Relationships Between Produce Supply Firms and Retailers in the New Food Supply Chain

Jill J. McCluskey and A. Desmond O'Rourke

Increased consolidation in the retail food industry, retail discount stores' expansion into food, and the use of information technology have created a new breed of retail grocery establishments that are rapidly capturing a growing share of the retail food business. In order to study the relationships between produce suppliers and buyers and to offer strategies for small and medium-sized produce supply firms, executives representing a Pacific Northwest sample of produce supply firms and major retail chains were interviewed. The results presented and evaluated in this paper are based on information obtained from these interviews, current business practices, and evolving relationships between large retail buyers and small and medium-sized suppliers of fresh produce and frozen fruits and vegetables.

Introduction

The increased level of mergers and acquisitions among retail grocery store chains, retail discount stores' expansion into food, and the use of information technology have created a new breed of retail grocery establishment with a rapidly growing share of the retail food business. Producers, packers, and processors are concerned about their ability to adapt to the changing needs of large volume buyers. Many small and medium-sized agricultural suppliers fear that they will gradually be excluded from doing business with high-volume buyers as retail operators reduce the number of suppliers, seek formal alliances (often linked by electronic data interchange systems), and demand more quality assurances and process controls.

One potential concern is that the gap in market power, which is apparently widening between buying entities and food suppliers, has shifted bargaining power to buyers. Many suppliers prefer to do business with only one large-volume buyer, such as Wal-Mart. The buyer can potentially dictate the relationship terms. Since there are many suppliers, one supplier is easily replaceable; however, it may be more difficult for a supplier to find another buyer of comparable size. In addition, the large buyer may require the supplier to make an investment in a specific electronic data interchange (EDI) system and to gain knowledge of system operations. For example, Wal-Mart expects its vendors to purchase and use Retail Link, a proprietary software package that requires special training and constant updates by Wal-Mart (McEvoy, 1999.) This investment brings up asset-specificity issues, which have been extensively analyzed in transaction cost economics. Asset specificity is defined as the investment in assets that are specialized to the exchange between a specific buyer and seller (Perry, 1989). A large difference can exist between the value of the asset in this use and the value in its next best use. In theory, the potential for opportunistic behavior with asset specificity requires more complex and lengthy contracts and makes vertical integration desirable.

Our study provides some support for this theory-based hypothesis. We found that the larger the retail organization, the greater the use of contracts and the longer the contract period. The frozen produce market as a whole had primarily been a spot market, but at the time of the survey, more and more of the market was being covered with contracts. (In the fresh produce market, contracts were being used more than they had been in the past, but it was still primarily a spot market.) In addition, we found that, although most contracts were not complex in relative terms, retail buyers wanted product characteristics to be more strictly defined than they had been in the past.

Retailers may also have been exercising market power by demanding lower prices under one guise or another. Some retailers required bids on large-volume orders. Other retailers expected

---

The authors are assistant professor and professor emeritus, respectively, Department of Agricultural Economics, Washington State University. The authors wish to thank, without implicating, Tom Schotzko, Jim Youde, Sarah Druffel, and Bruce Prenguber for their contribution to this project and Paul Barkley for his helpful comments. This project was funded under the U.S. Department of Agriculture-Agricultural Marketing Service (USDA-AMS) Federal State Market Improvement Program Cooperative Agreement #12-25-G-0259 between the USDA-AMS, Washington State University, and Globalwise, Inc.

prompt payment discounts, even when they did not meet time deadlines for payment. Buyers demanded more in terms of product specification.

There has been considerable debate as to how small and medium-sized suppliers will fare in the new and changing food supply distribution network. Relatively large companies have greater capital and human resources with which to respond to the changing structure and information technology. Smaller companies, even if growing, tend to have limited levels of both types of resources.

In order to evaluate the viability and relationships between small and medium-sized produce supply firms and retailers, personal interviews were conducted with small and medium-sized fresh produce packers, frozen fruit and vegetable processors, and executives from major retail chains. Our research goals were: (1) to assess the current relationships between large purchasing companies and a sample of small and medium-sized suppliers; (2) to project how the terms of those relationships are changing as large purchasing companies attempt to strengthen their competitive positions; and (3) to determine what small and medium-sized suppliers need to do to remain viable against such large purchasing companies in the retail grocery industry. In this paper, changes in the food supply chain will be discussed; findings from the interviews will be presented; and the implications of these findings will be explored.

