 200 farmers were removed. The association now includes nine groups in seven communities with 414 farmers and 1,033 hectares of mango. However, of the 414 farmers, only 60 (15 percent) are active members selling their fruit partially or totally through Mango One. The rest sell their fruit individually to different markets. Mango One has three packing facilities located in the communities with more active members.

Mango One was created by a group of farmers with political aspirations, supported by municipal and state governments. The objectives were twofold; to sell directly to differentiated markets, and for the farmers with political aspirations to be recognized in the region. The latter objective may explain the size of the association. But as a result, most farmers were never convinced of the efficacy of the association – hence the lack of commitment to the organization.

Forty of the 60 active members were surveyed, all male. Mango sales contributed 60 percent of family income, other crops 13 percent, livestock nine percent, and the remaining 18 percent came from other sources.

For the first two years, the main client of Mango One was a national supermarket chain (100 percent of sales went to supermarkets in

2002 and 2003). Then, in 2004, its client portfolio expanded when the association started to sell to two packing facilities located in the states of Sinaloa and Jalisco and sales to supermarkets fell to 41 percent with the remainder going to the packers. In 2005, the association could not operate due to a debt problem. In the previous year, the association loaned money to members for maintenance of the plantations. Unfortunately, one-third of the credit was not repaid. Mango One has taken legal actions against those farmers; however, the association was still not able to get credit to operate in 2005.

Association "Mango Two" was created in 1992 by farmers to sell their mango directly to different markets. Since then, it has changed its corporate structure to sell to supermarkets and its packing facilities have been rebuilt and improved. The association had 51 members, of which only 30 were active. Twenty-one were surveyed, all male. Mango production contributed 61 percent of household income, own business (such as butcher shops, convenience stores, taxis, or others) 24 percent, and 15 percent from other sources. The association's main clients during the 2002 to 2004 period were supermarket chains, receiving 80 percent of Mango Two's sales in 2002 and 2003 and 40 percent of sales in 2004.

For more than five years the association rented a spot in the Mexico City CEDA. After pre-selection at the packing facilities, the product was shipped to the Mexico City CEDA where the post-harvesting process was finished and mangos were then sent to supermarket distribution centers. Mangos were also sold to other clients at the CEDA. In 2005, the association was not able to sell to supermarkets when a drought diminished the quality of the mangos and the supermarket chain did not purchase product from the association. The association ceased operations in 2005 and its members sold their products individually, although some are still trying to market in groups.

Services Provided by Associations to Their Members

The use of associations has worked as a catalyst for small-scale farmers to participate in supermarket procurement systems in Mexico. All of the associations were involved in: 1) post-harvest activities, such as cleaning, washing, sorting, and packaging; 2) administrative and financial activities of the marketing process, such as searching for new markets, contracting transportation as well as pallet and container pooling companies, using the internet for financial matters, among

Table 6.3: Small farmer strategies for meeting supermarket requirements.

Supermarket requirements	Farmer's function	Mechanism of solution
Volume and consistency	Sufficient production	Supply consolidation through farmers' associations.
Quality	New and better technologies and techniques of production.	Access to technical assistance and credit is easier through farmer associations. Technical and credit services are generally not accessible to individual small farmers but farmers are able to get these services through governmental programs designed exclusively for organized farmers.
Packing and transport requirements	Packing facilities and credit for working capital.	Access to credit for the construction of packing facilities and for working capital has been achieved through associations.
Administrative and financing aspects	Human resources, registration as commercial taxpayers, bank account.	Access to training in administration, and financing areas was obtained through governmental programs.
Use of Internet and EDI for ordering	Human resources, equipment	Equipment was obtained through credit. Hiring of trained individuals (general managers) has occurred in the many associations.
Payment system and discounts	Cope with delays in payments. Supermarkets' payment system takes between 21 and 31 days.	Associations may overcome delays in time-to-payment with the use of factoring (credit).
Trust environment in the process of commercialization	Ensure sales of product to the association and from there to supermarkets. Learning the logistics.	High level of commitment between farmers and their associations. Trust between supermarkets and the association, frequency of transactions.

