

1984


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Brenda L. Spotton
Iowa State University

Mark Weimar
Iowa State University

Marvin Hayenga
Iowa State University

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Recommended Citation

Spotton, Brenda L.; Weimar, Mark; and Hayenga, Marvin, "Characteristics of Midwest Commercial Market Demand for Fresh Fruits and Vegetables" (1984). *Economic Staff Paper Series*. 23.
http://lib.dr.iastate.edu/econ_las_staffpapers/23

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Abstract

This report summarizes the results of a commercial market survey conducted in four major midwest cities: Chicago, St. Louis, Kansas City and Minneapolis. The purposes of the survey were to establish the general market requirements for fresh produce, particularly for potential new suppliers, and to estimate the demand for more than a dozen fruits and vegetables which Iowa may be able to produce competitively. The general conclusion reached is that all fresh produce marketed at this level has to be of top quality in appearance and packaging, and be precooled where necessary for extended shelf-life. In addition, major suppliers to retail chains (about 76 percent of the total market for fresh produce) must maintain consistent and reliable supplies at competitive prices. The large produce growing states, especially California, have set the industry's quality standards. For Iowa growers to compete at the retail and wholesale level requires high professional standards in all aspects of fresh fruit and vegetable production and marketing.

Disciplines

Agribusiness | Business and Corporate Communications | Entrepreneurial and Small Business Operations | Sales and Merchandising

Characteristics of Midwest
Commercial Market Demand for
Fresh Fruits and Vegetables

Brenda L. Spotton, Mark Weimar and Marvin Hayenga*

#161

Department of Economics
Iowa State University

*Graduate assistants, and Professor, respectively, Department of Economics,
Iowa State University. Thanks to Drs. Peter Calkins and Hal Ricker for many
helpful suggestions on an early draft of this paper.

ABSTRACT

This report summarizes the results of a commercial market survey conducted in four major midwest cities: Chicago, St. Louis, Kansas City and Minneapolis. The purposes of the survey were to establish the general market requirements for fresh produce, particularly for potential new suppliers, and to estimate the demand for more than a dozen fruits and vegetables which Iowa may be able to produce competitively. The general conclusion reached is that all fresh produce marketed at this level has to be of top quality in appearance and packaging, and be precooled where necessary for extended shelf-life. In addition, major suppliers to retail chains (about 76 percent of the total market for fresh produce) must maintain consistent and reliable supplies at competitive prices. The large produce growing states, especially California, have set the industry's quality standards. For Iowa growers to compete at the retail and wholesale level requires high professional standards in all aspects of fresh fruit and vegetable production and marketing.

I: Introduction

In 1982 a Task Force Committee was set up by the Governor of Iowa. Its purpose was to consider the possibility of diversifying Iowa's agricultural base. A major outcome of the committee's research was the decision to promote the expansion of fresh fruit and vegetable production. Agricultural diversification is seen as one possible route to improving the financial situation for some farmers by reducing Iowa's narrow reliance upon grain and livestock markets. By adding selected cash crops to grain crops, farm income variability may be reduced because the price and yield fluctuations of any one crop will have relatively less impact. This study of the size and nature of the commercial market demand for fresh produce in the large metropolitan areas most easily accessible to Iowa growers--Chicago, St. Louis, Kansas City and Minneapolis--is part of a larger investigation at Iowa State University into the feasibility of this alternative.¹

The purpose of this research is to report on the results of a survey identifying the methods and preferences of produce dealers. This objective involves establishing the size of the market demand for the fourteen fruits and vegetables in which Iowa might expand production, as well as the general-

¹ The Iowa Department of Agriculture has surveyed the commercial market within Iowa; the results are published in an April 1985 report entitled "Market Conditions for Fresh Fruits and Vegetables in Iowa." M. Weimar's Ph.D. dissertation at Iowa State University includes a full scale cost-benefit analysis of this prospect and is entitled "The Economic Production Potential for Fresh Summer Fruits and Vegetables in Iowa's Commercial Wholesale Market with an Emphasis on Small Farms." Funding for this study was provided by the Agricultural Marketing Service, United States Department of Agriculture.

ly accepted packaging, cooling and marketing procedures required of growers supplying produce to these potential markets.²

The report is organized into four parts with the first section being the introduction. The second section presents the procedure used in gathering data, including background statistical information. The third section discusses the size of the market for each of the four major cities surveyed and lists commodity-specific, intercity similarities and differences. Section four summarizes the market requirements by city. Last, section five concludes with a discussion of the implications of this information for new suppliers, such as Iowa farmers considering fresh fruit and vegetable production for the commercial market, as well as a comment on some of the related topics that remain to be investigated.

