

Fresh food vending trends and practices

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Fresh food vending represents \$1.5 billion in sales each year in the United States. The implications for a better understanding of fresh food vending are significant in terms of profitability and improved market share for vending operators. Of equal importance is a better understanding of the significance of the route driver on the overall fresh food vending operation. Developing a better understanding of this area of the food service industry will help vending operators increase profits and provide better product choices to consumers.

The 2003 “Automatic Merchandiser State of the Vending Industry” study reports sales from vending in the United States to be \$23.12 billion. Of this total, vended fresh food represents \$1.5 billion, or about 6.5 percent of all vending sales.¹ If coffee services, manual food services and cigarette sales are eliminated from the sales, fresh food vending then represents \$1.5 billion out of a total of \$15.63 billion in sales, or 9.6 percent of all vended sales.

The National Restaurant Association (NRA) and the National Automatic Merchandising Association (NAMA) both have recognized that offering healthy food choices must be a priority for operators who provide food whether served at a table or through a vending machine.² In 2004, NAMA announced a major public education campaign called “Balance for Life,” which will educate and inform the users of vending services that the answer to obesity issues is for consumers to make healthy choices and for operators to offer more healthy choices.³

At the center of this debate in the vending industry is the market for vended fresh foods. Some believe that the public needs to be provided with more choices when it comes to fresh foods; however, the reality in the vending industry is that fresh food sales declined by 2.6 percent from 2001 to 2002.⁴ Much of the decline can be attributed to the overall decline in vended products; however, vending operators continue to look at vending of fresh foods as a

means to gain a competitive advantage. Many operators are very proud and enthusiastic about fresh food offerings, while others prefer to focus on other product categories. The time is right for further investigation into fresh food vending.

Operator's view explored

This study was undertaken to examine fresh food vending from the operator's perspective. The goals of the research were to explore the types of foods being offered, the preparation of those foods, the use of branded products, prices, ordering and stocking procedures, promotions, and safe food handling policies. From December 2003 to January 2004, the Technical Services Department of NAMA and the School of Hospitality Business at Michigan State University conducted a fresh food vending survey designed to obtain preliminary results, in terms of baseline data, from operators of vending commissary operations. The intent was to establish this baseline with vending commissary operations in 2004 so that trends in subsequent years could be tracked.

History dates to 1888

While Thomas Adams' installation of a coin operated gum dispenser in 1888 New York City can be considered the beginning of the vending industry in the United States, it was the invention of the

automat in 1902 and, more directly, the first refrigerated sandwich vending machine in 1950 that introduced the concept of fresh food vending to the public.⁵

The 2003 "Automatic Merchandiser State of the Vending Industry Report" defines the industry's product mix categories as cold beverages (27.6 percent); candy, snacks, and confections (23.0 percent); manual food service (27.8 percent); vended food (6.5 percent); hot beverages (5.1 percent); office coffee service (4.0 percent); milk (0.9 percent); ice cream (1.1 percent); cigarettes (0.6 percent), and other, which includes bottled water, sundries, games, and music (3.3 percent). The vended food market category mix includes fresh prepared foods (51.4 percent), frozen prepared foods (43.0 percent), shelf stable foods (5.1 percent), and other food system products (0.5 percent).⁶

Food products can be offered to the consumer in a variety of automatic merchandising methods including refrigerated machines, freezer-type machines, heated machines, ambient temperature machines, and food system machines (like French fry, pizza, or popcorn machines). Refrigerated food machines are the most popular, with over 77.2 percent, while frozen food machines account for about 20.6 percent of the mix, and the other types all account for less than 1 percent of the overall total.⁷

The common feeling among many vending operators is that consumers are unlikely to spend more than \$5 in a vending machine for food. This places pressure on vending operators to keep the price of vended food low enough to allow for other selections such as beverages and side items or snacks. Most operators concede that \$2.50 is the maximum amount that can be charged for a vended food item, with the most common range between \$2 and \$2.25.⁸ A 2002 survey of vending operators reported average vended food prices of \$1.80 for fresh prepared food, \$1.64 for frozen prepared foods, and \$1.42 for shelf stable foods.⁹

Vended trends evolving

The most popular trend in fresh food vending is the use of branded food items, which help the operator sell more vended fresh foods due to the increased credibility the brand gives to the product in the mind of the consumer. There is also the possibility that consumers will be more likely to pay a little more for branded items than for generic items, although the higher product cost may cut into the operators' profits.¹⁰ In addition to branded food items, consumers are also following trends seen in the restaurant industry with preferences toward more ethnic foods and healthier food choices. Some

vending operators have begun to specialize in Hispanic and Asian food items, while others are trying to capitalize on the low-carb and Atkins diet trend with low carb and Atkins-friendly vended foods.¹¹