Source: Cervantes-Godoy.

others; and 3) securing credit and technical assistance. Table 6.3 summarizes association activities.

Associations were more involved in marketing than in production. However, the associations were always alert about any support (governmental or not) that could be accessed, whether it was technical assistance, training, credit, etc. Only Mango Two used accounts receivable billing whereby supermarkets' payments occurred 72 hours after product delivery. All associations met frequently with their members (every weekend during harvest season, and every three to four weekends out of harvest season), to discuss aspects related to the market such as clients, prices, quality requirements, administration and organization problems, credit issues, action plan for the season, among others. The level of attendance was

commonly high, up to 100 percent in harvesting season in most of the associations, except Mango One.

Prices, Costs, Credit, and Profits

Production costs for association members were 29 and 16 percent higher for cactus pear and mango producers, respectively, relative to non-participants. Transactions costs related to marketing the product, such as packing and transportation, were also higher for participants both in terms of dealing with supermarkets versus traditional markets and compared to nonparticipants' costs.

Since most producers were not in a position to absorb the higher production and processing costs associated with selling to supermarkets, credit or subsidized credit was essential. Certain types of government loans were designed exclusively for organized farmers, providing capital for packing facilities, working capital for each production season, and a plantation maintenance credit. Credit was only available to individual farmers who could meet the collateral requirements, usually not by small-scale farmers. Associations allow small producers to access credit collectively. Ninety-five and 40 percent of Cactus One and Cactus Two members, respectively, had access to credit relative to zero percent of non-participants, while 73 and 100 percent of Mango One and Mango Two producers, respectively, had access to credit relative to 32 percent of nonparticipants.

To justify the significantly higher production and transaction costs for products destined for supermarkets, prices had to be higher. In the chains examined, supermarkets paid nearly three times the price of traditional markets for cactus pear and mango. The higher prices received from supermarkets more than compensated for the higher production costs, resulting in higher profits – cactus pear and mango profits were nearly three times as large when selling to supermarkets versus traditional markets.

These profit estimates will be slight overestimates because the producers incur their production costs over their entire crop and some may not be suitable for supermarkets and must be sold into traditional markets. However, profits of more than double those of traditional markets provide a powerful incentive for producers to cooperate to access supermarket supply chains. Farmers also cited one other important reason for selling into supermarkets – certainty of payment. While supermarkets may pay

more slowly, they pay more and the certainty of receiving payment is much higher than with traditional markets.

SMALL FARMERS AND FOOD SAFETY

Food safety has also been a powerful agent of change in food supply chains. The changes are not always driven by supermarkets; grower organizations and governments may step in to regulate industries in an attempt to maintain the viability of the industry, particularly in the case of export-oriented industries. The experience of cantaloupe growers in Colima demonstrates how small growers have fared in an environment of increased demand for food safety (Avendaño and Narrod).

Cantaloupe Food Safety

Cantaloupe in Mexico is grown in 13 different states, both for the domestic and export markets. Production in different regions of the country provides a year-round supply. There are many small producers and the industry is not well organized because of it is geographic dispersion.

From 2000-2002, there were annual foodborne illness outbreaks in the United States associated with Mexican cantaloupe contaminated with Salmonella (Calvin 2003). The food safety problems with cantaloupe have had a profound impact on the industry. In 1999, US cantaloupe imports from Mexico reached a record level and accounted for 39 percent of US imports. Between 1999 and 2006, cantaloupe imports from Mexico declined 92 percent and in 2006 accounted for just three percent of US imports.

