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Solid Waste Disposal: Independent Food Service Practices

Abstract

Solid waste disposal is a major concern today. This study seeks to identify the current practices and attitudes of managers of independent food services toward solid waste management and the characteristics of food services which were most likely to be involved with a solid waste management program

Keywords

Waste, Food Service, Food Safety

Solid Waste Disposal: Independent Food Service Practices

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Solid waste disposal is a major concern today. This study seeks to identify the current practices and attitudes of managers of independent food services toward solid waste management and the characteristics of food services which were most likely to be involved with a solid waste management program.

Solid waste disposal is clearly an issue of great concern in the 1990s.¹ When asked to rank the most serious of 10 environmental problems, public and private decision-makers, in a nationwide survey, said that solid waste disposal was the most important.² The United States has become one of the leading waste-producing countries in the world, generating 160 million tons of municipal solid waste annually, about 80 percent of which is dumped into a shrinking pool of sanitary landfills.³

Studies conducted by the EPA show that nearly one-third of existing solid waste landfills will reach maximum capacity in the next three to five years.⁴ Many state and local governments have been active in proposing and enacting laws to address their own solid waste problems. The National Restaurant Association (NRA) reports there are four basic types of solid waste legislation prevalent on the state and local levels: bans on specific types of materials which impact the volume of solid waste, taxes on packaging, tipping fees, and mandatory participation in recycling.⁵ The NRA believes that the ideal legislation would be one which integrates all types of solid waste management to establish a comprehensive plan that best handles waste.⁶

Many consumers mistakenly believe that the fast-food segment of the food service industry is responsible for as much as half of the total of municipal solid waste. Consumers also incorrectly assume that polystyrene foam containers are poisoning the environment.⁷ Highly visible packaging logos make this segment of the food service industry an easy target for recycling legislation.⁸ Studies have found, however, that only about a tenth of 1 percent of a landfill's contents by weight consists of fast-food packaging.⁹ Moreover, much food packaging is now made of lighter weight material and is capable of being compressed and recycled.¹⁰

Food Services Search for Solutions

The NRA has encouraged its members to be in the forefront of solving the problem — to take the lead in helping their communities address the solid waste problem.¹¹ In a 1989 study of chain restaurants, 90 percent of the respondents reported they had worked with suppliers to revise packaging, and 76 percent had revised takeout packaging.¹²

Other researchers report that food services and restaurants are taking an active role in protecting the environment.¹³ While there appears to be no quick fix solutions on the solid waste crisis, most experts agree that the three "R" formula of Reducing, Reusing, and Recycling is the best approach to manage solid waste.¹⁴

Many restaurant companies have been and are continuing to be involved in finding solutions for the solid waste problem. McDonald's Corporation has announced a series of 42 initiatives aimed at cutting the huge waste stream at its 11,000 restaurants by more than 80 percent within a few years.¹⁵ These strategies include a program exploring how to reduce packaging, recycle polystyrene packaging and corrugated shipping containers, and incorporate the use of reusable utensils and cups into the McDonald's system.¹⁶

Kentucky Fried Chicken (KFC) has started to reduce the quantity of its waste stream by replacing paperboard or foam packaging for sandwich products with foil wrap which consumes much less space in landfills.¹⁷ The corporation also joined with a recycling company to test recycling and composting options. For example, KFC napkins are made from recycled paper and the percentage of recycled material in their other paper products has been increased.

Other food service companies are also becoming involved with a solid waste management program. Burger King has begun a recycling program at 56 of its Chicago area restaurants. Wendy's has announced a switch from foam sandwich containers to biodegradable paper. Dairy Queen has field tested polystyrene recycling at several stores in New Jersey.¹⁸ The Subway sandwich chain, based in Milford, Connecticut, began a source-reduction program by refolding large-order carryout containers and working on a discounting promotion to encourage customers to bring trays back in for additional uses.¹⁹

The above examples indicate the type of solid waste management programs begun by corporate food service companies. Very few research reports, though, describe what programs are being implemented by smaller independent food services.

Independent Food Service Managers Are Contacted

This study sought to ascertain the attitudes of food service operators toward the solid waste crisis and to determine what independent food service operations were currently doing to manage their solid waste. In addition, the study sought to identify the characteristics of independent food services which were most likely to be involved with programs aimed at reducing, reusing, and recycling solid waste.

