AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

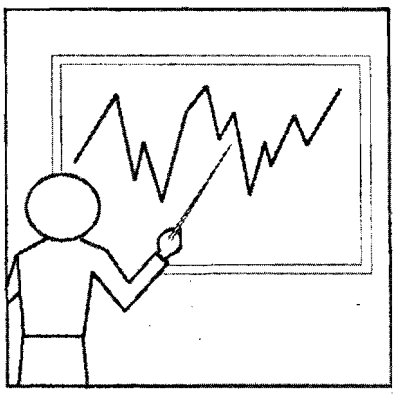
Help ensure our sustainability.

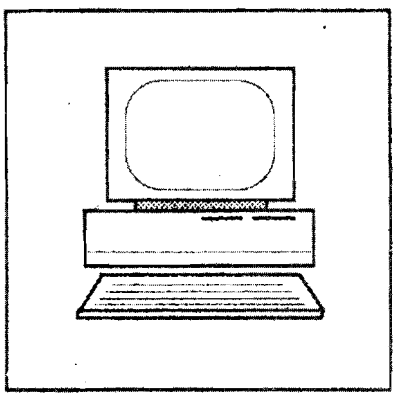
Give to AgEcon Search

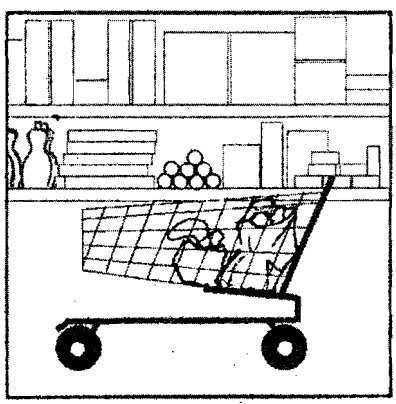
AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Cornell
Food
Industry
Management
Program





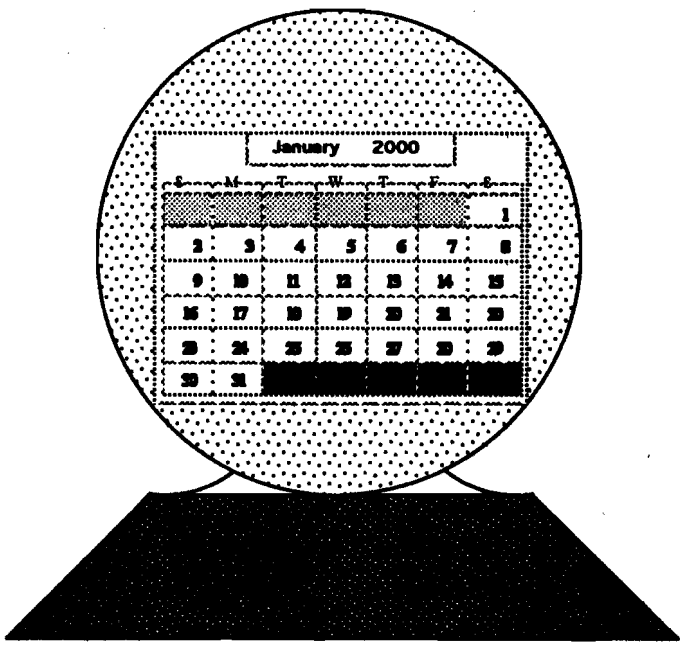


September 1991 A.E. Ext. 91-25

The Year 2000: A Food Industry Forecast

David M. Russo
Edward W. McLaughlin

Food Industry Management Program



Department of Agricultural Economics
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14853

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

The decade of the nineteen-eighties brought about a great number of significant changes to the food industry. Changing consumer lifestyles led food retailers to offer more convenience in the way of extended hours, increased variety and greatly expanded fresh food departments. An unprecedented wave of mergers and acquisitions coupled with historic highs in business failures, created new, more consolidated business relationships at all levels of the food system. Conventional supermarkets saw the rise of new competition in numerous other retail formats. Perhaps the most dramatic changes occurred in the application of new, often electronic, technologies to virtually all food and grocery operations.

Businesses learned long ago that waiting for change to occur, and then responding, is not adequate to achieve their ever more ambitious financial goals. Anticipating change, rather than simply reacting to it, has become a *sine qua non* of contemporary business. This is particularly true given the imperative of the planning function in the larger, more concentrated business organizations of the 1990s. Although developing scenarios of the future "that might be" is hardly an exact science, progress in forecasting techniques facilitating business planning, is being made.