II. Procedural and Statistical Information

The survey was designed to obtain the following information regarding the demand and marketing of fresh produce.³

1. The general quality requirements of the retailer/wholesaler i.e., sizing grading and packaging requirements.
2. The minimum quantity and lead time required by each company.
3. The general procurement procedure, i.e. from whom they purchase and how; the type of transportation; delivery responsibilities; and nature of purchase agreements.
4. Specific requirements for purchasing from a new supplier.

² The specific produce items considered here were: apples, green beans, broccoli, cabbage, sweet corn, cucumbers, leaf lettuce, muskmelon, green peppers, squash (winter and summer), tomatoes, watermelon and potatoes. These were the crops considered most feasible for Iowa to produce by the Iowa State Horticulture Department.

³ See Appendix A for a copy of the actual survey.

5. The specific quantities purchased and current suppliers for the fourteen fruits and vegetables.⁴

Personal interviews were conducted with the companies' head produce buyers after the larger retailers and wholesalers had been identified and contacted by telephone. The wholesalers included cooperative buying organizations of retailers, and suppliers to food services or small retail operations. It was encouraging to find that all were willing to be interviewed, though a few did withhold information on their purchase volumes for various reasons.⁵

The estimated retail market shares of grocery volume, obtained from industry sources, determined which five to eight companies would be interviewed in each city. Sales of fresh produce were assumed proportional to the total grocery volume in the estimation of total fresh fruit and vegetable consumption for any one city. The USDA currently collects arrivals data for Chicago and St. Louis which provided an estimate of actual consumption figures. Unfortunately, this service was discontinued for Minneapolis and Kansas City in 1982. By requesting quantity data from the Chicago and St. Louis retailers, estimating the total consumption figures in the manner described above, and comparing these to the USDA figures, survey estimates were cross-checked. For most items, estimates came very close to the reported unload figure.

Choosing which of the wholesalers to survey was somewhat more difficult since market shares for these companies were unknown. Here, industry members were relied upon to help determine which were the larger wholesalers.

⁴ Seasonal average estimates were based upon respondents' experience.

⁵ Only one company refused this information for privacy reasons; the remaining few, primarily wholesalers, felt that USDA data on "unloads" would be sufficient for our purposes.

Because of this lack of market share information, we did not use their volume information in estimating consumption for the cities. However, these interviews helped to establish any trends in business procedure and produce requirements that differed significantly from their retail counterparts.

Retail companies accounting for between sixty-five and one hundred percent of the retail market in each metropolitan area were interviewed. Past research has estimated that various types of retail outlets supply approximately seventy-six percent of the U.S. consumer demand for fresh produce; wholesale companies and brokers (via food service establishments) supply about twenty-two percent of the demand, and farmers' markets and U-pick operations supply the remaining two percent.⁶

III. Market Volume for Fresh Produce

Table 1 lists both the estimated demand quantities (in 1000 hundred-weight (cwt.) per week) for each city and notes significant intercity differences and similarities by commodity. Most companies purchased locally grown produce when it was available with the exception of:

Broccoli: Buyers in St. Louis, Kansas City and Minneapolis would only consider California-grown due to a better quality product (believed⁷ to be attributable to better growing conditions and handling).

Leaf lettuce: Buyers in Kansas City and Minneapolis preferred the California product, largely due to better handling facilities (especially the use of liquid icing).

⁶ The Fresh Fruit and Vegetable Marketing System: A Research Summary, by Edward M. McLaughlin and Thomas R. Pearson, Michigan State University, 1983.