The Changing Retail Food Environment

Mergers and acquisitions have been plentiful in the past several years. As a result, the large chains are getting larger. From the early 1980s through 1998, the percent of total sales captured by the top four supermarket chains increased from 18 percent to 22 percent (Kinsey, 1998). Several examples directly involved grocery chains in the Pacific Northwest. In November 1997, Fred Meyer—a Portland, Oregon-based chain—acquired Quality Food Centers and Ralph's Grocery Company in separate transactions worth about $2 billion. It also purchased Smith's Food and Drug Centers for $1.96 billion (Moriwaki, 1997). In May 1998, Royal Ahold acquired Giant Food, Inc. for $2.6 billion, and in October 1998, Safeway acquired the Dominick's supermarket chain for $1.85 billion (Canedy, 1998). In August 1998, when Albertson's acquired American Stores Company for $8.3 billion, it briefly became the nation's largest chain, with $36 billion in revenue and 2,500 stores in 37 states (Canedy, 1998). However, Kroger took over that title when it acquired Fred Meyer in May 1999 (AP, 1999). As Kroger moved westward, Safeway—which had acquired California-based Vons—added Randall's in Houston and Carr Gottstein Foods in Alaska (Zwieback, 1999).

Internal growth and expansion has been a significant factor in the retail grocery industry in recent history. Wal-Mart entered the retail grocery industry a decade ago and has been expanding rapidly. According to SEC filings, as of January 31, 2000, the company reported having 1,797 Wal-Mart stores, 710 Supercenters, and 463 Sam's Club stores in the United States, as well as 1,008 outlets in nine other countries. Wal-Mart sells food through its supercenters and club stores and has begun to expand its newest format of smaller "neighborhood" grocery stores. Wal-Mart became the third largest food retailer in the United States with sales of about $32 billion in 1998 (*Food Institute Report*, 1999). Many analysts believe that Wal-Mart is currently the largest food retailer in the United States. Its main competitor in the club store segment, Costco—an Issaquah, Washington-based discount warehouse chain—is reported to be on the verge of expanding its own grocery segment. Consolidation is also taking place at the wholesale level. Supervalu acquired Richfoods Holdings. Certified Grocers of California merged with United Grocers of Portland, and Ahold acquired U.S. Food Services, Inc.

The big are getting bigger; the small are not keeping up; and the resulting shift in market power will result in major changes for food suppliers. Furthermore, as retailers expand, will they be willing or able to buy from any suppliers except those that are relatively large? This question illustrates the importance of additional research.

The Role of Technology and Innovation

Wal-Mart has been a catalyst for many changes in retail distribution. In 40 years, it has grown from a small discount store in rural Arkansas into the world's largest retailer, with estimated global sales of $165 billion for the year ending January 31, 2000. Wal-Mart built much of its suc-

cess on the use of information technology in the control of costs in every part of its system, thus allowing it to sell at everyday low prices (EDLP) that drew in an ever-expanding pool of customers.

Wal-Mart expanded its presence in food retailing in the 1990s for two reasons. First, it saw opportunities to gain market share from traditional food supermarkets with its EDLP concept. Second, in its supercenter and club formats, food could be used to build traffic since consumers tend to shop more frequently for food than for durable goods (McEvoy, 1999). Wal-Mart brought its purchasing might, logistics expertise, and category management skills to the food retailing business.

In mid-1992, traditional players in the food supply chain formed a working group to evaluate inefficiencies and to develop strategies for improving the system to counter the competition created by nontraditional food retailers like Wal-Mart. A new initiative, efficient consumer response (ECR), came out of this working group (Kurt Salmon Associates, Inc., 1993). The main tenet of ECR is an accurate flow of information delivered on a timely basis (Park and McLaughlin, 1998). This concept encourages retailers to hold only enough inventory to meet immediate consumer needs. For example, if consumers bought an item once a week, inventory should be about one week's supply, not many weeks as had previously been the case (King and Phumpiu, 1996).