METHODOLOGY

A variety of methods, quantitative and qualitative, are available to abet the analyst and planner in developing forecasts of the future. Of course, each of these methods has strengths and weaknesses, and no single technique has produced superior results under all conditions. More analysts concur that each of a considerable body of generally accepted techniques can, depending on the research cicumstances, produce useful and accurate forecasts. The Delphi Method, a qualitative forecasting technique that relies on consensus of expert opinion, offers several important advantages. It presents a very useful approach to the analysis of complex, multidimensional problems (Gibson and Miller 1990) and has been demonstrated effective in determining factors that eventually alter the future of an

industry (Dull 1988). These advantages come at a cost, however. The Delphi method suffers from the difficulties in holding a team of experts together long enough to come to an agreement and the significant expense of conducting this type of project.(Krone and Clark 1990). A good review of the Delphi method, as well as several detailed applications, is found in Linstone and Turoff (1975). A number of researchers have been successful in applying Delphi techniques to forecasting food industry events (Brock 1981; McLaughlin and Hawkes 1986). The current paper extends the approach and findings of several of the past forecasts to the year 2000.

This study employs several rounds of a questionnaire presenting specific issues facing the food industry in what may be described as a "modified" Delphi method (Figure 1). Normally, the Delphi Method calls for successive iterations of a questionnaire, generally by mail, whereby the sample of experts continually refines its collective responses until it arrives at a consensus forecast. Most often, there is no opportunity for personal communication among the members of the panel. Although the lack of physical proximity ensures that certain overbearing individuals do not inordinately influence the opinion of the rest of the group, it also prevents individuals who have particularly good insights or access to information not generally available to the others from sharing this information with their peers. This limitation is remedied in the current study.

Figure 1: Modified Delphi technique employed for grocery industry forecasting.

Phase I	Phase II	Phase III	Phase IV
Forecast literature and executives identify broad themes.	Executives make series of forecasts for each theme.	Executives respond to 79 forecast scenarios in a consolidated questionnaire.	Executives meet to discuss interpretation and implications of collective forecasts.

The panel in this study consisted of a representative group of middle and upper level executives in the food industry, all participants in Cornell University's 1991 Food Executive Program. The group included 23 food retailers, 10 wholesalers and 16 food/grocery manufacturers. The presence of this group at one location, the 1991 Food Executive Program on Cornell's campus, helped overcome the limitations recognized above by Krone and Clark. After an initial round administered by mail, succeeding rounds and discussion among members took place in a group. The survey instrument consisted of 79 questions categorized into four subject areas: Supermarket Sales Distribution, Technological Developments, Structural Developments and Operational Developments. The remainder of this paper presents the statistical summaries of selected questions from the Delphi survey and interpretations of various of the individual predictions.

SUPERMARKET SALES DISTRIBUTION

In the first part of the Delphi study, the survey group was given historical data for the distribution of supermarket sales by major department for 1967 and 1989. They were then asked to predict the likely sales mix in the year 2000. The summary data in Table 1 represent the mean responses of the 49 survey participants.

Generally, the predictions show the sales distribution continuing the recent historical trends. The average projection for the meat department share of total supermarket sales was 13.2 percent , thus extending the recent 15 year secular decline in meat sales and consumption. In fact, fully sixty nine percent of the survey group agreed that meat sales would fall below 14 percent of store sales by 2000. In other words, this group of food executives expects the meat department to contribute only one-half of the amount to total store sales in the year 2000 as it did in 1967. The dairy department's share of sales also is predicted to continue its recent slide: while dairy product sales registered 11.1 percent of total store sales in 1967 (Chain Store Age 1968) and 8.2 percent in 1989 (Progressive Grocer 1990), the experts projected only a 7.5 percent dairy distribution by 2000. Again,

this represents a relative reduction in total store dairy department contribution by one-third over the thirty year period.