⁷ According to Iowa State University's Horticulture Department, although Iowa's early broccoli crop is generally of less desirable quality, the quality of the later, fall crop, is in fact superior to that which is grown in California.

TABLE 1
Estimated Market Size for Fresh Produce During Iowa's Harvesting Season (1000 cwt/week)

Produce Item	Chicago	Kansas City	Minneapolis	St. Louis	Total	Comments**
Apples (Jan.-Dec.)	29.6-39.8	3.8	8.5	8.3-9.7	50.2-61.8	- Companies in all cities currently purchase locally grown apples.
Green Beans (July-Oct.)	5.4-11.2 (1.0)*	.165	.27 (.06)**	1.2-1.3	7.0-12.9	- Companies in all cities currently purchase locally grown beans - 2 Chicago companies expressed interest in hand-picked beans
Broccoli (June-Sept.)	4.7-5.1	.48-.67	.6-.9	2.3 (1.0)**	8.08-8.97	- Most companies in Kansas City, Minneapolis, and St. Louis would not consider locally grown broccoli (see p. 6 above) - Most companies in Chicago currently purchase locally grown broccoli; three companies suggested that there was good potential for precooled local broccoli
Cabbage (Jan.-Dec.)	8.6-8.8	1.7 (3.7)**	2.8	3.2-3.4	16.3-16.7	- Most companies in all cities purchase only fresh cabbage - Companies in all cities currently purchase locally grown cabbage - Chicago and Minneapolis companies currently found cabbage to be in abundant supply
Sweet Corn (July-Oct.)	29.5 (5.8)*	2.7	4.8 (.4)**	7.7 (3.7)*	44.7	- Companies in all cities currently purchase locally grown corn - precooling this item is necessary
Cucumbers (July-Oct.)	5.1-5.3	1.15-1.37 (.4)**	1.1-1.4	1.75-1.9	9.1-9.97	- Companies in all cities currently purchase locally grown cucumbers - Some preference for 24-count "super-selects"

* The number in parentheses is the average of 1980-1984 USDA unload quantity. It is included when the USDA unload figure differs significantly from the estimated one.

**The number in parentheses is the 1981 unload quantity. It is included when the USDA unload figure differs significantly from the estimated one.

***Note: There were no significant intra-city differences between retailers and wholesalers.

TABLE 1 (continued)

Produce Item	Chicago	Kansas City	Minneapolis	St. Louis	Total	Comments***
Leaf Lettuce (May-Oct.)	2.7-3.3	.29-.31	.27-.29 (.8)**	1.7-1.8	4.96-5.7	-Chicago and St. Louis companies currently purchased locally grown lettuce, in season -Kansas City and Minneapolis companies expressed strong preference for California grown lettuce
Muskmelon (Cantaloupe) (July-Oct.)	7.2 (38.4)*	2.66	2.7-4.8	3.2 (6.5)*	16.76-17.66	-Most companies in Kansas City, Minneapolis and St. Louis expressed current preference for California grown melons if melons had been precooled -Chicago companies currently purchase some locally grown melons in season, suggested there might be good potential for this item
Green Pepper (July-Oct.)	5.3	.98-1.3	1.7-1.8 (.8)**	1.4-1.5	9.38-9.9	-Some preference for the larger, thick-walled California variety, especially among Kansas City companies -Chicago, Minneapolis and St. Louis companies currently purchase some locally grown peppers in season
Squash (Winter and Summer) (July-Nov.)	3.4-3.5 (1.2)*	.125	1.6-2.1 (.1)**	1.05 (.5)*	6.2-6.8	-Companies in all cities preferred locally grown squash in season
Tomatoes (July-Oct.)	11.7	2.85	4.6	5.8-6.8	24.95-25.95	-Kansas City, Minneapolis, and St. Louis companies expressed strong (some exclusive) preference for California "gas-green" tomatoes -Chicago companies currently purchase locally grown tomatoes, in season
Potatoes (Jan.-Dec.)	55.2-62.0	19.8	12.4-18.5	21.6	109.0-121.9	-Companies in all cities currently purchase some locally grown potatoes, in season -Three companies purchase from re-packers
Watermelon (July-Oct.)	63.2-68.9 (21.4)*	6.0-7.0	31.0-52.0 (0.2)**	27.6 (8.7)*	127.8-155.5	-Companies in all cities currently purchase locally grown watermelon, in season

Tomatoes: Buyers in St. Louis, Kansas City and Minneapolis preferred California gassed-green tomatoes, which were significantly less susceptible to bruising and handling injury because of their thick skins.