The ECR initiative led to many innovations. It encouraged the adoption of information technology for the identification of inefficiencies. Some applications of this technology encouraged category management and activity-based costing, enabling both supplier and retailer to identify opportunities for lowering costs and enhancing value to consumers. Vertical alliances in the distribution system became more common.

Category management enabled retailers to assess the sales, costs, and profitability of each stock-keeping unit (SKU) in a category. In addition, retailers used information obtained from category management to make intelligent decisions about the addition or subtraction of SKUs, promotion choices, quality maintenance, and methods for reducing shrink. Some major retailers entrust the management of a category to a major supplier. For example, Wal-Mart allows Chiquita, Dole, and Del Monte to be the category managers for bananas in various Wal-Mart distribution centers (Turcsik, 1999). The Washington Apple Commission provides category management services to 40 retail chains with more than 3,000 stores. Category management in produce is expanding rapidly as the volume of branded, packaged produce and the number of product lookup codes increase. The Wal-Mart information system and the original platform for ECR were based on proprietary EDI systems. These systems can be easily justified by large buyers but could be prohibitively expensive for small-volume suppliers. For example, shared EDI between Wal-Mart and Procter and Gamble made economic sense. However, the linkage of a small supplier with a number of different proprietary EDI systems would be infeasible.

The Produce Supply Industry

The structure of the produce supply industry is also changing. Until recently, the production of produce could be described as fragmented and comprised of many (mostly small) producers in many growing regions with little vertical coordination. In recent years, the production of major produce commodities has become concentrated in fewer but larger firms (Wilson, Thompson, and Cook, 1997). In the Washington apple industry, for example, the number of warehouses decreased dramatically in the past 10 years, and the percentage of the state's total crop serviced by the largest warehouses increased (Lutz, 1998). In 1999, the top 20 shippers of Washington apples supplied almost 60 percent of the state's total apple sales (Warner, 2000). Given that the number of small and medium-sized firms is declining, important items of research include: the role of these firms in the new food supply chain and the sort of relationships that firms establish with retail buyers. Small and medium-volume produce suppliers are concerned about finding new strategies for survival in the new food supply chain. Their concern was a major motivation for this study.

Interviews

In order to evaluate the changing relationships between produce suppliers and retailers, we conducted extensive personal interviews with small and medium-sized suppliers based in the U.S. Pa-

cific Northwest and with executives from major retail chains. We interviewed top-level executives from 19 produce supply firms and from four major retail food chains. Although our sample of suppliers is relatively small and confined to the Pacific Northwest, there are wide differences in their products, customers, internal organization, and preferred distribution systems. The large retail chains included in this project were limited to those with outlets in the western United States to increase the likelihood that they would have business relationships with the suppliers in this study. The major retailers varied in store format and in business goals. The sample size for retailers was small relative to the number of chains but significant in terms of market share. For disclosure reasons, we cannot present market share numbers, but we can state that the retailers in our sample are among the leading firms in the industry.

Suppliers were segmented into two categories: (1) fresh fruit or vegetables and (2) frozen fruit or vegetables. Suppliers who met these criteria were included in the study at the recommendation of experts familiar with Pacific Northwest agriculture. Fresh suppliers included only handlers of vegetables, potatoes, and tree fruits. Frozen suppliers were limited to vegetables, berries, and processed vegetable and fruit products. Nine fresh suppliers participated in the interview process. Of those nine, one reported annual sales less than $10 million while the remainder reported sales between $10 million and $50 million. Three of the fresh processors focused on potato and onion industry sales; four sold tree fruit; and three handled vegetables. The 10 frozen product suppliers were split evenly between companies with brands and companies that dealt exclusively with private labels. Four reported annual sales of less than $100 million; five had annual sales between $100 million and $500 million; and one reported annual sales of just over $500 million. These firms produce a variety of frozen fruit and vegetable products.