Table 1: Supermarket Sales Distribution; Past, Present and Future

	1967[1]		1989[2]		2000[3]	
	%		%		%	
Meat	24.1		16.9		13.2	
Dairy	11.1		8.2		7.5	
Produce	7.6		9.2		11.9	
Deli	--		3.8		5.6	
Bakery	--		2.0		2.7	
Seafood	--		1.0		2.4	
Frozen	4.3		6.2		7.3	
Dry grocery	34.5		28.5		23.9	
Health & beauty care	2.5		4.0		4.5	
General merchandise	2.9	18.9	4.4	24.2	5.3	25.5
Other non-edibles	13.5		15.8		15.7	
Total	100%		100%		100%	

[1]Chain Store Age, 1968
[2]Progressive Grocer, 1990
[3]Cornell Food Executive Program projections, 1991

Unlike the meat and dairy departments, several other departments are expected to continue their substantial growth over the next ten years. For example, the share of sales attributed to the produce department is predicted to continue increasing from the 7.6 percent level of sales in 1967 (Chain Store Age 1968) to 11.9 percent of sales in 2000. Even more impressive is the growth expected in the newly expanded service and perishable departments: deli/prepared food, bakery and seafood. The appearance of all three of these areas in supermarkets was uncommon enough in 1967 that they were not even tracked by industry-wide sources. By 2000, however, they collectively are forecast to contribute 10.7

percent of supermarket sales, with the deli/prepared foods area accounting for fully one half of this expansion. In fact, 60 percent of the group agreed that take-out prepared foods from all departments will account for 15% of supermarket sales by 2000.

The market growth expected in the service and perishable departments comes at a substantial cost to the dry grocery department, the traditional core of the store. Dry grocery sales are expected to decline from their 34.5 percent level in 1968 to an estimated 23.9 percent by the year 2000. This contrasts sharply with the 43.3 percent of sales that the expert panel expects to by contributed by the fresh food departments by 2000. This forecast represents a significant change in the orientation of the U. S. food distribution system.

TECHNOLOGICAL DEVELOPMENTS

Scanning technology, first adopted in 1974, reached 71 percent of supermarkets by 1990 (Progressive Grocer 1991). The survey group agreed that this trend would continue. Eighty percent felt that 9 out of every 10 supermarkets would be scanning by 2000. Although scanning data have already proved invaluable to retailers in managing inventory and scheduling labor, most of the early forecasts for promotional uses have yet to be attained. In an earlier Delphi study, for example, McLaughlin and Hawkes (1986) found that food industry experts were optimistic regarding the speed with which the industry would adopt scanning technology to facilitate merchandising programs: 83 percent predicted widespread use of scanning data for merchandising activities such as shelf allocation and buying decisions by 1995. In the 1991 study, the panel had apparently become more realistic about delays inevitable in implementing scanning results: only 37 percent of the 1991 experts expected widespread use of scanning for shelf and buying decisions by the same time (Table 2). However, the 1991 group still expects the technology to have its original predicted effect: 74 percent said that by 2000 nearly all shelf allocation and buying decisions will be based on scanning information.

One technological application that has been slow to take hold is the electronic scanning of manufacturers coupons at the check-out. Currently fewer than 1 or 2 percent of manufacturers coupons are scanned. However, change is expected rapidly in this regard. Forty-six percent of the executives predict that half of manufacturers coupons will be scanned by 1995 and 83 percent say this will occur by 2000. Again, this panel may be more realistic than its predecessors regarding the speed of adoption of this innovation based on the experiences of the 1980's. A similar question was posed by McLaughlin and Hawkes in 1986 with the result that executives expected this application to come into use sooner than it has. At that time, 88 percent of the earlier respondents felt that by 1995, half of manufacturers coupons would be scanned.

It appears likely that technology will change the nature of the manufacturer sales call on wholesale/retail headquarters. Eighty five percent of the group agreed that hand-held computers will be used by most sales representatives to relay data from stores to sales offices. Further, 83 percent of executives felt that 50 percent of all supermarkets would have a personal computer in the store by 2000 and that 60 percent of all store orders would be transmitted by these PC's by that time. The traditional manufacturer sales call will not end altogether, however. Seventy-four percent of the group predicted that in the next ten years we would <u>not</u> see at least 30 percent of manufacturer sales presentations to retailers made via satellite dish transmission.

Despite much current discussion regarding technological possibilities, the executives did not expect home ordering and delivery of groceries to expand greatly in the next ten years. Sixty-two percent predicted that home ordering and delivery of groceries will not reach 10 percent of supermarket sales by 2000; 17 percent said it would never reach that sales level.

