

E-commerce and Evolving Distribution Channels in the Food and Agribusiness Industries

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Introduction

Distribution of agricultural inputs from manufacturer to customer has been a continual challenge in agricultural input supply industries. Over the years a relatively traditional dealer/distribution system has evolved into a more complex distribution network that includes manufacturers, wholesalers/distributors or brokers, retailers, and the customer. A number of factors are forcing the traditional dealer/retailer based distribution system to be substantially restructured and reconfigured. Some manufacturers are bypassing distributors and retailers and going directly to the customer. In other cases e-commerce is introducing completely new models for distribution. Yet in many cases, local retail outlets continue to flourish. What explains the success of these various distribution channel alternatives, and how might one make intelligent distribution channel choices in this increasingly competitive and electronically linked business environment?

Pressures For Change

Four sources of change are pressuring traditional distribution channels in the agribusiness industries. First, the customer base for most agribusiness firms is fragmenting, in part due to the growth in large commercial producers. At the same time, traditional or family farm businesses remain important to most suppliers. An increasingly important segment for some firms is the emerging lifestyle/rural resident producer who may have much different product and service needs than traditional or large commercial farmers. Different distribution channels may be required to deliver different product, service, and information characteristics or features to these different customer segments.

A second pressure on traditional distribution channels is increasing customer expectations. Customers have a more diverse set of needs with respect to the product, service, and information bundle, and expect higher levels of performance from their suppliers with respect to price, speed of response, quality, etc. Suppliers are expected to be continuously better, faster, and cheaper in providing the value bundle. This is driven by: 1) market pressures at the farm gate which force effective decision-making, and 2) more intense competition among agribusiness firms for the business of fewer producers which feeds expectations over time.

A third source of pressure on traditional distribution channels is new technology that expands the capabilities and the efficiencies of distribution systems. Three areas of such technology are particularly important: logistics management technology including global positioning systems and bar-coding; communications technology including the Internet, Intranets, bandwidth expansion, and e-commerce; and information systems technology such as SAP, Oracle, or Ariba.com. This new technology is profoundly impacting distribution efficiency and effectiveness.

A fourth source of pressure for traditional distribution channels is a changing basis of

market competition. Performance gaps continue to narrow among products, and shorter product life cycles are becoming common in the agribusiness industries. Broader product lines with increased variety complicate distribution strategies. Furthermore, new players with new business models including telemarketing/direct sales, e-commerce, and direct delivery from manufacturers are gaining a foothold. The competition in this new environment is increasingly focused on flexibility and responsiveness, speed to market, quality, and end-consumer acceptance, as well as cost.

The combined effect from these four pressures is that traditional distribution channels (those including a dealer, a distributor, a wholesaler, and a carrier/transporter) are increasingly under siege. There is tremendous pressure to shorten the distribution channel and increase its effectiveness and efficiency.

The Key Questions

Given these pressures for change, the key questions manufacturers, distributors, and dealers are asking include:

All Members of Channel:

- What is the link between my marketing strategy and my distribution strategy?
- How do I embrace and integrate e-commerce/Internet activities in my business?
- How should I respond to different customer segments with different demands/needs from the distribution channel?
- What does it cost me to deliver product, service, and information to a customer? Is it profitable at that cost? How different is that cost for different segments/customers?
- What are the critical elements of an e-commerce strategy, whom should it be focused on, and how do I put one in place?
- Where should my plants/distribution points be located?
- What plants/distribution points should I abandon in the consolidation process?

Manufacturers

- Should I provide warehousing and inventory functions for my customers?
- Should I provide logistics/transportation functions with owned resources, outsource those functions, or have the customer obtain them on his/her own?
- What are the conflicts inherent in multiple channel distribution, and how should/do I manage those conflicts?
- How do I build/maintain a relationship over the Internet?

Dealers/Distributors

- Can I profitably unbundle product and service and deliver them separately to satisfy different customer segments?
- Should I provide financing functions for my customers?
- How do I compete with the low price, no service broker or Internet supplier?
- How do I maintain a role in the distribution channel when the manufacturer wants direct

information and communication technology, and the opportunity to use e-commerce capabilities to reconfigure the distribution channel. The fundamental challenge for the distribution channel is to meet customer expectations for solutions and manufacturer demands for representation, and do so while satisfying increasingly high demands for efficiency and low cost, responsiveness and flexibility, and effectiveness and timeliness.