In response to the repeated outbreaks, in 2002, the Mexican government developed a new mandatory program for cantaloupe exports with guidelines for food safety practices aimed at reducing the risk of microbial contamination (SAGARPA). Parts of the program were in place on a voluntary basis in some states in fall 2002. But in October 2002, the FDA issued an import alert against all Mexican cantaloupe which meant no imports were allowed. Exporters were hurt by the closing of the US market, but all Mexican growers suffered from lower prices as cantaloupe intended for the export market were redirected to the domestic market. In November, the FDA cleared two Mexican growers for export after they complied with GAPs. Later, the government of Mexico took over the certification process for firms that were allowed to export to the United States. The Secretariat of Agriculture, Livestock, Rural Development, Fisheries, and Nutrition (SAGARPA), through the Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), issues the

certification that field operations and/or packing houses comply with Mexican government regulations.

Relatively few firms now export. With mandatory GAPs for field production and Good Manufacturing Practices (GMPs) for packing houses, costs for exports have increased about 20 percent. As of March 2007, SENASICA had certified 13 Mexican companies to export cantaloupe to the United States. Twelve are firms where both the field operations and packing houses are certified – ten in Sonora; two in Colima, and one in Michoacán. One firm in Nuevo Leon is just certified for field operations. While Mexican firms have tried to deal with the new export protocols, US imports from Central America have largely replaced Mexican imports. Between 1999 and 2005, Mexican cantaloupe production declined by 24 percent.

Impact of Food Safety Requirements on Mexican Cantaloupe Farmers

To understand the impact on Mexican farmers, an analysis was undertaken looking at growers in Colima, which has a history of cantaloupe exports and was not involved with the US outbreaks. Colima is located on the west coast of Mexico near the State of Guerrero, which was involved in several outbreaks. In 2007, Colima had 48 melon growers (cantaloupe and other melons), 1,900 hectares planted to melons, and eight packing houses, two of which were certified for cantaloupe export. Interviews with 17 small cantaloupe growers were conducted in January 2007. In addition, interviews with two larger packers and exporters provided a more complete view of the challenges for small growers. The difference in food safety levels is quite striking between smaller and larger producers.

Small Growers

Most growers in Colima are small scale *ejidatarios*. Four had ten hectares or less and 13 had between 11 and 60 hectares. Cantaloupe is considered a profitable product for small growers; the environmental and climatic conditions favor cantaloupe and it fits in well with a rotation including tomatoes and corn. Most growers had started with smaller cantaloupe acreage but expanded over the years. Small growers do not generally have packing facilities which would be very costly for small volumes of production.

Before the 2002 import alert, an estimated 80 percent of production from small growers was accepted for export. The rest was sold in the domestic market. Growers received higher prices in the export market than in the domestic market. The problems in 2002 reversed this situation and currently, 83 percent of smallholders' production is sold to the domestic

market. Some growers switched to focus on other crops with fewer potential problems, such as chile peppers, tomatoes, and papayas for the domestic market.

Sixteen of the 17 growers preferred to sell their cantaloupe to buyers who came to their fields. This reduced the transaction costs since growers did not have to arrange for transportation. The buyer determined the price; the price was generally lower than if the grower delivered cantaloupes to a local packing house but growers were usually paid on the spot. The buyers purchased on commission for cantaloupe sellers in the Guadalajara wholesale market.

Marketing was also flexible. Contracts were not common among the surveyed growers. Only two of the 17 growers had contracts with buyers; one was written and one was informal. Growers wanted to maintain freedom to choose who to sell to and take advantage of any better deals that might materialize. Almost one-half of the growers had changed their minds about informal marketing plans.

Of the surveyed growers, almost one-half had just an elementary school education. These growers also had low business management skills with limited accounting records and business planning. Much of their information about production practices was derived from their input suppliers, but these people have not been trained in food safety and it was not their primary objective. Input suppliers also were the source of most production credit. According to the input suppliers, they provided production credit to 70 percent of the cantaloupe growers for the purchase of certified seeds, pesticides, fertilizers, and some other inputs.