Table 2: Delphi Results for Technological Developments

Technological Development	By 1995 %	By 2000 %	After 2000 %	Never %
Scanning data will be the basis for nearly all shelf allocation and buying decisions.	37	37	22	4
Scanners will be used in 90% of all supermarkets (now 50%).	29	51	17	3
Fifty percent of all supermarkets will have personal computers in the store.	34	49	11	6
Nearly all orders will be generated by store level computers.	9	51	38	2
Fifty percent of manufacturers' coupons will be scanned at the checkout stand.	46	37	9	8
Thirty percent of sales presentations to retailers will be made via satellite dish transmission.	4	21	55	20
Hand held computers will be used by most sales representatives to relay data from stores to sales office.	24	61	15	0
Ten percent of supermarket sales will be comprised of telephone or computer orders from customers' homes either for delivery or pickup.	6	32	45	17
Frequent shopper programs will routinely capture information on shopper purchase patters and link it with demographic data.	36	45	19	0

According to the panel, retailers of the future should be better able to capture information on shoppers and their purchases: 81 percent of the group felt that by 2000 frequent shopper programs--whereby consumers identify themselves at the checkout with an electronic store or bank debit card--will routinely track purchase patterns and link this to demographic data.

STRUCTURAL DEVELOPMENTS

A majority of the respondents (67 percent) agreed that the government's current favorable attitude toward mergers and acquisitions will be reversed by 2000 (Table 3). Further, 41 percent said that governmental intervention in anti-trust and price fixing cases would increase by 1995 and 77 percent felt it would increase by 2000. Sixty-three percent said that despite the fewer but larger retail chains expected to result from mergers and acquisitions, after-tax profits of 2 percent of sales will not be realized within the next decade. Consequently, respondents felt that the competitiveness of the industry would remain keen and any savings realized from improved merchandising and other efficiencies would be passed on to consumers.

Table 3: Delphi Results for Structural Developments

Structural Development	By 1995 %	By 2000 %	After 2000 %	Never %
The current favorable governmental attitude toward mergers and acquisitions will be reversed.	24	43	17	16
As mergers and acquisitions continue government intervention in anti-trust and price fixing cases will increase dramatically.	41	36	7	16
As mergers and acquisitions result in fewer but larger retail chains, after tax retail profits will average approximately 2% of sales (currently about 1%).	9	28	28	35
Twenty-five percent of U.S. food retailing will be foreign owned or controlled.	0	37	50	13

With respect to foreign ownership, 87 percent of the panel thought that eventually 25 percent of the U.S. food retailing system will be foreign owned or controlled, up from the approximate 12 or 13 percent level generally accepted as the foreign owned share in

1990. Thirty-seven percent thought this would occur before 2000, 50 percent predicted that this would occur after 2000.

The executives agreed that the manufacturer/distributor/broker system will change. Seventy-two percent said that by 2000 the nature and role of brokers will change from "sales agents" to "marketing specialists" (Table 4). The conventional industry wisdom over the last decade has been that the "strength" of the retailer has increased in dealing with their manufacturer counterparts. Seventy-eight percent of the panel felt that by 2000 retailers will be increasingly able to dominate the retailer/manufacturer interface, chiefly by utilizing their electronic scanning data and the resulting direct product profitability (DPP) analyses. That is, retailers will be able to make decisions based on the net profitability determined using their own data instead of relying on the supplier for such information as in the past. Respondents are split, however, on what strategic response or direction the manufacturer might take. Forty-seven percent expect that manufacturers will shift the current emphasis from advertising activity and deals to lower prices; 44 percent, however, felt that this is unlikely to ever occur.

Table 4: Delphi Results for Structural Developments

Structural Development	By 1995 %	By 2000 %	After 2000 %	Never %
The nature and role of brokers in the food system will change from sales agents to marketing specialists.	17	55	13	15
Retailers will be increasingly able to dominate the retailer/manufacturer interface by utilizing direct product profitability (DPP) and scanning data.	23	55	16	6