The Distribution Channel: A Process Prospective

The traditional viewpoint of the distribution channel has emphasized physical delivery and logistics. Consequently, the emphasis has been on inventory management, shipping and transportation, eliminating shortages or stock-outs, etc. More recently, a supply chain perspective has begun to pervade distribution channel discussions (Stern, El-Ansary, and Coughlan). The choice of a distribution strategy and associated distribution channel decisions have increasingly become the core dimension of corporate marketing strategy as both price and product parity have reduced the effectiveness of these traditional approaches to obtaining a sustainable differential competitive advantage. Consequently, a more complete understanding of the elements and components of distribution channel strategy, the drivers of channel choice, and the impacts of new technology and changes in the customer base on traditional channels are critical to an effective corporate marketing strategy.

One perspective or viewpoint of the distribution channel focuses on the functions or flows in that channel and the participants or players that perform those functions. This process flow viewpoint is summarized in Figure 2. The column headings of this matrix summarize the functions or processes in the distribution channel, while the row headings identify some of the traditional and current players or participants that have performed these functions. Each cell in this matrix should describe the technology and process used to perform the function, the participants or organizations that perform the function, how that participant is compensated to perform the function, and performance parameters including cost. The significant restructuring of the distribution channels in the agribusiness industries does not involve the functions that are performed (these functions must be performed by someone), but who, how (the technology), how well, and at what cost they are performed.

The Impact of e-Commerce

The rapid development of e-commerce presents challenges and opportunities to agribusiness at all levels of the channel as they develop their distribution strategies. This task is especially difficult given the seemingly continual flow of new information technology and software applications. Nevertheless, agribusiness firms are forging ahead with their e-commerce strategies, in part fearing they will lose customers to competitors if they do not take some position. In the remainder of this paper, the results of a survey on applications of e-commerce in agribusiness, sponsored by Purdue University's Center for Agricultural Business (CAB), are reported. Survey results are reported on general opinions about e-commerce, and implications for distribution strategies and distribution channel choices.

Figure 2. Flow/Process View of the Channel

Function/ Flow Participants	Processing/ Manufacturing	Negotiation	Transaction	Logistics	Promotion	Finance	Information
Manufacturers							
Agents/Brokers							
Wholesalers							
Third Party Logistics Agency							
Financial Service Agency							
Dealers/Retailers							
Customers							

Survey and Respondents

The survey was constructed in August 1999 and the survey instrument was faxed to 4,954 agribusiness managers from 3,321 firms on August 26, 1999. Of the 4,954 faxes, 1,001 were not received, reducing the base to 3,953. By October 20th, 1999, 755 completed, usable surveys were faxed or mailed back, giving a total effective response rate of 19.1%. The analysis presented here is limited to manufacturers, distributors, and dealers, thereby reducing the number of useable surveys to 643.

To determine whether results were influenced by firm size, respondents were classified as small, midsize, or large based on 1998 annual sales. Small firms, with annual sales under \$50 million, accounted for 41 percent of the respondents (Figure 3). Almost a third of the firms were large, with sales over \$1 billion, while the remaining 27 percent were classified as midsize. Cross-tabs were computed for other demographic variables against firm size.

The channel position of the firm (dealer, distributor, manufacturer, multi-channel) was considered against firm size as measured in dollar sales, and was found statistically different. Most dealers (62 percent) are small firms, while manufacturers and multi-channel firms tend to be large firms (40 percent) (Figure 4). The size distribution of distributors falls between dealers and manufacturers.

Firms were asked to respond first, whether they had a web page, and second, if yes, what features were part of the company's web page. Most firms (79 percent) have a web page (Figure 5). Firms with web pages were distinguished on the basis of eleven features that might be found on their pages (Table 1). Six of the basic features were found on the web pages of most firms. These six features -- technical information about products, prices, background information about