Fresh food is primarily vended in manufacturing industry facilities and business and office buildings, with lower availability in hospital facilities and on college and university campuses, particularly commuter campuses.¹² Because of the high cost of operating fresh food machines, the number of machines available in the market has fallen in the past several years; however, it is possible that newer machines are replacing older machines in more targeted locations.¹³

Food safety is concern

A concern with fresh food vending is the need and responsibility for food safety and sanitation. There have been efforts toward educating route drivers and commissary workers on the need for safe food handling procedures. NAMA has developed a training video called "Transporting Perishable Food: Guidelines for Route Drivers" that was specifically developed to inform the drivers of the important role they play in delivery of safe foods to the vending machines.¹⁴ Different states have varying policies on how vended foods are regulated. For some states

the local health department is the agency in charge of facility and machine inspections, while in others it may be the state agriculture department.

Another issue is the application of Hazard Analysis Critical Control Points (HACCP) procedures as set forth by the Food and Drug Administration in the Model Food Code.¹⁵ HACCP has become a part of the standard operating procedure for most food manufacturers and suppliers and is being implemented in the retail food service industry. However, HACCP's application to the vending industry has not been fully embraced by the industry. NAMA has been proactive in educating vending industry operators about the importance of food safety and HACCP; however, as noted by L. Eils in a May 2004 article, the last line of defense is the route drivers.¹⁶ Indications are that few of these people are certified in safe food handling, indicating more education and follow up needs to be done on the issue.

Survey is first of kind

The survey was mailed to 287 commissary operations, all members of NAMA; 40 surveys were returned, representing 14 percent of the original mailing. Respondents reported the number of fresh food products offered ranged from five to

400 items, with an average of 128. Frozen products offered ranged from one to 200, with an average of 57. When asked how many locations fresh food was vended from, responses ranged from six to 982, with an average of 188. There was more than one machine reported at 259 of the locations.

Companies responding reported they had between 11 and 1,900 accounts, with an average of 411. With an average of 188 locations for 411 accounts, that amounts to about 46 percent of all reported companies with fresh food vending locations. The total number of vending machines reported was between 48 and 9,000 with an average of 2,077. On average, 259 of these machines were reported to be cold machines (12.5 percent); an average of 41 machines were reported as frozen product machines (1.97 percent), and a total of 21 hot-choice machines were reported in use by respondents (1.01 percent).

Respondents reported yearly vending sales averaging \$12.2 million, with a range from \$850,000 to \$54 million. Total yearly sales of fresh foods ranged from \$85,000 to \$5 million with an average of \$185,185.

Survey reveals issues

When asked who prepared the fresh food, 80 percent of respondents

indicated that preparation took place in their own commissary, while 20 percent said that the fresh food was prepared by a third party. Respondents were asked which fresh foods they sold in their vending machines. Table 1 indicates that of the seven categories indicated, the fresh foods vended were fairly evenly mixed. Sandwiches topped the list at 17 percent, followed by salads at 16 percent, and entrees at 15 percent. Both desserts and fruits were tied for fourth, with 14 percent each.

Table 1: Fresh food items vended

Fresh Food	percentage	Rank
Sandwiches	17	1
Salads	16	2
Entrees	15	3
Desserts	14	4
Fruits	14	4
Soups	12	6
Vegetables	11	7
Other	1	8
Total		100%

Respondents were asked if they use pre-cooked products; 93 percent indicated that they did, while 7 percent indicated they did not. Pre-cooked products have built-in labor and require fewer labor dollars in the vending organization.

In terms of branded products, 88 percent indicated that they do use branded products. Most (62 percent) said that they use manufacture — branded products, followed by

self-branded products (25 percent), and restaurant — branded products (13 percent). One might argue that branded products have more name recognition and, therefore, are more likely to be selected from a vending machine when a purchase decision is made relatively quickly.

Table 2: Forecasting fresh food usage

Method	percentage	Rank
Past experience	31	1
Changes in customer's business	19	2
Weather	16	3
Computer forecasting	14	4
Future trends	9	5
Gut feeling	6	6
Other (individualized expiration dates)	5	7
Total		100%

Clearly, the top-ranked method of forecasting fresh food usage is past experience. (See Table 2). It is therefore essential that accurate records are kept, including both popularity and shelf life of these fresh products. The second-ranked method was changes in the customer's business. If this is to be an accurate way to forecast fresh food usage, it is critical for the vending organization to clearly understand their customer's business cycles and trends. The responsibility for machine-level ordering is presented in Table 3.