Muskmelons: Although the majority of buyers now buy California precooled cantaloupe, many expressed interest in a locally grown melon providing it would be precooled and packaged properly (i.e., no field bins).

Based upon the results of this study the following Iowa-grown produce had good market potential:

Broccoli: in the Chicago market only, assuming it had been properly precooled.

Green Beans: especially hand-picked, for the Chicago market.

Muskmelon: in all markets, assuming that it had been properly precooled and packaged.

Tomatoes: vine-ripened, in the Chicago market only.

Apples: perhaps a "midwest" variety.

There were five items in which our survey volume estimates differed significantly from USDA unload figures (i.e., USDA quantities were more were more than double or less than half of ours). Four of the five items (green beans, sweet corn, squash and watermelon) might at first appear to have been over-estimated by our survey. However, these were the four items retail stores most likely relied upon local farmers for supplies. In such cases, the reported USDA quantities would likely underestimate actual consumption since the produce supplied in this manner may not be counted by

the USDA. For this reason, our study's estimates of these quantities may in fact be a better reflection of the actual level of demand.

In muskmelon, the apparent underestimate on the part of this survey can most likely be explained by the imprecise use of the terms muskmelon and cantaloupe. For some, the terms were synonymous, for others there was a clear distinction between the two (cantaloupe referring to the smaller West-Coast melon, muskmelon referring to the larger and sweeter Midwest melon). Those that made the distinction demand small quantities of muskmelon because they believe the midwest variety has an inherently shorter shelf-life. According to horticulture specialists, however, the shelf-life of either melon is primarily determined by whether or not the melon has been properly precooled. In the survey we requested estimates of the demand for muskmelon while the USDA figures reported the demand for cantaloupe. Because some buyers specifically made a distinction between muskmelon and cantaloupe while others did not, the quantities reported are probably greater than midwest muskmelon demand and smaller than both midwest muskmelon plus cantaloupe demand.

IV. Market Requirements

The fresh fruit and vegetable distribution system is a complex one involving many people, spanning most of the United States and moving literally tons of fresh produce daily. Although each agent or company has its preferred method of conducting business, the general characteristics of the system can be best described by the following typical sequence of events.

A buyer in search of a given amount of a fruit or vegetable would contact an agent and submit an order. The agent is usually the grower (or someone representing the grower, particularly for orders of large volume). When dealing with smaller quantities and/or specialty items, companies tend to channel their requests through a broker. Depending on the season of the year, the supply area may be limited to as few as two or three states because only a portion of the growing areas harvest their crop at any given time. The choice of supplier is largely determined by reputation (consistency and quality of supply), assuming a near-competitive price for the produce.

The purchase agreement takes the form of a verbal commitment between the buyer and seller to buy/sell a certain quantity of a given grade, i.e., 100 thirty-pound cartons of USDA #1 tomatoes. The responsibility of transporting the produce is built into the verbal agreement, with the price quoted being adjusted accordingly. The produce, almost exclusively carried by truck, would be delivered to the purchaser's central distribution center. Upon arrival, it would be inspected to assure that the shipment met the quality standards specified in the contract. If the quality appeared questionable, a USDA inspection may be requested; should the USDA representative determine that the produce did meet the grade requirements the purchaser is then obligated to accept the shipment. Otherwise, if the produce failed to meet these grade requirements, the buyer would no longer be under any contractual obligation and may choose either to refuse to accept the shipment or attempt to renegotiate its price. Once a satisfactory shipment had arrived in the warehouse it would then be redirected to the local retail outlets. The time

transpiring from harvest to consumer purchase in the store is typically 4-7 days, depending on geographical distance between the two parties.⁸