Each set of questionnaires included questions about the impacts of consolidation and technology from different perspectives. Questions pertained to supplier capabilities; order volume and frequency; special packaging and organic capabilities; relationship technology, such as stock replenishment, and electronic data interchange; and business terms.

Supplier Interview Results

The consolidation and growth in the retail industry affected suppliers in a variety of ways. In terms of account numbers, the consolidation trend did not appear to impact some suppliers at all. Although many of the interviewed processors and handlers said that the number of companies to which they sold had declined, others indicated that their numbers had increased or had at least remained steady. Of the nine fresh produce firms interviewed, three suppliers indicated that the number of buyers to whom they provided service had remained steady or increased; six replied that the number had decreased. Several respondents stated that, despite declining account numbers, the average volume of accounts increased. This trend was not so apparent with the frozen product suppliers. Less than one-half of the interviewed frozen product firms said that the number of companies to which they provided service had decreased. Four others replied that the numbers had remained constant, and two stated that they had experienced an increase in account numbers. Five frozen product firms said that the number increased during the past five years.

Small and Medium Supplier Capabilities

All fresh produce firms claimed the ability to fill orders in one day or less, although this was not typically required by customers. Frozen food companies needed more time for filling orders than the fresh produce suppliers did. Four firms needed between one and four days; several stated that it could be done faster, but buyers were discouraged from such requests by monetary penalties. Four firms needed one week, and the remaining two firms required between one and two weeks. Firms with brands tended to have the ability to respond more quickly than their counterparts who provided private-label products.

Most frozen product firms had the ability to deliver or arrange delivery to buyers' specified locations at an appointed time. They also provided assistance in arranging transportation for their buyers upon request. All firms offered less-than-truckload volumes, although several offered full truckload discounts or required the buyer to deal with transportation or pay premiums for small amounts. Most firms allowed buyers to set their own schedules as to frequency of delivery since

they were the ones paying for transportation. Several firms limited the frequency of delivery according to the size of the account. Logistics and mode of transportation limited frequency of delivery. Although several firms had the capability to ship anywhere in the United States, most firms served mainly companies in the West and Midwest. Some firms could also ship internationally.

Fresh produce firms had the ability to meet special packaging requirements for their accounts; however, the extent to which they were able to do so varied greatly. Five firms could vary size; five could create boxed, bagged, or banded packs; five could vary labeling; and one of the vegetable firms created special product mixes and cuts. The frozen suppliers also had the ability to provide special packaging. Variations on sizes, including bundled products, could generally be provided by all of the firms. Other firms could provide different product mixes and recipes, styles of package, promotional pallets, and universal product codes (UPCs).

The ability to supply organic products varied greatly among respondents. While all but one fresh produce firm received requests for organic produce, only three seriously included organics in their product mix. Three additional fresh produce firms explored organics but found them either prohibitively costly or not readily available. All of the suppliers expected to be able to meet requests in the future if the organic supply were to increase. Three firms did not handle organics at the time of the survey but were developing the ability to do so on a small scale.

Six frozen product firms processed organic products. Only one firm said that they did not receive any requests for organic products. Three additional firms were not processing any organics at the time of the survey, although each is now considering a change in that policy. Six of the 11 interviewed executives foresaw continued growth in the organic market; however, two of the companies that processed organic products at the time of the survey were considering withdrawing from this market, and another was not sure the organic segment had the growth potential to remain profitable. These respondents saw the organic segment as a niche market only. One other executive commented that organic products received such high premiums on the fresh market that frozen organic production was not adequately supplied.

Electronic Data Interchange Stock Replenishment Programs and Account Trends

Electronic Data Interchange (EDI) was being utilized within the fresh produce industry, but it was not fully integrated into the business practices of any one firm (see Table 1). Although four of the nine interviewed firms used EDI in some way, none used it for inventory control, stock replenishment programs, or pricing. Two firms used their EDI systems for invoicing, and another firm used EDI only for automatic deposits. The systems seemed to lack the true interchange concept. The number of buyers with whom fresh produce suppliers interfaced via EDI was very low, but the accounts tended to have large volumes. Several of the firms that did not use an EDI system claimed that working software was not yet available. The lack of a standard EDI software system that would be used by all the major retailers has potentially damaged small and medium-volume suppliers. A standard system would create a positive network externality and enable a supplier to use the same EDI software to interact with more than one retailer. This would eliminate some of the bargaining power that the retailers gain when suppliers invest in gaining expertise in a particular EDI software system and/or the purchase of specific software.