Table 3: Machine-level ordering

Responsibility	percentage	Rank
Route driver	54	1
Commissary manager	20	2
Driver's supervisor	14	3
Computer program (based on usage)	12	4
Total		100%

More than half the survey respondents rely on the route driver to do machine-level ordering. This leads to the question: How well are these drivers trained to effectively order? An additional question when it comes to fresh foods is: How well do route drivers practice safe food handling after this training? Fresh foods are different from shelf-stable vended foods (e.g., snacks, soda pop) in that they must be carefully controlled when it comes to time in the temperature danger zone (41°F to 140°F).

In a follow-up question about food safety, 80 percent responded that "their personnel are certified in food safety." What about the remaining 20 percent, and, specifically, the route drivers?

Ninety-five percent of respondents said they have a defined policy for the length of time that a fresh product remains in vending machines. (See Table 4).

While the FDA Food Code suggests a four-day shelf life for fresh foods properly stored, only 82 percent of the respondents responded that they

Table 4: Number of days before fresh foods are removed

Number of days	percentage	Rank
1	21	1
2	21	1
3	21	1
4	19	4
5	10	5
Other	8	6
Total		100%

follow the code's requirements.¹⁷ While 63 percent of the fresh food is removed within three days, 18 percent remains in the vending machines for five or more days. Perhaps this could be improved with food safety training, specifically for route drivers.

When asked what percentage of the overall vending revenue comes from fresh food, 65 percent said it was 10 percent or less. In fact, when one studies the responses, for 92 percent of the respondents, 20 percent of overall vending revenue comes from fresh foods. As a follow up, respondents were asked what their single greatest problem was related to fresh food. The top-ranked response was leftovers/waste (58 percent), followed by expense (39 percent). Together these two total 97 percent. The remaining 3 percent of problems were attributed to handling of food. It is interesting to note that, even though three other possible problems were listed (i.e., lack of customer demand, lack of adequate facilities, and lack of

adequate machines), none of these were chosen by any of the 40 respondents.

Interesting food mix found

Given that the sample surveyed was primarily commissary operators, it was not surprising that the overwhelming majority of respondents prepared their own fresh food items for vending. The mix of food items was somewhat surprising because of the almost equal mix of sandwiches, salads, entrees, fruit, and desserts. Anecdotal evidence collected from operators indicated that sandwiches would be the clear leader of choice in fresh food vending. The equal mix could be an indication of more interest in healthy choice options being provided by operators as a reflection of changing consumer choices.

Some results were worth noting, however, including the response regarding the use of branded products. A survey of operators in December 2000 reported only about 20 percent of respondents thought branded food items were important in fresh food vending.¹⁸ This survey revealed that 88 percent of respondents indicated they use branded products. This may represent a direct reversal of thought and practice in fewer than four years.

Route drivers are key

Likely the most important observation to come from this study

was the importance of the route driver's responsibilities in the fresh food vending operations. According to the majority of operators, the route driver is responsible for machine level ordering. Because of this, the driver can be considered the "sole proprietor" of the vending machine, and as such is in charge of fresh food rotation and for the safe handling of the food products. This is an important fact since the majority of operators reported waste and leftover food as their greatest problem related to fresh food vending.

The findings of the pilot study established the baseline data covering fresh food vending. The researchers intend to survey commissary operators again in late 2005/early 2006 and compare the results. In addition, plans are underway to conduct a pilot study of consumers of fresh vended food products. There will be some comparative results that can be evaluated from both the standpoint of the commissary operators and the consumers.

Future research is needed

This study indicates the need for further research in three key areas. First, what are the reasons for and implications of the changing product mix in fresh food sales. Of interest is whether the changes are related to the consumer's changing preferences or choices driven by the operator's forecasting decisions.

A second area of future research is the increased interest in the use of branded products. Operators should investigate this change further to ascertain the reasons for the change in attitudes. Branding is an important trend to follow because of the impact it will have on the preparation of fresh foods in commissaries. If this is an expanding trend, then fresh food preparation could be reduced substantially in the future.

The third area of future concern is the role of the route driver in fresh food vending. There is a need to look at what the type of training that these drivers receive. Of interest should be the best practices and opportunities for training in areas such as ordering and marketing, as well as the use of the available materials on safe food handling procedures. Of additional interest is the impact of route driver training and continuing education on the profitability of fresh food vending.

As stated earlier, fresh food vending represents \$1.5 billion in sales per year in the United States.¹⁹ Assuming an average vending transaction of \$2.50, that translates into about 600 million products sold through vending each year. The implications for a better understanding of fresh food vending are significant in terms of profitability and improved market share for vending operators. Of equal importance is a better understanding of the significance of the route driver

on the overall fresh food vending operation. Developing a better understanding of this area of the food service industry will help vending operators increase profits and provide better product choices to consumers.

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