Figure 3. Annuals Sales Size Distribution, 1998

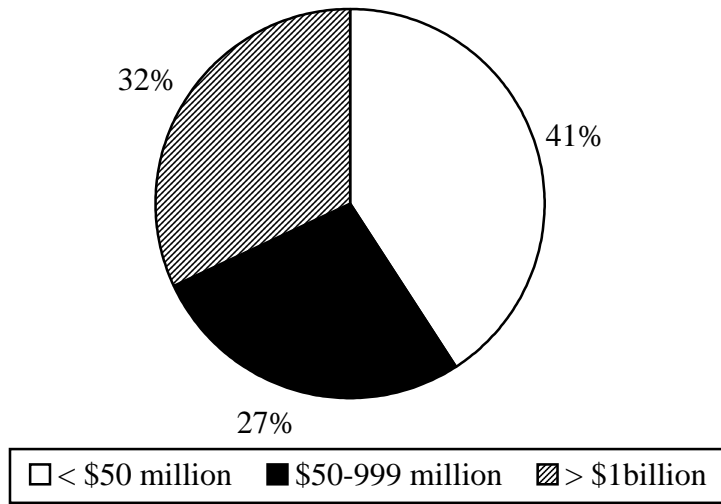
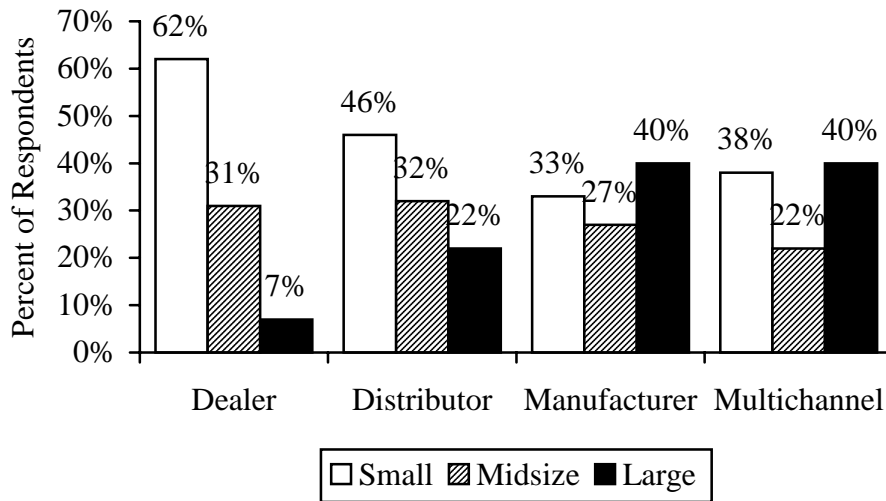


Figure 4. Size Distribution in Sales by Channel Position



the company, a dealer directory, links to trade associations, and links to other information sources – are relatively easy to include on a web page. The other five, more sophisticated, features are online ordering, online payment, online communities, custom content, and password protection.

Figure 5. Types of e-Business Strategies

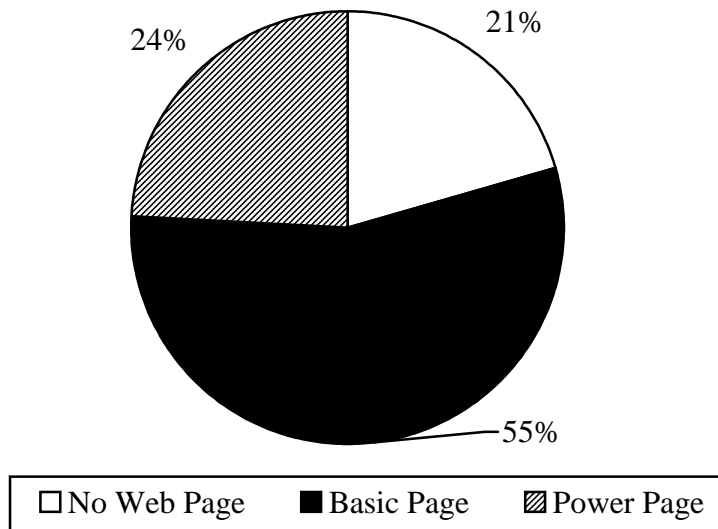


Table 1. Web Page Features, by Type of User

Feature	Percent of firms with feature	
	Basic Web	Power Web
Contains technical information about products sold	76.8	88.5
Provide pricing information about products sold	14.0	30.8
Provide background information about the company	94.2	95.6
Provide a dealer directory (information where products are sold)	35.1	51.6
Provide links to industry trade associations	41.9	65.4
Provide links to other data/information sources (e.g., USDA, etc.)	40.7	68.1
Allow for online ordering, but use traditional means of payment	5.8	41.8
Allow for online ordering and payment	1.7	25.8
Include online communities (e.g., chat rooms, bulletin boards, etc.)	5.8	44.0
Include areas with content customized to different audiences or individuals	17.4	78.6
Include password protected areas, only accessible to registered members	8.2	69.8