EDI usage among frozen product suppliers was both more common and more advanced (see Table 1). However, these firms were also, on average, 10 times larger than the fresh produce suppliers who were interviewed. Six firms had functional systems, and four of those firms used them for inventory control and stock replenishment. None of the questioned firms used EDI for any form of product pricing, but one firm used it to receive confirmation of receipt of inbound product by forward warehouses. Several of the firms that did not use a true EDI system at the time of the survey were in the process of acquiring one. Several of the firms that already had a system in place admitted that their systems were not yet fully operational. Of the frozen product EDI users, EDI was being used with anywhere from 2 percent to 90 percent of their customers.

Table 1. Use of Electronic Data Interchange (EDI).

	Number of Firms	
	Fresh Produce Suppliers	Frozen Produce Suppliers
Total Number of Firms	9	10
Use of EDI	4	6
Type of Use		
Inventory Control and Stock Replenishment	0	4
Product Pricing	0	0
Other	4	2

Continuous replenishment programs or co-managed inventory (CMI) programs were even less widespread than EDI usage. Only two fresh produce firms participated in this type of program for any of their accounts, and both of these firms were in the tree fruit industry. The most common reason that suppliers did not participate was the lack of interest in such a program by any of their accounts. One firm mentioned that it was impractical for them because they lacked a year-round supply. Only two of the frozen product suppliers participated in continuous replenishment or co-managed inventory programs. The main reason for the lack of participation was their buyers' lack of interest. The lack of adequate information systems also came into play for several firms.

Supplier Executives' Perspectives on Changing Relationships

Perspectives on how business relationships were changing varied widely between fresh and frozen suppliers. Within the fresh produce segment, one-third of those answering mentioned that they had seen an increased focus by buyers on product specifications in the past five years. This did not mean that buyers demanded higher quality but that they wanted to pay for exactly what they received and wanted the product to be more strictly defined than it had been in the past. Three of the fresh produce respondents commented that there was an increasing downward pressure on prices as a result of market power shifting even farther toward ever-larger accounts. Buyers were continually requesting new services. Another common response related to the lack of time that buyers for large companies had to interact with suppliers or to discuss business concerns.

Many executives referred to past experience when having some kind of personal relationship with a buyer was the norm, but this changed with consolidation. Buyers were given increasing numbers of stores to serve and had less influence at corporate headquarters. Most suppliers expected large retailers to continue to reduce the number of suppliers. Food safety issues were expected to become more important during the next few years, with recent requests for quality control hotlines and other similar programs. Most expected for information systems, either EDI or web-based, to be a future requirement for doing business. They also expected a move toward consolidation as suppliers sought to maintain their economic viability by growing.

Most suppliers felt additional price pressure from retail buyers under one guise or another. Some retailers required bids on large volume. Other retailers expected prompt payment discounts even when they did not meet time deadlines for payment. Discounts or allowances were requested for "logistical benefits," "transition terms," "promotional allowances," "merchandising monies," "bill back monies," and other euphemisms for price breaks.

Executives on the frozen product side said that they witnessed many of the same trends as the fresh produce suppliers in their dealings with large-volume accounts. Nearly one-half of the respondents from the frozen product segment said that they experienced the increasing downward pressure on prices. They were more likely to be affected by slotting or listing fees on new products and by the growth of private-label products. Three suppliers mentioned that relationships with buyers for retail firms were becoming less personal than they had been before consolidation. This was primarily a result of increased movement among retail firm personnel and increased workloads for product buyers after consolidation. These trends were expected to continue with increased demands for services and information system capabilities.

Almost every frozen product firm cited the need for consolidation on the supply side as a challenge that they will face during the next few years. They believed larger suppliers were more likely to be selected by larger retailers. Among the

strategies being considered were expansion through internal growth or merger and building alliances with related firms in other regions. Some concentration has already occurred in the produce industry. As Epperson and Estes (1999) pointed out, the U.S. produce industry has moved to a more integrated structure with joint partnerships and strategic alliances.