Awareness of food safety issues is quite low among small cantaloupe growers. Eighty-eight percent said they had not previously been involved in any food safety issues. The others recognized that they had been involved indirectly via the 2002 import alert that reduced domestic prices for cantaloupe. Knowledge of GAPs was also very low. Only two farmers said they knew what GAPs were. Most respondents said they hadn't implemented a food safety program because they had no information. Several said since they had not faced any food safety problems in the past; there had been no need to implement one. When asked under what conditions they would implement a food safety program, many growers responded that they would need information and training support while several said the regulations would have to be flexible.

Water quality is a critical issue for food safety. With deep water wells, it is easier to exercise control over potential microbial contamination. In this case, however, 88 percent of growers use river water and they know very

little about its quality. Testing water for microbiological contamination and pesticide residues is not yet part of the regular production process for small growers. Over one-half had at least one water test at some point, although the cost was absorbed by the buyer.

Toilet and hand-washing facilities are required for GAPs but can be very expensive for small producers to provide. About one-quarter of the small growers provide these facilities because the buyer demands it for the export market. However, GAPs require toilets within 400 meters of the working area and only one grower of the four providing toilets complied with this standard; the rest had toilets that were more than one-half of a mile away. This is a critical control point for small growers in complying with GAPs and GMPs.

Small growers reported on the most important needs to improve their businesses in the domestic market and to access the export market. Thirty-five percent agreed on the need to improve quality which would give them a better price in the market. Adopting a food safety program came in second place as growers now understand how critical this is to entering the export market. Growers were also aware of the restrictions of participating in just one wholesale market (the Guadalajara CEDA) and the importance of eliminating middlemen in the market chain to gain higher prices.

Small growers want more government support to upgrade their operations. Market information is their first concern. Forty-one percent of small growers mentioned that timely information on prices, the demand of different markets for cantaloupe (domestic and export), and how to streamline marketing to eliminate middlemen are their major concerns. For one-third of the growers, government assistance such as preferred credit to improve production practices and invest in packing facilities was their most critical need.

There are a range of associations and government programs that could help small producers but they have not provided much assistance yet. COEMEL (the State Council of Melon Producers), which was formed in 2004, represents melon growers but the interests of larger producers dominate. Issues of concern include enhancing markets, improving product quality, representing growers, and implementing special programs to increase profitability. The organization does not have a specific food safety agenda but it has provided some training in GAPs which has benefited mostly the larger farmers. Because of distance, many small farmers are not able to participate fully in the organization.

A government program helps small growers organize for legal purposes. This allows them access to credit and special government support for rural

development. The government supplies advisors on technical aspects of production. The technical advisor is available for six months, and the term can be renewed once for a total of one year. The advisors do not have specific information on food safety, but they are open to new information and techniques that can improve the growers' production skills.

The government also introduced Product Systems for producers growing specific commodities. In Colima there is a Cantaloupe Product System that looked at institutional ways to improve smallholders' (mainly *ejidatarios*) market access after the US import ban. Growers reported that their ability to access the export market was limited by the high cost of production, lack of credit, sanitary problems, oversupply, lack of uniformity in the applications of food safety regulations, and lack of technical assistance. To date, this program has had no impact on small growers.

Medium and Large Growers

Before the Mexican government imposed mandatory export standards, many of the larger growers were already using GAPs voluntarily for their US buyers. Many US buyers only purchase from suppliers using GAPs. For these growers, the main difference is that now food safety practices are mandatory, not voluntary. These farmers had an advantage over their competitors who had not previously invested in food safety and therefore had to incur all of the costs at once to maintain their market presence rather than spreading them out over a number of years.

In Colima, there was one large and one medium-sized export-oriented firm that obtained SENASICA certification and regained access to the US cantaloupe market. The cost of complying with the SENASICA regulations is quite high. Another medium-sized firm has not achieved SENASICA certification and turned to exporting honeydew melons since that commodity does not face the same food safety requirements. Honeydew melons have not been implicated in numerous outbreaks like cantaloupe. Both certified firms have a long history in cantaloupe production and consider Guatemala as their main competition in the export market and the State of Guerrero in the domestic market.