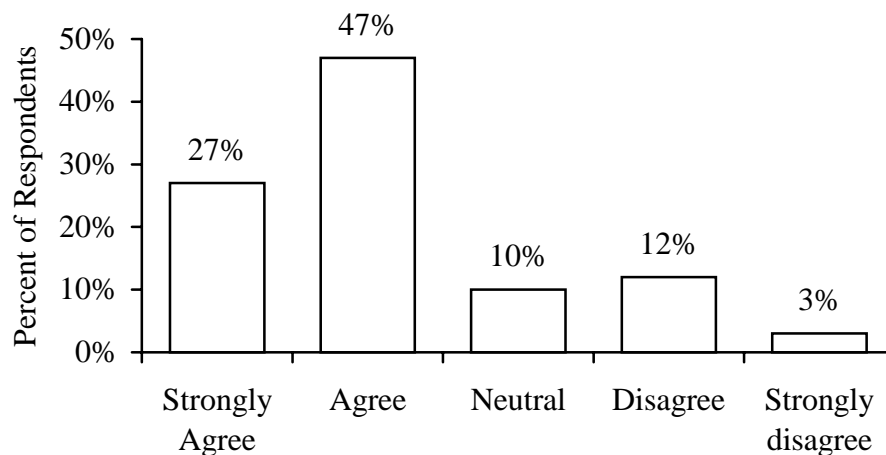
Firms with at least two of the more sophisticated features are classified as having power web pages. Twenty-four percent of all firms in the survey have power pages, while another 55 percent have basic web pages. Password protection and online communities are found in 79 and 70 percent of the power web firms, respectively (Table 1). Forty-two percent of the power web firms receive online orders, with traditional forms of payment, while an additional 26 percent receive online orders and payment. In contrast, for firms with basic web pages only six percent receive online orders with traditional payment, and two percent receive online orders and payment.

General Opinions about E-Commerce

The survey included seven questions to ascertain general opinions about the potential for e-commerce and its impact on their distribution strategy. Chi-square tests were conducted comparing the general opinion across firm size, position in the channel, and web strategy groups.

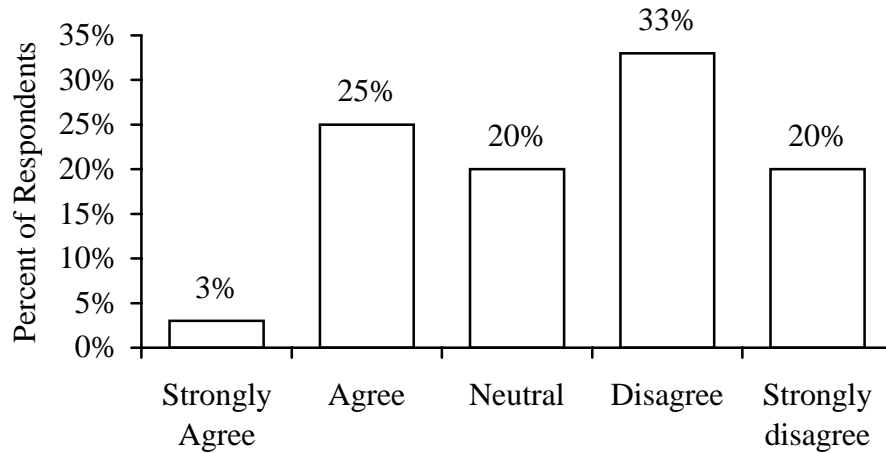
Firms were first asked whether e-commerce would fundamentally change the way they do business in their industry in the next three years. Three out of four respondents feel that e-commerce will change the way business is done in the next three years (Figure 6). Statistical differences were observed on the basis of firm size and web strategy. Larger firms are much more likely to strongly agree with this statement (38 percent) compared to small or mid-sized firms (21 and 22 percent, respectively). Firms with no web page were less likely to see fundamental changes from e-commerce as opposed to those with a basic page or power page. Yet even among firms without a web page, the majority (63 percent) strongly agreed or agreed with this statement.

Figure 6. e-Commerce Will Fundamentally Change the Way We Do Business



The next question asked whether the emergence of e-commerce would greatly reduce the role for local dealers in the next three years. A slim majority of respondents (53 percent) feel that the role for local dealers will not change as a result of e-commerce (Figure 7). Statistical differences were observed on the basis of firm size and channel position. Mid-sized firms were much more likely to strongly disagree or disagree with this statement (62 percent) compared to small or large firms (51 and 49 percent, respectively). As expected, dealers are the least likely to see a reduction in the role of the dealer arising from e-commerce. Among dealers, the majority (61 percent) strongly disagreed or disagreed with this statement.