Results of Retailer Interviews

Supplier Preferences

Two of the retailers preferred to maintain a mix of small and medium-sized firms among their fruit and vegetable suppliers. The desirability of vendor competition, flexibility, and the ability to meet consumer demands were reasons given for the mix preference. One firm had no vendor size preference, as long as the supplier was flexible and could meet retailer and consumer needs and expectations. The fourth respondent stated that, as a large retailer, his firm preferred to deal with larger, more stable suppliers. All respondents stated that product quality and value were foremost criteria in choosing and maintaining vendors. Some retailers limited the percent of an individual supplier's volume that they would purchase to minimize "dominant customer" issues.

Multi-product-line suppliers were preferred by three of the four retailers to reduce logistical and transportation costs. One respondent believed that each item should stand on its own merits and on consumer demand, regardless of size or type of supplier. Two retailers preferred to deal with local suppliers in their fruit and vegetable procurement mixes; the other two indicated no preference between local and national suppliers.

Ordering, Delivery, and Stock Replenishment

Most orders were placed with suppliers seven to 14 days before delivery was required. Some orders for processed products were placed as long as two months before delivery. Longer lead times existed for imported items than for domestic products. Most fruit and vegetable items were delivered to retailer distribution centers, with a very limited amount of direct-store delivery allowed or required. None of the retailers had store-level stock replenishment programs for fresh or processed fruits and vegetables nor did they anticipate the implementation of such programs in the foreseeable future.

Although delivery of full truckloads of products to distribution centers was generally preferred, the balance between volume, price, and cost of service was most important. Two retailers entertained proposals from suppliers and chose the best combination of price, delivery, and promotional support. Delivery frequency requirements depended upon the product, with adequate lead times being most important. One or two deliveries per week to distribution centers were common. Some retailers had penalty schedules for late deliveries, with exceptions for unusual circumstances, such as weather delays. Other retailers required late suppliers to deliver directly to stores; they would drop a vendor for chronically late deliveries.

Only a few specialty items were purchased through independent wholesalers. Brokers were less important as a source of fruit and vegetable products than they had been in the past for two of the respondents. The others indicated no change in the importance of brokers during the past three years, but the number of brokers had declined significantly.

Supplier Selection, Purchase Agreements, and Payment Terms

All surveyed retailers purchased their fruit and vegetable products from pre-qualified suppliers on approved vendor lists. Suppliers were chosen from the lists to fill specific purchase orders. Bids or proposals were invited from approved vendors. For the majority of retailers, most price-competitive bids were negotiated from among the suppliers willing to meet product and packaging specifications; one or more vendors were selected to meet the retailer's total volume requirements.

Considerable variation existed among interviewed retailers in the use of contracts and spot transactions in their fruit and vegetable purchases. Spot purchases were more prevalent for fresh fruits and vegetables than for frozen and canned products. The larger the retail organization, the greater its use of contracts and the longer the contract period for processed fruits and vegetables.

Retailer payment terms offered to vendors for fruit and vegetable purchases were net 21–30

days, with a 2-percent discount for payment within 10 days. One retailer tied payment discounts to the use of electronic fund transfer arrangements with vendors.

Slotting Fees and Promotional Support

New suppliers to all but one surveyed retailer were required to pay slotting fees for seller-branded, processed fruit and vegetable items. These fees ranged from $1,000 to $8,000 per item (normally an SKU) per store unit. The larger retailers generally charged the highest amounts per item. Private-label items and fresh produce generally were exempt from slotting fees; however, some retailers were considering a broader application of slotting fees in the future, with suppliers of branded fresh produce items as likely candidates.

All retailers encouraged suppliers to conduct or support in-store demonstrations and product sampling, especially for new items. All respondents also worked with industry groups to promote fresh fruits and vegetables through point-of-sale materials and product stickers. Some retailers also worked with these industry groups on cooperative media advertising campaigns.