The picture-perfect produce found in many of the local retail outlets leads one to suspect that top-quality standards are the norm in this industry. The survey results confirm this suspicion. The market for fresh produce is a very competitive one. Suppliers are expected to provide consistent top-grade quality produce in standard industry packages, with the more perishable items properly precooled. Although USDA grades are quoted in the contracts, many industry respondents stressed that the grade requirements are best considered as the minimum acceptable quality restrictions, in two ways. First, purchasers would like to get the best quality for their money; when faced with a choice between two shipments of USDA grade 'X' produce, buyers will choose the shipment that is of the superior quality. Second, many of those interviewed expressed a preference for better-than-average appearance, uniform size and lack of decay on the premium grade produce. For example, although the USDA premium grade may stipulate no more than five percent decay on a given item, there might exist a strong industry preference for, say, no more than two to three percent decay. To this end, better-than-USDA-premium-grade state grades have found a niche. The best example of this is the Washington extra-fancy apple.

Another aspect of this top-quality preference is apparent in the industry's packaging requirements. All produce is expected to be packaged in standard industry containers. Field bins and bushel baskets are awkward to handle and are, therefore, not considered as viable packaging alternatives by most of the larger companies in the industry.

⁸ For retail chains, this was not the exclusive method of procuring fresh produce. Some retail outlets purchased from local growers directly, bypassing the corporate buying office. In such cases, the time spent before the produce reached the consumer was much less.

Typical practices and preferences in the actual produce procurement process include both retail and wholesale companies buying primarily from the grower/shipper, with the terminal market and wholesalers only used by the retailers in the instances where they are required to cover shortfalls. The primary sources of supply are determined on the basis of established reputation, either by the 'red-book' recommendation,⁹ or previous dealings with a known supplier. Although there exists a strong loyalty to current suppliers, especially on the part of the retailers, the buyers who were interviewed generally were not averse to trying a new supplier. However, the requirements for continuing and new, potentially major suppliers are strict. Most retailers required their primary suppliers to have consistent top-quality produce available for them; if they weren't able to supply them on a regular basis, the buyers needed at least a reasonable volume, 2-4 weeks advance notice and a competitive price before they would be willing to include them among their longer-term primary suppliers.

This is not to suggest, however, that there is not room in this market for smaller growers with a shorter term supply. While this commitment is strongly preferred by retailers dealing with major suppliers on high volume orders, most indicated a significantly greater degree of flexibility when dealing with local growers on the smaller volume orders. In these situations there were no strict minimum requirements for either quantities or lead time in the notice of produce availability. One to three days notice of an available shipment was sufficient in most cases. The quantities required were determined by consumer demand for a given item.

⁹ The "red-book" is The Packer's Red Book.

Wholesalers in all cities had this more immediate focus. They too only required that quality be comparable to that which was currently available, at a competitive price, without the necessity of any longer term commitment. In general both quality standards and business procedures were essentially the same across metropolitan areas.

V. Conclusion

A substantial demand for fresh produce exists in these four midwest cities neighboring Iowa, a demand which Iowa growers could fulfill at least in part. But new suppliers (such as Iowa farmers), wishing to break into this market must meet (or exceed) the professional standards of the industry already in effect.¹⁰ With an eye on establishing Iowa as a major competitor in the supply of fresh produce, the most promising method by which one might achieve the requisite degree of professionalism, as suggested by some of those in the industry, is to separate the production, cooling, grading, packaging, and marketing, allowing each operation to be performed by a specialist. To this end, a grower cooperative arrangement might prove most effective. The idea of a set-up in which growers could pool their shipments has added appeal when considering that it would give smaller enterprises a chance to enter the industry--a chance that they might otherwise not have given the substantial start-up costs associated with the commercial production and marketing of fresh fruit and vegetables.