Figure 7. e-Commerce Will Greatly Reduce the Role for Local Dealers



The participants were asked about the willingness of farmers to buy products on the Internet. A thin majority (52 percent) strongly disagreed or disagreed with the statement that farmers are unwilling to buy products on the Internet (Table 8). Statistical differences were observed on the basis of firm size, web strategy, and channel position. Larger firms were much more likely to strongly disagree or disagree with this statement (68 percent) compared to small or mid-sized firms (42 and 49 percent, respectively). As might be expected, firms with power web pages were more likely to disagree that farmers would not buy products from the Internet. Finally, dealers were the most likely to agree that farmers are unwilling to buy products on the Internet.

Closely related to the willingness to buy is the concern that personal relationships with customers are difficult to develop using an e-commerce distribution strategy. Seventy-five percent of all respondents agree that personal relationships are difficult to establish over the Internet (Figure 9). This attitude is especially strong among firms without web pages, small to mid-sized firms, and dealers.

While firms believe personal relationships are difficult to maintain on the Internet, only 36 percent of the respondents felt that information about increasingly complex products is difficult to provide over the Internet (Figure 10). Firms without a web strategy were more likely to see complexity of information as a barrier to e-commerce.

Figure 8. Farmers are Unwilling to Buy Products on the Internet

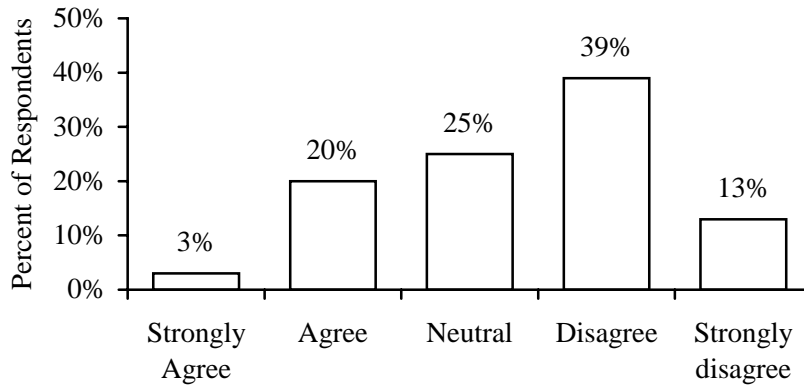
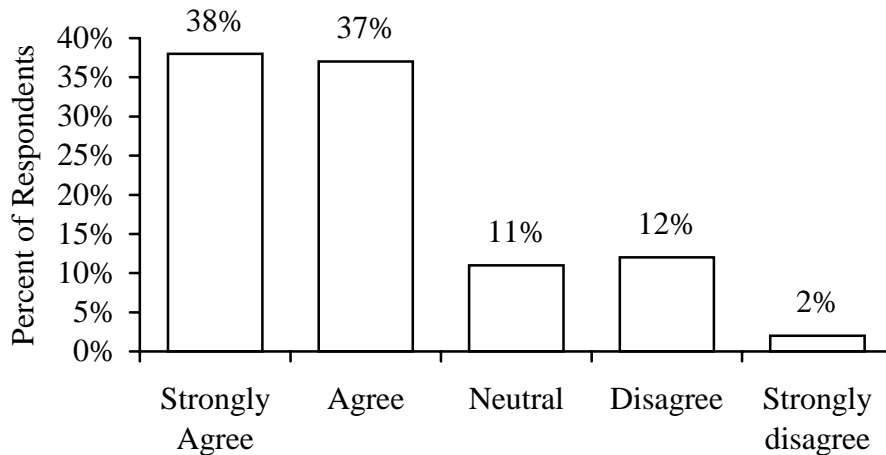


Figure 9. Personal Relationships are Difficult to Develop on the Internet



Two questions sought to determine the importance of logistics to e-commerce. The overall response to the statement, "e-commerce will improve my company's ability to manage inventory levels in the next three years" and "distribution (logistics) issues will limit sale of my industry's products over the Internet" were quite similar (Figures 11 and 12). In both cases around 50 percent of the respondents agreed or strongly agreed with the statements. Most firms with power web pages and large sized firms (60 percent) agreed that a web strategy would improve inventory management. For firms with power pages, there was an even split as to whether distribution will limit e-commerce sales, while firms without web pages were more certain that it would limit sales.