The food safety practices used by the medium and large-sized firms provide a stark contrast to those used by smaller farmers. The certified firms conduct soil and water tests, maintain records on land use, and fence their land to protect their fields from potential contamination from wild animals. These firms also use well water that is tested frequently (each month during production and harvesting) for microbiological contamination and both have water osmosis plants to control water quality. In addition to upgrading field operations, firms have to cover

packing operations to prevent potential contamination. Toilet and hand-washing facilities comply with Mexican government rules – one for every 20 workers of each sex; located within 400 meters of the work area; and equipped with running water, washing stations, soap, and towels. Supervisors monitor hygiene and work rules are posted in visible areas throughout the ranch, packing facility, workers' common area, and toilets. Prior to beginning work, employees take training classes on food safety principles and hygiene. All food safety practices are documented and records are kept available for official visitors (usually government representatives from SENASICA or the US FDA) and clients that usually visited operations at least three times during production, harvest, and packing.

LESSONS FROM STUDIES INTO MEXICAN PRODUCE CHAINS

The pressure on Mexican producers to adopt new quality and food safety practices is being driven by changes in the retail industry, by experiences in food chains, and food safety problems. As retail organizations become larger and more global, their needs change, and those changes are reflected in more challenging requirements for suppliers. The requirements may be transmitted to producers directly from retailers or through intermediaries such as shippers. The result is the same for small producers, unless they can cooperate to meet retail expectations they are relegated to selling to local markets or middlemen at much lower prices.

The price of not meeting retail and foreign market expectations, particularly with respect to food safety, is painfully clear in the case of the Mexican cantaloupe industry. After repeated food safety problems, the market was lost to foreign competitors. The damage went beyond anything that could be repaired by voluntarily meeting standards. The government stepped in to try to save the industry, with limited success to date.

Regardless of whether the standards or requirements come from local food retailers or from regulators trying to protect international markets, the implications for producers are the same – meet the requirements or sell elsewhere. The strategies for success are relatively clear, but unattainable for many. While some producers are large enough to supply food retailers directly, the majority have neither the scale nor the resources. Those who wish to participate in more lucrative retail markets have two choices – market via a larger shipper or work cooperatively,

creating cooperatives or associations to create the scale and capabilities necessary to access retail markets.

The experience in Mexican produce markets reveals that even the association path does not guarantee success in marketing to food retailers. Several lessons may be observed from the Mexican case studies.

Lessons from Cactus Pear and Mango Growers

The lessons learned by Mexican cactus pear and mango growers include:

1. Associations can be a successful way to sell into supermarkets, as well as to CEDAs. The associations were all able to successfully sell into supermarket supply chains. However, volumes fluctuated widely. Supermarkets have a large number of suppliers (middlemen, CEDAs, producers, private packing facilities, etc.) and market power seems to lie primarily with the supermarkets. Farmers frequently complained during the interviews that they had too much production with the quality required by supermarkets but the amounts ordered were low. Selling to retailers may be riskier than the traditional market.
2. Associations pay. Although costs increase, prices increase more, resulting in higher profits for producers.
3. Credit appears to be an essential ingredient in absorbing higher costs and allowing producers to meet supermarket requirements. Associations were able to secure credit where individual producers could not, and they passed that credit on to producers. Producers are a better risk collectively than individually.
4. There are definite risks associated with associations. In addition to processing and distribution activities, all associations offered credit, but in one case, problems with credit to members resulted in the association losing its credit and ceasing operations.
5. Production risks affect an association's relationship with its supermarket customers. Being regional, problems in one area can damage or cause the demise of an association's relationship with supermarkets.
6. All the associations studied focused on only one product. Are there opportunities for associations that can meet more than one need for their customers?
7. Although associations may list many members, as in the case of Mango One, the optimal size of operating members ranged from 20-60 members. This may have something to do with their feelings of contribution to and control over the association.
8. Promotion of efficient farmer organizations, such as cooperatives and associations, has to be intensified if more direct trade between supermarkets and small-scale farmers is desired. However, the