In spite of the recent growth of new classes of trade and store formats, food executives do not seem to feel any significant or immediate threat to traditional retail food channels. Whereas, for example, the wholesale membership club stores have taken over

nearly five percent of all food and grocery sales in about six years (Progressive Grocer 1990), only 4 percent of the food industry experts believe that these clubs will triple their share of the retail food sales to 15 percent before 1995 (Table 5). Another 41 percent do not see this happening until 2000 and 26 percent believe it will never happen. In a few markets, limited assortment, price-oriented stores also made a strong showing during the 1980's. The German company, Aldi, based outside Chicago and operating approximately 300 stores in six states of the central U.S., is the most notable example. While forty percent of the executives agree that these types of stores will pose a significant threat to conventional supermarkets by 2000, another 46 percent do not ever anticipate them becoming a threat. Convenience stores grew rapidly during the early eighties, but their growth has slowed recently. In 1980, convenience stores captured 5.0 percent of grocery sales, this grew to 6.8 percent in 1985 and 7.7 percent in 1989. In 1990, however, the convenience store share of grocery sales declined 0.4 percent to level off at 7.3 percent (Progressive Grocer, *selected years*). Recognizing this, half of the executives felt that convenience stores will never reach 15 percent of retail food sales.

Table 5: Delphi Results for Structural Developments

Structural Development	By 1995 %	By 2000 %	After 2000 %	Never %
Wholesale membership clubs will account for 15% of total U.S. retail food sales (5% today).	4	41	29	26
Limited assortment, price oriented stores (like Aldi) will present a significant threat to conventional supermarkets.	20	20	15	45
Convenience stores will account for 15% of retail food sales (approximately 7.3% today).	4	26	13	57

OPERATIONAL DEVELOPMENTS

The size of the average supermarket in 1990 was 31,000 square feet (FMI 1991). Fifty-five percent of the food executives projected that by 2000 the average supermarket size will be 50,000 square feet, an increase of 61 percent (Table 6). Fifty-six percent expected that as these new, larger stores were built older stores would be closed resulting in an overall reduction in the number of supermarkets by 10 percent. Furthermore, these new stores will continue to serve customers with extended hours. Sixty-two percent of respondents agreed that the average hours of operation of supermarkets will never decline from present levels: In 1990, 28 percent of all chain supermarkets and 12 percent of all independents were open 24 hours a day (Progressive Grocer 1991).

Table 6: Delphi Results for Structural Developments

Structural Development	By 1995 %	By 2000 %	After 2000 %	Never %
Average supermarket size will be 50,000 sq.ft. (approximately 31,000 today).	6	49	34	11
As new stores get larger and older stores are closed, the number of supermarkets will decline by 10% (now about 30,500).	4	52	17	27
The average hours of operation for supermarkets will begin to decline.	12	17	9	62

The character of promotion and advertising at both the manufacturer and retail levels has changed significantly in recent years and, according to the industry panel, will continue to do so. As Table 7 shows, seventy percent of the executives projected food manufacturers shifting primary emphasis in advertising from national TV to local networks and cable TV. Sixty-seven percent believed that retailers' ads on local and cable TV would account for 25 percent of their advertising expenditures by 2000. Eighty-three percent

agreed that quality and service will become a more common promotional basis for retailers than low price strategies.

Table 7: Delphi Results for Operational Developments

Operational Development	1995 %	By 2000 %	By 2000 %	After Never %
Manufacturers will shift primary emphasis in advertising from national TV to local networks and cable TV	27	43	14	16
Retailer's ads on local cable TV will account for 25% of the total advertising dollars.	18	49	20	13
Quality and service will become a more common promotional basis for retailers than low price strategies.	43	40	6	11
Coupon redemption by consumers will increase significantly.	39	11	7	43
Coupon redemption by consumers will decrease significantly.	11	21	16	52

Redemption rates for all coupons have remained around 3 percent from 1980 to 1989 while, during the same period, coupon distribution grew from 96.4 billion to 267.6 billion (Neilsen 1990). It is clear however, that coupon use has increased significantly over the past two decades: In 1971, 58 percent of households used coupons, by 1988 this number had grown 77 percent. Respondents felt that this trend would probably level off by 2000 and never decrease significantly from that point. Thirty-nine percent felt that coupon redemption would increase by 1995, only 11 percent said that this would happen by 2000 and 52 percent anticipated that coupon redemption would never decrease significantly from today's levels.

Currently, direct store delivery (DSD) items account for approximately 22-25 percent of supermarket sales (Cornell estimate 1990). Executives agreed that this will not grow considerably, with 82 percent saying that DSD items will never account for 50

percent of sales, or at least not until after the year 2000 (Table 8). At the same time, 63 percent also agreed that DSD items will never fall below 10 percent of sales.