Table 1
Age Groups of Respondents

Age	Frequency	Percent
20 - 29 years	7	5.5
30 - 39 years	29	22.8
40 - 49 years	50	39.4
50 - 59 years	29	22.8
Above 60 years	12	9.4
n=127		

This research study focused on Indiana food service managers who were members of the Indiana Restaurant Association (IRA) and the Hoosier Backroads Restaurant group. The data were collected from a survey done in April and May of 1991. Research was funded through a grant by Consumer Family Science and Agriculture Extension Service (CES/AES).

Respondents were asked for information about themselves (age, gender, education) and their food service (business type, average daily customer count, weekly volume of generated solid waste, monthly cost of hauling solid waste); information about their current waste management practices; and their awareness of and attitudes toward waste management issues. The survey instrument was peer reviewed by independent restaurant operators based in Lafayette, Indiana. A follow-up postcard was sent two weeks after the initial mailing. Data were analyzed using analysis of variance (ANOVA) and the Waller-Duncan Mean Difference Test.

Of the 520 questionnaires mailed, 130 were completed and returned for a response rate of 23.2 percent. The majority of respondents (74.8 percent) identified themselves as a manager or owner/operator of one independent food service unit; 11 percent indicated they were a manager or owner/operator of a food service company which operated more than one independent unit. The remainder indicated they managed or operated a franchise food service unit.

As seen in Table 1, 39.4 percent of the respondents were between 40-49 years; 80 percent were male and 20 percent were female. The majority of the managers had some education beyond high school; 53 percent held a bachelor's degree or higher, while 24.4 percent reported having some college education.

Over one-fourth of the respondents, when asked to identify their type of business, categorized their food service as a family dining operation (Table 2). Sixteen percent said they were a fine dining food service type and 20 percent indicated that their business was in more than one type of the listed categories.

Table 2
Type of Business of the Respondents

Type of Business	Frequency	Percent
Family dining	36	27.9
Fine dining	21	16.3
Casual/theme	11	11.5
Fast food/carry-out	10	7.8
Cafeteria/buffet	4	3.1
Pizza/Italian	3	2.3
Coffee shop/diner	2	1.6
Deli/sandwich	1	0.8
Oriental	1	0.8
Other	15	11.6
More than one type	25	19.4
n=129		

Nearly one-fourth of the respondents (23.8 percent), reported a daily customer count from 100 to 199. Twenty percent reported an average daily customer count of from 200 to 299; 14.8 percent reported a customer count of 300-399, and 16.4 percent reported over 700.

Of the 69 respondents who indicated the weekly amount of solid waste, 23.2 percent reported they generated 12 cubic yards; 18.8 percent, 24 cubic yards; 14.5 percent, 18 cubic yards; and 11.6 percent generated four cubic yards. Two-thirds of the respondents spent under \$200 for trash hauling per month, while 14.3 percent of respondents reported monthly trash costs above \$400.

Issue Is Very Important

Respondents were asked to indicate the importance of the solid waste management issue by rating it on a 10 point scale (1= not very important to 10= extremely important). Of the 126 respondents, 32.5 percent rated the waste management issue as extremely important ($M=7.75$, $SD=2.31$). Over three-fourths of the respondents rated the waste management issue between 7 to 10 on the scale, and only 8.8 percent of the respondents rated it a value of four or less.

A significant difference was found between males and females on their rating of the importance of the solid waste management. Males rated the issue higher than females [$M=8.92$ vs. $M=7.45$; $F(1, 124)=8.92$, $p<0.01$].

Fifty-one respondents indicated they were currently involved in a recycling program. As seen in Table 3, 45 respondents reported they were currently recycling aluminum cans; 35 reported they were recycling paperboard/cardboard, and 24 were involved in a

Table 3
Currently Recycling and Willing to Recycle

	Currently Recycling		Willing To Recycle	
	n	%	n	%
Aluminum cans	45	35.4	93	73.2
Paperboard/cardboard	35	27.6	100	78.8
Glass	24	18.3	89	70.1
Paper	19	15.1	75	59.5
Rigid plastic	13	10.2	74	58.2
Foam plastic	1	0.8	48	8.9

glass recycling program. Only one respondent was currently recycling foam plastic.