Figure 10. Information Concerning Complex Problems is Difficult to Provide on the Internet

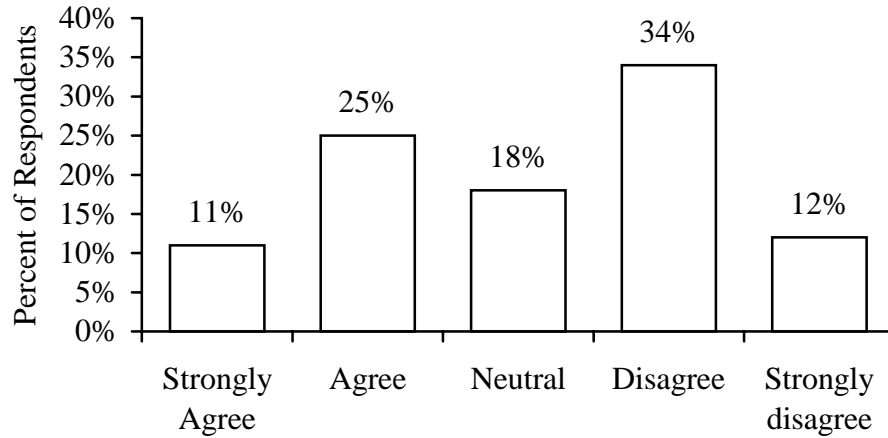
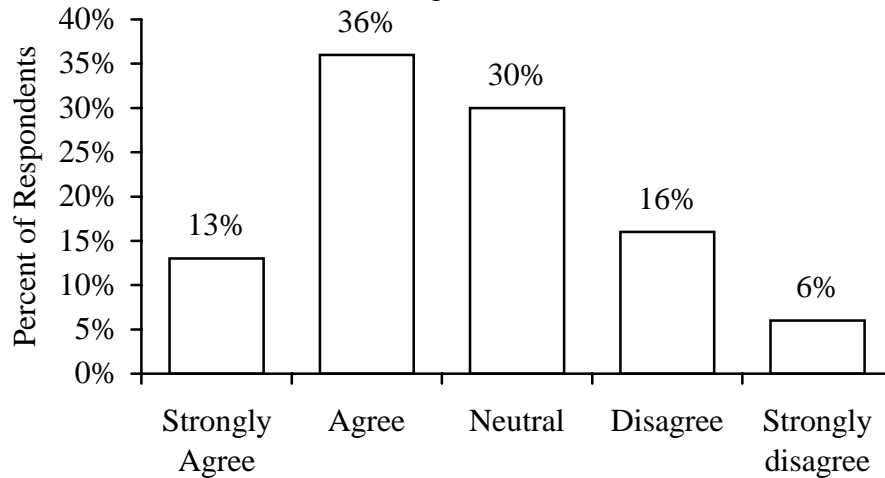
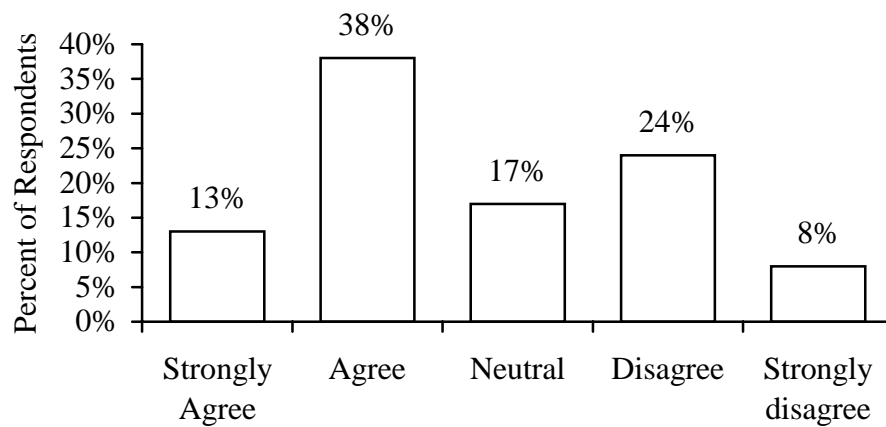


Figure 11. E-commerce will Greatly Improve Inventory Management



In summary, larger firms and those with strong web strategies are quickest to embrace e-commerce and Internet selling. In general, dealers are less likely to embrace e-commerce than distributors or manufacturers. Customers and the competitive arena are driving agribusinesses to adopt individualized solutions that enable them to bring together product, service, and information in unique ways. Advances in information technology facilitate delivering these customized bundles to customers. So what are the implications for agribusiness distribution strategies and methods of selling?