Table 8: Delphi Results for Operational Developments

Operational Development	1995 %	By 2000 %	By 2000 %	After Never %
Direct store delivery (DSD) items will account for 50 percent of sales. (now about 22-25 percent)	3	15	15	67
Direct store delivery (DSD) items will account for only 10 percent of sales.	9	13	15	63
Take-out prepared foods sales will account for 15 percent of supermarket sales.	17	43	28	12
One-half of all supermarkets will have restaurants or some sit-down eating area	2	30	37	31

Take-out prepared foods accounted for 5-7 percent of supermarket sales in 1990 (Allen, *et.al.* 1990). Sixty percent of the group forecast this number to grow to 15 percent by 2000 (Table 8). This near tripling of sales represents an enormous increase in an industry generally characterized by low single digit annual growth figures. However, despite the recent rapid increase in sit-down eating areas in supermarkets that often accompany prepared meals departments, only 32 percent of the expert panel expected half of all supermarkets to have an in-store eating area by the year 2000. Most food executives forecast a continuing erosion of traditional supermarket sales in favor of other take-out alternatives: the majority, for example, agreed that the percentage of all food sales that take place away-from-home will grow from approximately 40 percent in 1990 to 50 percent by 2000.

One of the most notable food industry trends in the ninteen-eighties was the dramatic increase in the number of new product introductions from food and grocery suppliers to supermarket buyers. The rate in the 1980s was twice the annual rate of the

1970s; in 1990 alone, over 13,000 new items were introduced (McLaughlin and Rao 1990). Generally, the panel expects this growth rate to persist. Forty-nine percent of the executives agreed that the number of new product introductions would never drop significantly from today's level and 63 percent said that, at least through 1995, new product introductions will continue to grow.

Table 9: Delphi Results for Operational Developments

Operational Development	1995 %	By 2000 %	By 2000 %	After Never %
New product introductions (over 13,000 in 1991) will drop significantly.	15	30	6	49
New product introduction will continue to grow.	63	21	2	14
Branded fresh meats will account for 50 percent of fresh meat sales.	9	47	27	17
Branded fresh fruits and vegetables will account for 50 percent of fresh produce sales.	7	52	24	17
Fresh produce's share of sales will double (now about 8.4 percent).	11	38	23	28

The decade of the 1980s witnessed depressed financial conditions in many commodity based industries, especially in light of the increasing consolidation and more sophisticated management typical of many value-added companies in the contemporary food system. One important strategic response to this changed competitive environment by many commodity based producers--fresh meat, produce and seafood, for example--has been to differentiate their products through the creation of consumer brands. Fifty-five percent of the food industry panel predicts that branded fresh meat will account for half of fresh meat sales by 2000 and 59 percent say that branded fresh fruits and vegetables will account for half of fresh produce sales by 2000 (Table 9). These are bold predictions given the very low sales levels, typically less than 10 percent, of branded meat and produce in

1990. However, recall that a substantial majority of the panel expects fresh meat sales, now 16 percent of store sales, to drop below 14 percent by the year 2000. On the other hand, 49 percent agree that the fresh produce share of store sales will almost double from about 9 percent today (Supermarket Business 1990) to 16 percent in 2000.

As retailers provide more service to consumers, the cost of labor affects store productivity. However, the executive panel did not expect the greater service level trends to present a major problem in the future; 57 percent said that they never expect labor requirements to reduce overall productivity by 25 percent. On the contrary, a vast majority (75 percent) projected a 10 percent increase in productivity at grocery distribution centers by 2000. This, despite the belief that wages for part-time employees would move significantly higher than minimum wage by 2000 from 91 percent of the panel.

Worries of inflation are prevalent: 80 percent expect annual food price inflation to exceed 5 percent by 2000, 52 percent said it would exceed this level by 1995. However, 57 percent said that inflation would never exceed 10 percent.

Table 10: Delphi Results for Operational Developments

Operational Development	1995 %	By 2000 %	By 2000 %	After Never %
Due to increasing service department labor requirements, retail labor productivity will decline by 25 percent.	11	17	15	57
Output per man-hour in grocery distributions centers will increase by 10 percent.	30	45	19	6
Wages for part time employees will move significantly higher than minimum wage level.	49	42	2	7
Annual food price inflation will exceed 5 percent.	52	28	7	13
Annual food price inflation will exceed 10 percent.	3	19	21	57

IMPLICATIONS

One of the most significant developments predicted by this Delphi study is the strong growth expected in the sales of virtually all fresh foods. Sales in the perishable departments; produce, deli, bakery and seafood-are forecast to expand, indeed doubling and tripling from current levels through the end of the decade. This growth is expected to come at the expense of dry grocery sales. Traditionally, the dry grocery department has been the core and principal profit generator of the supermarket, the home of well known national brands and marketing-oriented manufacturers.