EDI Stock Replenishment Programs and Other Management Tools

All respondents planned to use EDI more extensively in the future, but only one of four retailers planned to experiment with an automatic restocking program, at the distribution center level, for shelf-stable items. None of the retailers envisioned a fully integrated, electronically linked, store-level stock replenishment system with their fresh or processed fruit and vegetable suppliers.

Retailers were asked about their plans to utilize other EDI-related management tools or concepts in the foreseeable future. One company planned to move ahead with a more extensive ECR system by developing further electronic links with suppliers throughout the supply chain. The other respondents did not have plans to develop fully integrated electronic links with vendors. Two retailers planned to increase their focus on category management, and two respondents planned to further develop activity-based costing, working with suppliers to identify and eliminate unnecessary costs in the procurement process.

Market Strategies

Both suppliers and retailers agreed that logistical efficiency was a must. They were realigning their warehouses and distribution centers to reduce inventory and to speed up responsiveness. Deadlines for delivery times and penalties for late deliveries were universal. Intermediaries, such as brokers and wholesalers, were being bypassed more frequently; however, the seamless supply chain envisaged under ECR was still, at best, a work in progress and was overrated as a source of increased food system efficiency. Stock replenishment was still not widespread. EDI was used only by some retailers and suppliers, and was mostly used far below its full potential, although it tended to be used more for larger accounts. Incompatible technology was blamed for much of the delay, but there was also considerable ambivalence about the future role of EDI as more and more firms moved to web-based communication systems. However, most suppliers and retailers expected to move ahead with EDI, ECR, category management, and activity-based costing on a selective basis.

Both retailers and suppliers recognized the importance of joint efforts in advertising, promoting, merchandising, and food product demonstrations. Suppliers accepted the fact that they, or their promotional agencies, would need to provide funds for such efforts as part of the normal process of doing business.

Fresh produce handlers and processors said that Pacific Northwest produce firms had a number of advantages to offer in dealing with changing situations. Most provided the year-round supply and consistently high-quality produce that retailers wanted. These firms saw themselves as flexible and service-oriented. Among the challenges for small and medium-volume suppliers were buyers' high expectations (which were often perceived as unrealistic by suppliers), capital demands, capacity, cost control, and niche development for value-differentiated produce.

Suppliers of frozen products felt that they could offer large buyer flexibility, an expanded product line, financial stability, and customer service. Several of the firms had brands, which they believed to offer retailers increased category sales and consistently strong margins. Some suppliers had niche products that they thought would keep buyers loyal.

The retailers also saw advantages— including flexibility, ability to react quickly, local or regional presence, competition for larger suppliers, service orientation, lower overhead costs, and supply reliability—in buying from small and medium-sized vendors. However, the retailers also noted several challenges that small and medium-sized companies would face and would need to overcome in order to remain viable fruit and vegetable suppliers. These challenges included competition with larger competitors on the basis of price per unit and product quality; limited capital for upgrading facilities and technology; payment of slotting on products for which retailers require it; development and maintenance of technical expertise to meet food safety requirements; difficulty in creating consumer demand and awareness for their branded products through media advertising; and supply of a large enough mix of items to meet retailer needs, especially as a part of promotional campaigns.

Small suppliers will have difficulty in matching the prices of larger suppliers, in acquiring the capital needed to upgrade their facilities and technology, in meeting new demands of the system, such as those relating to food safety, and in competing in branded advertising. While most buyers and suppliers expected to move ahead with EDI and other initiatives, there was no consensus as to how widely within the system or how rapidly any supply-chain management concepts would be implemented. Suppliers need to be prepared to understand these initiatives and to implement them, if required by key customers. Small and medium-sized suppliers should push collectively for a standardization of EDI software systems.

As noted by Ricks, Woods, and Stern (1999), many analysts call for grower-shipper firms to form marketing and distribution alliances in order to survive; however, they argued that coordination over many small firms was generally difficult to achieve. Given the retailer attitude revealed by our survey, smaller produce supply firms may be under strong pressure to find ways to overcome these difficulties and to form alliances in order to stay competitive in the new food supply chain.