Figure 12. Distribution Issues will Limit Sales over the Internet



Shifts in Distribution Strategy

The proportion of sales direct from manufacturer to farm will increase almost 9 percentage points from 1999 to 2002 according to survey respondents (Figure 13). Almost all of the increase will come at the expense of a reduction in sales for the traditional distribution channel of manufacturer/distributor/dealer. Firms with web strategies see an even greater shift to direct selling, at 11 percent of total sales. Midsized and large firms see increases in direct selling of 10.5 percent versus only 4 percent for firms without a web page. Perhaps reflecting the inevitable, distributors report the highest shift away from distributor (their own) participation in the distribution channel.

In 1999, 1.8 percent of the sales of responding firms were made via the Internet, with payment by traditional means (Figure 14). An additional 0.4 percent were made as online sales with online payment. By 2002, the percentages for these two classes of sales are expected to rise to 17.3 and 11.3 percent, respectively. No differences were identified across the demographic variables. This rapid increase in e-commerce volume is similar to that identified in other sectors of the U.S. economy.

Virtually all firms (85 percent) use e-mail with at least some of their customers and suppliers (Figure 15). Usage of e-mail is more prevalent among larger firms and those with power page web strategies. Firms are more likely to use online order and payment systems with their customers than with their suppliers. As a result, e-commerce may result in more rapid changes in the distribution channel from a particular firm back to its suppliers than with its' customers. But as a firm learns about the benefits of web-based transactions with suppliers, moving forward to customers is a natural evolution.

Figure 13. Shifts in Distribution Strategy of Manufacturers: 1999 to 2002

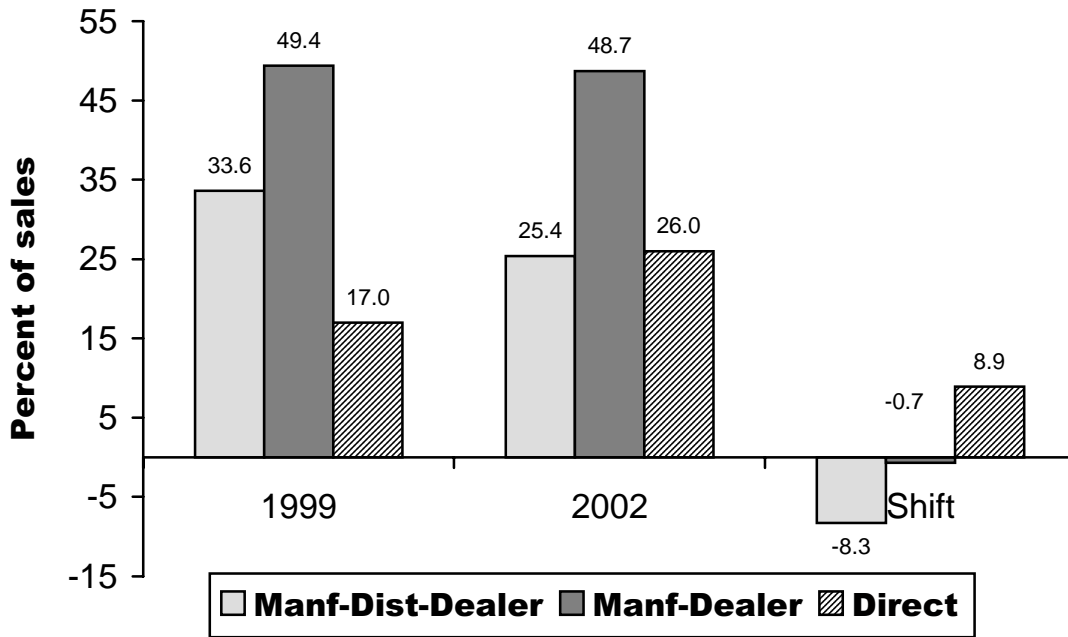


Figure 14. What percent of your sales (in \$) are made via the Internet?