The future strength predicted for fresh foods points to a number key developments in the current and future evolution of the contemporary supermarket. First, whereas the grocery department has been dominated historically by strong national brands, such brand identity, with only a few notable exceptions, in unknown in the perishable departments. Consumer franchises have not yet been established for the vast majority of fresh seafood, vegetables,deli salads or prepared fresh meats. The new prominence forecast for fresh foods in this study, however, has important implications for both manufacturers and retailers. While generally dry grocery departments impart little competitive advantage for retailers since their competitors are nearly certain to carry the same line of identical products often at similar or identical retail prices, the same is not true with fresh foods. Most often, consumers perceive the quality and availability of most fresh foods as being associated with, perhaps controlled by, the retailer. The absence of brands in the perishables areas makes price comparisons and quality comparisons difficult, if not impossible. It is for this reason that many retailers are beginning to move aggressively to encourage the expansion of perishable, "perimeter" departments to further differentiate themselves from competing stores.

Second, although not cited specifically in this study, current industry consensus appears to be that the profit picture in the perishable departments has changed dramatically in the last five to ten years. As a result of the advent of electronic technologies and better

trained, more sophisticated management in the fresh foods areas, many retailers report for the first time that they have learned how to make the fresh food departments truly profitable. In the past, gross profit reports of perishable departments were often glowingly positive while the actual net profit situation was problematic and difficult to determine. Now, retailers have become more knowledgeable about both direct and indirect costs involved in operating fresh food departments and, consequently, have become more realistic about the prices that must be charged in order to operate these departments at a profit. The discussions among the experts subsequent to the first sorecast round revealed that this development is one of the fundamental reasons prompting them to forecast such a strong continued expansion of fresh foods.

As scanning technology is adopted more widely, applications for scanning data will grow as well. Retailers of the future will routinely use scanning data for shelf allocation and new product purchase decisions. This is almost certain to mean that wholesale/retail standards for new product acceptance will become more rigorous and, as a result, manufacturer new product introductions will become even more costly than at present. While this seems to imply higher overall new product introduction expenses, it may well be that the greater wholesale/retail scrutiny will eliminate many obvious "losers" earlier in the process, and thus actually reduce the systemwide costs of new product introduction.

Scanning data will also find much greater use in tracking specific customers' purchase patterns and matching them to demographic data. This will provide both retailers and manufacturers the opportunity to micro-market products to specific customer segments. Also, as manufacturer coupon scanning by retailers is forecast to become more widespread, coupon redemption will be traced back to the individual redeeming consumer as well as the specific distribution vehicle employed. In summary, the more extensive application of scanning technology in a variety of areas will allow both retailers and manufacturers to maximize their merchandising and advertising programs by operating them more efficiently.

Recently, the rate of structural change in the food industry seems to have slowed. This study shows that the executives believe that government intervention in the food industry will increase in the near future in the interest of preserving competition. Thus, from a public policy perspective, these experts felt that the prospect of fewer food companies controlling a greater and greater portion of overall industry sales, and resultingly dictating retail prices and restricting variety to consumers, was unlikely.

Competition from various alternative retail formats did not concern the survey group greatly, despite the great deal of attention focused recently on such formulae as limited assortment or box stores (e.g. Aldi), and warehouse club stores, which by the end of the 1980s, were both gaining share of the consumers food expenditures. By 1991, certain warehouse clubs were offering fresh meats, produce and baked goods, in hopes of attracting even more business away from conventional supermarkets. However, despite the explosive growth of the warehouse membership club store sales in the 1980's, less than half (45%) of all executives predicted that wholesale membership club sales would triple by the year 2000. Traditional mass-merchandisers, too, began to enter the retail food industry more aggressively by 1990 as well. Both K-Mart and Wal-Mart initiated testing for stores that offered full lines of traditional mass merchandise products as well as a complete line of grocery and perishable products. The extent to which these alternative formats will effect supermarket food sales remains to be seen. Some executives observed, however, that as alternative formats become more common, conventional supermarkets will continue a gradual long-term sales and market share decline.