creation of associations must be accompanied by efficient extension services, such as technical assistance, market and production information, infrastructure for transport, efficient financing services, education, and training. These are necessary to improve producer capabilities to meet market requirements and to be more responsive to market demands. If this cannot be achieved then the best way for small-scale farmers to access supermarkets could be through intermediaries, leaving the rest to market to diminishing and less efficient traditional markets.

Lessons from Cantaloupe Growers

The lessons learned by Mexican cantaloupe growers include:

1. Small producers would like to be able to do more sophisticated marketing and not just sell to representatives of wholesale markets who come to their farms, but they lack the resources to meet the more rigorous standards for the retail and export markets.
2. Without access to reasonably priced credit and extension services, small farmers may not be able to make the investments necessary to comply with food safety demands. There is a clear trade off – provide credit and extension to small farmers or see them lose access to more lucrative export markets.
3. Better market information is crucial for smaller producers – a service the government could provide.
4. The small producers in this group were not very conversant with food safety standards. At a minimum, in order to export, small growers would need to have GAPs for their fields. If they had their own packing facilities they would have to comply with GMPs. If growers exported to Europe, they would need to comply with EurepGAPs.[3] As export markets become more complicated, there is more need for extension efforts to help small producers navigate complicated food safety standards.
5. Small growers need institutions so they can jointly buy inputs in bulk at lower prices. As a group, small growers could more easily access the existing Mexican research institutions such as Fundación Produce and INIFAP. Packing facilities and cold storage are critical requirements for producing the quality demanded by retailers; no small producer could afford these facilities on their own but an organized group of small producers could. Again, government sponsored assistance might be required to help small producers overcome that hurdle.
6. Organization of growers is a critical factor in whether growers can rally from one food safety problem and maintain their market access. Cantaloupe growers did not take immediate and unified action against food safety problems. After the US closed its borders to Mexican

[3] This is the European version of GAPs.

cantaloupe, only large growers could afford to pursue certification for the export market. In 2003 there was an outbreak of foodborne illness in the United States associated with Mexican green onions. The Mexican green onion growers involved in the export market, who generally owned larger farms and were geographically concentrated, took immediate action to resolve their food safety problems; they mandated that all farmers who export had to produce using Good Agricultural Practices (Calvin, Avendaño, and Schwentesius, 2004). Since the growers did not have an appropriate legal framework to use to implement this program, they asked their government to impose mandatory standards for green onion exports. There is a government role for strengthening grower organizations in Mexico to deal with these kinds of problems (Avendaño and Calvin).

7. With time, demand may increase for Mexican cantaloupe in the United States. If that happens, growers who are certified for export would have two options. They might go back to previous patterns and market for smaller producers in the area. This would require that the smaller producers become certified. The exporters may be willing to provide credit to small producers if the market opportunities are sufficient. Alternatively, with increased scrutiny of food safety practices, exporters may think that they need to expand their own production which they can control better than rely on the actions of other farmers.

COMPLEX RETAIL CHAINS - THE ONTARIO VEAL INDUSTRY

The last case considered in this chapter examines a more complex supply chain in Canada; the retail supply chain for Ontario veal (Snoek and Sparling). In this case, the industry had an existing association, the Ontario Veal Association (OVA), to represent producers. In 1999, a small retail chain which focused on ethnic markets contacted the OVA and expressed an interest in developing a higher value line of veal products to provide the chain with an advantage over competitors.

This case is somewhat different from the examples in Mexico because the OVA had actually created its own internal quality program, the Ontario Veal Quality Assurance Program (OVQAP) designed to promote quality enhancement through a food safety training program, and on-farm feeding and animal care certification performed by an independent third party veterinarian. The program also specified processing requirements, again with certification and audit requirements. Branding, cooking instructions, and a money-back guarantee rounded out the offerings to consumers.