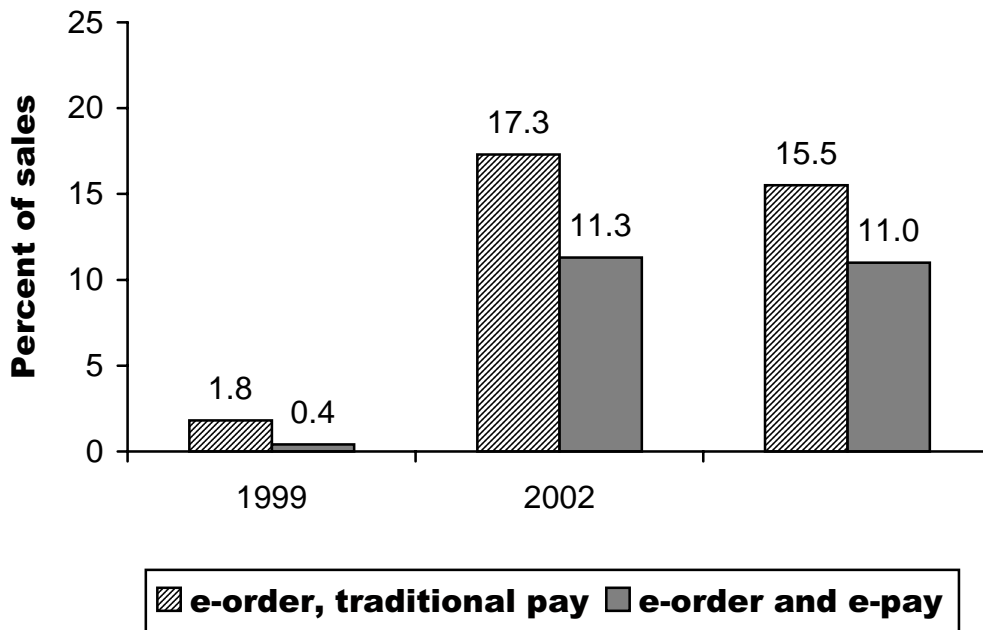
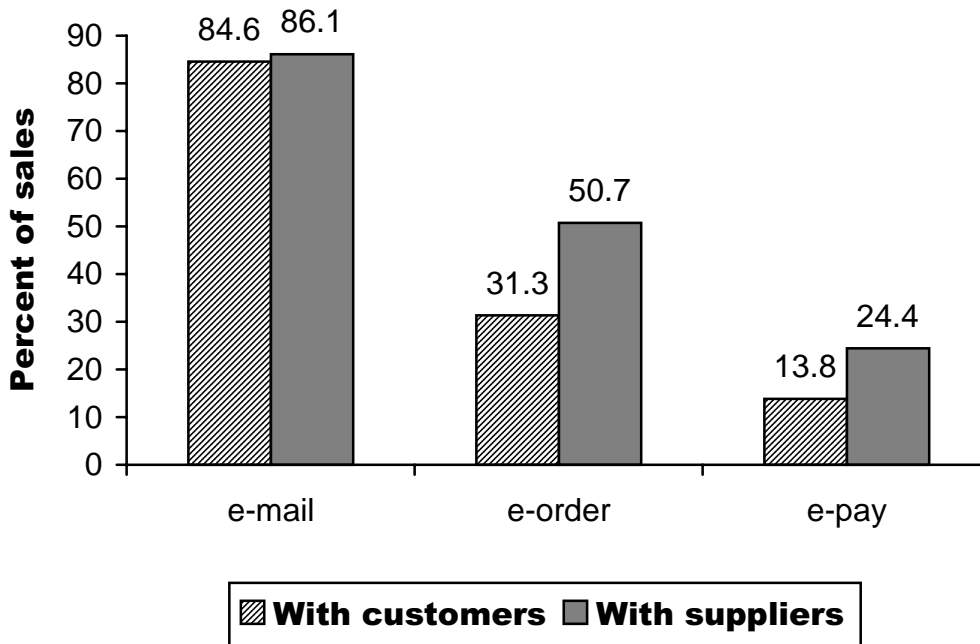


Figure 15. Percent of Firms Using E-communications



A Final Comment

In short, agribusiness has a relatively broad, but not yet deep, e-commerce base from which to build. Extremely rapid growth is forecast in the level of Internet sales from 1999 to 2002. This growth will be accompanied by some shift to direct distribution. There is some difference of opinion across channels, firm size, and web strategy with respect to the magnitude of the impact.

Clearly this is a time of transition with respect to distribution in the agribusiness industries. E-commerce firms offer new virtual storefronts and alternative distribution models. Existing dealers and distributors are re-evaluating their positions, and consolidation at this level has been substantial. Manufacturers now have even more ways to reach their producer/customers. During this transition period, many alternative models will be tested in the market. And, those that survive will satisfy the twin objectives of efficiently meeting the customer's need for solutions and the manufacturer's need for representation.

Reference

Stern, L.W., A. I. El-Ansary, and A.T. Coughlan. *Marketing Channels*, 5th ed. Saddle River, NJ: Prentice Hall. 1996.