Market shares on a day to day basis appeared to be determined primarily

¹⁰ It is interesting to note the results of an earlier (1979) survey conducted in Des Moines, Iowa at the level of the individual retail outlets' produce buying level. Produce managers appeared, on the whole, even more receptive to locally grown produce without the strict quality and delivery controls observed at the corporate level. For further information see Peter Calkins' paper, "Expanding Production and Direct Marketing of Fruit and Vegetables in Iowa," unpublished manuscript, Department of Economics, Iowa State University (1979).

by availability. Given comparable quality, the lower priced produce will move the quickest. In the long term, per unit costs of production will be key in determining Iowa's competitive position and the size of the long run potential market shares. However, a word of caution is in order. Given that consistent top quality produce and adequate quantities are generally available in these metropolitan areas during the Iowa growing season, effective merchandising will be essential for Iowa's growers to enter and remain in these markets. Even then, it would be wrong to assume that Iowa could go so far as to capture one hundred percent of the market during any period of time. To reduce the risk of nondelivery (due to weather problems, etc.) and maintain good business relationships with alternative suppliers, buyers in this industry will always maintain some degree of supplier diversification.

Further considerations that remain to be investigated include the cost and availability of transportation. Specifically, are there enough trucks available in Iowa during harvest season to haul it? What is the likely availability of a processing industry, since the yield marketable as fresh produce is significantly less than the yield of all edible produce. Growers may be able to further improve and stabilize their per acre profit if there exists an accessible processing plant at which to sell their off-grade produce.

For Iowa to capture a portion of the summer commercial fresh produce market in nearby large metropolitan areas, significant amounts of planning, investment and marketing are required to significantly increase fresh fruit and vegetable production successfully. Expansion into markets beyond Iowa's borders is feasible if product quality meets or exceeds that of competitors, and Iowa producers can compete effectively on price.

APPENDIX A

Retailer/Wholesaler/Institutional Buyer Survey

Contact Person _____
Firm Name _____ Date _____
Street _____ Town _____
State _____ Zip Code _____ Interviewer _____

1. How frequently are deliveries received?
a) daily b) weekly c) twice per week d) bi-weekly e) monthly
f) other, specify _____
2. What is the minimum acceptable quantity from a single provider per delivery? _____
3. What are your sizing and grade requirements? _____

4. How do you judge quality?
RANK AS FOLLOWS: a) Very Important b) Important c) Not Important
_____ Uniformity of Pack
_____ Appearance
_____ Number of days since harvest
_____ Level of Maturity
_____ USDA grading system
_____ Precooled
_____ Other, specify _____
_____ Other, specify _____
5. What are your packaging requirements?
6. What is the minimum acceptable notice requirement for produce availability? _____

7. From whom do you buy?

% _____ Direct from grower
_____ from local wholesaler
_____ from terminal market
_____ broker
_____ other, specify _____

8. How do you determine from which source to buy produce?

RANK AS FOLLOWS: a) very important b) important c) not very important.

_____ Reputation of grower/wholesaler
_____ Field visit
_____ Sample brought in by grower
_____ Broker's recommendation
_____ Other, specify _____

9. Are these people to whom you have some loyalty and would only change to different suppliers in case of supply shortfalls? _____

10. What are your requirements for purchasing from a new supplier? (if you don't, why?) _____

11. Do you diversify your supply areas, i.e. buy from several areas in order to limit the possibilities of non-delivery? _____. If so, how much do you buy from any one area and does it vary? _____

12. Who is responsible for produce delivery?

% _____ Grower

_____ Broker

_____ Buyer

_____ Other, specify _____

13. How is this produce transported? % Air _____ % Rail _____ % Truck _____

% Split-load _____ % Mixed load _____

14. Is there produce which you have difficulty obtaining, excluding seasonal reasons? _____

15. Do you use written purchase agreements/contracts?

NO YES, specify % of time utilized _____

Are they produce specific? If so, list crops _____

16. What are the quantities purchased? _____ per day? _____ per week?

_____ per month? _____ per year? (Ranges are acceptable)

Please include major supply areas during Iowa's season (June - Oct. 1)

Also include any special comments about the produce, i.e., how well the local growers are meeting seasonal demand.

Apples	Snap Beans
Broccoli	Cabbage
Sweet Corn	Cucumbers
Leaf Lettuce	Muskmelon
Green Peppers	Winter Squash
Summer Squash	Tomatoes
Watermelon	Potatoes