Conclusions

Whether retailers are local, regional, or national, they need reliable suppliers, quality products, marketing assistance, timely and accurate information, and efficient logistics in order to attract and retain customers. Suppliers and retailers who work together effectively to ensure consumer satisfaction will emerge as winners, even as the supply chain evolves. Opportunities exist for small and medium-sized fruit and vegetable suppliers to sell products to large food retail customers operating in the Pacific Northwest and throughout the United States. Indeed, major retailers want to keep suppliers of all sizes on their approved vendor lists; however, retail chain requirements of vendors (including listing fees, food safety testing, and use of sophisticated EDI systems) will make it more difficult for small, undercapitalized firms to compete and survive in a more concentrated and sophisticated food marketing system.

The growing market power of buying entities and the shift of bargaining power to the buyers is a major concern to smaller produce supply firms. The retail chains can potentially dictate the terms of all the transactions. To meet the more demanding requirements of their retail customers and to counter the growing market power of the major retailers, smaller fruit and vegetable suppliers will need to (1) better understand how food system demands are changing; (2) push for standardization of EDI software across retailers; (3) consolidate into larger units; and/or (4) form alliances with other producers, packers, and processors to achieve critical mass as cost-competitive suppliers.

References

AP (Associated Press). 1999. "FTC Approves Kroger's Acquisition of Fred Meyer." *Seattle Times*. 27 May.

Canedy, Dana. 1998. "Kroger to Buy Fred Meyer, Creating Country's Biggest Grocer." *New York Times* on the Web (Business/Financial Desk). 20 October.

Epperson, J.E. and E.A. Estes. 1999. "Fruit and Vegetable Supply-Chain Management, Innovations, and Competitiveness: Cooperative Regional Research Project S-222." *Journal of Food Distribution Research*. 30(3):38–43.

Food Institute Report. 1999. Fairlawn, NJ: American Institute of Food Distribution. p. 8. 1 February.

King, Robert P. and Paul F. Phumpiu. 1996. "Reengineering the Food Supply Chain: The ECR Initiative in the Grocery Industry." *American Journal of Agricultural Economics*. 78(5):1181–1186.

Kinsey, Jean. 1998. "Concentration of Ownership in Food Retailing: A Review of the Evidence About Consumer Impact." Working Paper 98-04, The Retail Food Industry Center, University of Minnesota.

Kurt Salmon Associates, Inc. 1993. "Efficient Consumer Response, Enhancing Consumer Value in the Grocery Industry." Grocery Manufacturers of America.

Lutz, Steve. 1998. "Megatrends and the Washington Apple Industry." 1998 Annual Meeting Proceedings, Washington State Horticultural Association.

McEvoy, Bruce. 1999. "Wal-Mart's Supercenter Points to Food Retail Future." *Eurofruit Magazine*. March:28–30.

Moriwaki, Lee. 1997. "Fred Meyer to Buy QFC." *Seattle Times*. 7 November.

Park, J.L. and E.W. McLaughlin. 1998. "New Developments in Grocery Manufacturer and Distributor Marketing Programs: A Survey of U.S. Wholesalers and Retailers." *Journal of Food Distribution Research*. 29(3):15–23.

Perry, M.K. 1989. "Vertical Integration: Determinants and Effects," in *Handbook of Industrial Organization*, Volume I, R. Schmalensee and R.D. Willig, eds. North Holland: Amsterdam.

Ricks, Donald, Timothy Woods, and James Stern. 1999. "Supply Chain Management: Improving Vertical Coordination in Fruit Industries." *Journal of Food Distribution Research*. 30(3):44–53.

Turcsik, Richard. 1999. "Ripening Nicely." Supplement to *Progressive Grocer*. September:14–18.

Warner, Geraldine. 2000. "The New Dynamics of Buying and Selling." *The Good Fruit Grower*. 15 May:27–28.

Wilson, Paul N., Gary D. Thompson, and Roberta L. Cook. 1997. "Mother Nature, Business Strategy, and Fresh Produce." *Choices*. First Quarter:18–21, 24–25.

Zwieback, Elliot. 1999. "Consolidation Continues Despite FTC Roadblocks." *Supermarket News*. 27 Dec:10–12.