The OVQAP was designed to improve overall quality and producer capabilities, but was initially driven internally. When the small retail chain

contacted OVA to provide a high quality product, the quality program was in place, but did not have a committed chain of production. The OVA had to organize producers to join the retail program and identify appropriate processors. Convincing producers to commit production where the costs and benefits were uncertain was a challenge for the OVA but the small scale made that somewhat easier. The project was successful and the knowledge gained by the project managers and producers prepared the association to take on a larger project with a major retail chain.

A national retail chain approached the OVA to undertake an initiative to halt the gradual decline in the sale of veal within the chain. The result was the "Taste of the Day Quality Assured Ontario Veal" initiative which targeted 69 Ontario stores in 2004. In this case, the processor was selected by the food retail chain, in part so that the OVA could avoid being seen as favoring a single processor. Organizing a complete chain to meet stringent standards is no small process. It required almost two years to establish and was helped by funding from a provincial funding agency. Once organized the chain went into operation quickly with initial success.

The challenges for the chain came later. The retailer wished to vary product offerings and volumes through the year. This created the challenge for the OVA and processor about what to do with the cuts not desired by the retailer at a given time. In an attempt to resolve this problem the OVA tried to create a food service value chain which would use the remaining cuts. However, supplying that chain meant that product had to be frozen and stored by the processor at busier times to be supplied to food service companies at a later date. The processor would not take on the additional risk associated with holding longer-term inventory and ultimately the food service initiative failed. This in turn limited processor flexibility to supply the retail chain and volumes declined to levels where the processor felt that it could manage the cuts with limited demand.

Ultimately, challenges with varying product offerings at the retail level have meant that the project achieved far less than any parties had hoped. To date there has been no resolution of this challenge.

Lessons from the Ontario Veal Chain

The OVA case highlights a different set of issues for producers. Meeting retail requirements still drives the chain but in this case the requirements extend beyond safety and quality minimums to developing a premium product that can provide a competitive advantage for the chain. The association played a role in anticipating the needs of the industry and in preparing a strategy for achieving higher quality. It was able to use those capabilities in successfully launching a premium product in response to the needs of a small retail organization. However, when volume increased,

the needs of the retailer conflicted with those of the processor and the chain failed to achieve the desired results.

The need for processing changed the structure and operation of the supply chain and the requirements for success. While the retailer still influenced the final product offerings to consumers, they did not exert complete control over the chain. The association specified requirements to the processor and in turn the food processing company imposed its requirements on the chain. Ultimately, it was the processor's requirements which determined the level of success of the project.

LOOKING AHEAD

The future for food retail chains and their relationship with shippers and farmers appears to be more of the same trends, with some new twists. Retail chains will continue to expand internationally and competition will come from anywhere in the world. The importance of food safety will continue to increase, driven by high profile food safety failures in global food chains. Meeting the food safety standards set by retailers, commodity organizations, or governments will be the price of entry into the market.

The requirements to meet higher standards and assure supply are part of the modern retail landscape. Many large shippers are prepared to meet those challenges, investing in production and in people to be a part of global food chains. This is one of the motivations for continued consolidation in agriculture across North America. Shippers who cannot meet these requirements will become marginalized into other markets. There are many challenges for small farmers; long-term strategies may include aligning themselves with shippers or organizing themselves into associations. However, their ultimate success will depend on the ability of the association to meet retail needs for product quality, volume, and new product development. Investments in training and technology will be necessary, with the objective of gradually elevating the skills and capabilities of growers. In the process, the growers may gradually shift from small-scale to medium, or even large. Doing so will provide the resources to better meet market requirements. The growth of demand for local food is providing opportunities for some small farmers to sell directly to retail. However, this trend may be more developed in the United States and Canada than in Mexico.

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