CONCLUSION

Consumer demographic and lifestyle changes appear poised to continue the strong demand for fresh foods and the resulting retail response of more prominent positions for perishable foods and service departments in the supermarkets of the future. Furthermore, the role that various new technologies will play in the future of the food industry is paramount. The potential of many of these technologies is vast, indeed their impact has

been forecast before; the challenge, it seems, is to implement these technologies. A similar Delphi study (McLaughlin and Hawkes) in 1986 forecast the implementation of many of the new technologies discussed in this paper by 1995. When the 1991 Delphi group was surveyed, a majority predicted the implementation of the same technologies by 2000. The reasons for the discrepancy between the expected and actual implementation are not entirely clear. Perhaps it is simply a matter of the earlier panel being overly optimistic and not recognizing the full dimensions and inevitable difficulties in the adoption of such radically different and costly systems. What is clear, however, is that those food system participants who actively engage in the planning and forecasting process will be better positioned than their competitors to anticipate and prepare for the future rather than reacting to it.

.....

*For a copy of the original Delphi questionnaire and the complete results, please contact the authors.

REFERENCES

A.C. Neilsen (1990), "1990 Annual Review of Retail Grocery Store Trends"

Allen, J.W., McLaughlin, E.W. and Pierson, T.R. (1990) "Strategic Directions in Supermarket Deli/Prepared Foods", Cornell University, Agricultural Economics Research Bulletin 90-12, (August).

Brock, J.L. (1981) " A Forecast for the Grocery Industry in the 1980s", Ann Arbor, Michigan, UMI Research Press.

Chain Store Age (1968) "1968 Supermarket Sales Manual" (Mid July)

Dull, Ray (1988) "Delphi Forecasting: Market Research Method of the 1990's", Marketing News, 18 (August 29):17.

FMI Research Department (1991), "The Food Marketing Industry Speaks-1991" Washington D.C.: FMI.

Gibson, Lay James, and Miller, Mark M. (1990) " A Delphi Model for Planning Preemptive Regional Economic Diversification", Economic Development Review, 2 (Spring):34-41.

Krone, Robert M. and Clark, Charles H. (1990), "Improving Brainpower Productivity", Journal for Quality and Participation, (December):6-10.

Linstone, H.A. and Turoff, M. eds. (1975) The Delphi Method, Reading, Massachusetts: Addison-Wesley.

McLaughlin, Edward and Hawkes, G.F. (1986), "A Forecast for the Grocery Industry in the 1980's", Cornell University, Department of Agricultural Economics.

_____., and Rao, V. R. (1990) Decision Criteria for New Product Acceptance and Success, Westport, Connecticut: Quorum Books.

Progressive Grocer (*selected years*), "Annual Report of the Grocery Industry" (April)

Supermarket Business (1990) "Annual Consumer Expenditures Study" (September).

Other Agricultural Economics Extension Publications

No. 91-16	Dairy Farm Business Summary Northern Hudson Region 1990	Stuart F. Smith Linda D. Putnam Cathy S. Wickswat John M. Thurgood Thomas J. Gallagher
No. 91-17	Dairy Farm Business Summary Southeastern New York 1990	Stuart F. Smith Linda D. Putnam Alan S. White Gerald J. Skoda Stephen E. Hadcock
No. 91-18	Supermarket Dairy Department: An Overview of Operations and Performance	Edward McLaughlin David Russo
No. 91-19	Dairy Farm Business Summary Eastern New York Renter Summary 1990	Linda D. Putnam Stuart F. Smith
No. 91-20	National and State Trends in Milk Production, 1991	Andrew Novakovic Kevin Jack Maura Keniston
No. 91-21	New York Milk Production from 1979 to 1989: A County and Regional Analysis	Kevin E. Jack Andrew M. Novakovic
No. 91-22	Fruit Farm Business Summary Lake Ontario Region New York 1990	Darwin P. Snyder Alison M. DeMarree
No. 91-23	Time-of-Use Pricing for Electric Power: Implications for New York Dairy Farmers	Mark C. Middagh Nelson L. Bills Richard N. Boisvert
No. 91-24	Custom Raising Dairy Replacements: Practices and Costs, 1990	Jason A. Karszes B.F. Stanton