Respondents who indicated they were currently not involved in a recycling program were asked if they would be willing to recycle and when they would be willing to begin. While 19 respondents stated they did not plan to begin a recycling program, 100 respondents (n=127) indicated a willingness to recycle paperboard/ cardboard; 93 were willing to recycle aluminum cans, and 89 indicated they would be willing to recycle glass. While rigid plastic and foam plastic were the two materials that few respondents were currently recycling, 74 indicated a willingness to begin a recycling program for rigid plastic, and 48 were willing to participate in a foam plastic recycling program.

Of the respondents stating they would be willing to begin a recycling program, 15 indicated they planned to begin one in the next six months, 23 in the next 1 to 2 years, and eight within the next 3 to 5 years.

Managers of operations with small daily customer counts were more willing to participate in a glass recycling program than managers with higher daily customer counts. This difference was significant between food services with a daily customer count of 200 or less and food services with more than 200 customers per day [$F(4,80)=2.72$, $p<0.05$].

Respondents Willing to Participate in Activities

Respondents were asked to indicate their willingness to reduce their use of a solid waste material or substitute a reusable material for a disposable one. As seen in Table 4, respondents were most willing to restrict their use of plastic tableware for carry-out customers only, purchase products produced from recycled materials, and request that their name be removed from direct mailing lists. Respondents were less willing to replace paper napkins with cloth napkins.

Table 4
Willingness to Begin Waste Management Activities

Activities	M	SD	n
Use plastic tableware -	6.43	1.29	107
plastic/paper containers -	6.07	1.43	116
for carry-out only			
Purchase products produced			
from recycled material	6.41	1.22	123
Ask to be removed from			
direct mail lists	6.26	1.34	119
Use white instead of			
colored paper	6.15	1.47	115
Save cardboard boxes			
for reuse	5.70	1.89	120
Use bagged milk instead of			
individual cartons	5.18	2.08	108
Eliminate use of			
styrofoam product	4.94	1.98	108
Use reusable carbonated			
beverage containers	4.93	2.26	87
Use cloth napkins			
instead of paper	3.90	2.44	111
Note: Mean score is based on 7 point scale (1=not willing at all to 7 = very willing)			

Respondents were asked the percent increase in menu prices the food service manager believed his or her customers would be willing to accept to help cover the costs of participating in a waste management program. Thirty-one percent of the respondents indicated they believed their customers would be willing to accept a 1 percent increase; 20 percent believed a 2 percent increase would be acceptable, and 29 percent responded that their customers would accept an increase of 3 percent or more. Twenty percent of the respondents stated they believed that their customers would not accept any menu increase.

Respondents were also asked what percentage increase of their operating costs they would be willing to contribute to cover the costs of participating in a waste management program. A majority of managers (68.8 percent) were willing to accept some increase in operating costs. When asked to stipulate what percent of operating cost was acceptable, 53 percent indicated an increase of 1 percent or 2 percent was acceptable; 16 percent indicated that an increase of 3 percent or higher would be acceptable.

Most Would Attend a Workshop

The majority of respondents (88 percent) reported they had not attended a workshop on waste management; 64 percent indicated an interest doing so.

The results of this study indicate that the majority of independent food service managers feel the waste management issue is an important one. This is probably because of growing environmental concerns in the communities in which they live, especially with regard to the disposal of solid waste.²⁰

When food service managers were asked to indicate the type of material they were currently recycling, aluminum cans had the highest recycling rate of all solid waste materials, followed by paperboard/cardboard. When asked which material they were more willing to begin recycling, a majority indicated paperboard/cardboard, followed by aluminum cans. It is possible that the food service managers in this study felt that recycling aluminum cans, paperboard, and cardboard was most convenient and profitable for their operations. Moreover, at the time of this study, for this geographical region, recycling companies were most willing to collect these products and to reprocess them for other uses.

Another interesting relationship was the managers' willingness to recycle glass with the daily customer count. The higher the daily customer count, the less willing managers were to recycle glass. As recycling glass is not as profitable as aluminum cans, managers of larger food services may choose to focus on more profitable activities; this may also reflect the type of materials that these food services use.

Money Determines Recycling Efforts

Foam plastic was found to be recycled by only one food service manager; however, 49 indicated they would be willing to begin recycling it. Some managers may view recycling foam plastic as time or cost consuming. Also, some industries are reluctant to collect the foam plastic for recycling because of low profit. Rathje observed that the only factor to drive a systematic recycling effort was money.²¹ It could be assumed that money is the reason why waste disposal companies handle some types of solid waste and not others. It may also be an explanation why more food service managers in this study are

currently recycling aluminum cans than any other material. As more recycling companies expand their services and seek food service companies as customers, participation in broader recycling programs could increase.

It was interesting to note that a significant relationship was found between the importance of rating the waste management issue and gender. This rating pointed toward a possible disparity of view between male and female managers concerning the waste management issue. A possible reason that male managers in this study rated the waste management issue as one of greater concern than their female counterparts could be because males might be in higher management positions than females. It is also possible that the sample utilized may be biased toward a type of food service with a higher percentage of male managers. Further study is needed to determine the relationship between gender and the assigned importance of solid waste management.

This study had two limitations which might lessen its findings as a measure of the practices and attitudes of managers of independent food service toward waste management issues. One was the low response rate (23.2 percent). Though the managers who responded were fairly diverse, it is possible that the low return rate may have resulted in a sample bias. Future studies may wish to use alternate sampling methods to increase the response rate.

Second, the study used a name pool provided by the Indiana Restaurant Association. It is possible that there thus may be a regional bias which may have resulted in responses that may only impact attitudes in this region. Given the growing concern for solid waste management nationally, it is possible that the attitudes and practices reflected in this study closely parallel those in other regions of America. Future studies may wish to obtain a more geographically diverse sample.

References

¹P. Frumkin, "Solid Waste: Problems Keep Piling Up," *Restaurant Business*, (December 1988), p. 78.

²J. Ward, "Environment Ranks as Fourth in National Survey," *American City and County*, (July 1990), p. 24.

³J. Stuller, "The Politics of Packaging," *Across the Board*, (January/February 1990), p. 41.

⁴J. Quarrelles, "Building Consensus Ameliorates Siting Problems," *Nation's Cities Weekly*, (April 1990), p. 5.

⁵L. G. Sarasin, "The Politics of Solid Waste," *Frozen Food Report*, (March/April 1990), p. 15.

⁶S. Gordon, "Washington Report: Too Much Trash and No Place To Go," *Restaurant USA*, (August 1988), p. 8.

⁷P. Frumkin, *op.cit.*

⁸M. Kass, "Waste Crisis," *Restaurant & Institutions*, (August 1988), p. 40.

⁹G. Whithiam, "The Problem is in Your Hands," *Cornell Hotel and Restaurant Administration Quarterly*, (February 1990), p. 104.

- ¹⁰L. G. Sarasin, *op.cit.*, p. 12.
- ¹¹P. Romeo, "Garbage Crisis Threatens to Bury Foodservice," *Nation's Restaurant News*, (November 1989), p. 99.
- ¹²R. Townsend, "Solid-Waste Solutions Aid Operators/Environment," *Restaurant and Institutions*, (January 1990), p. 100.
- ¹³P. King and M.J. Pennacchia, "Foodservice's Fight for the 90's," *Food Management*, (January 1990), p. 108.
- ¹⁴E. Rensi, "McDonald's and the Environment," (Oak Park, IL: McDonald's Corporation, 1990).
- ¹⁵F. Allen, "McDonald's Launches Plan to Cut Waste," *Wall Street Journal* (April 1991), p. B1.
- ¹⁶M. Kass, *op.cit.*, p. 45.
- ¹⁷J.M. Cranor, "KFC's Approach to Solid Waste Management," (Louisville, KY: Kentucky Fried Chicken Public Affairs Department, 1990).
- ¹⁸R. Shaw, "A Lot of Rubbish," *Restaurant Hospitality*, (March 1990), p. 146.
- ¹⁹R. Townsend, *op.cit.*, p. 40.
- ²⁰E. Gordon, "Industry Operations," *Restaurant USA*, (December 1990), p. 21.
- ²¹W. L. Rathje, "Rubbish," *The Atlantic Monthly*, (December 1989), p. 105.

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