

## **Food Recovery: A Win-Win Solution for School Foodservice and the Community**

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### **ABSTRACT**

This study investigated current practices for food recovery/donation and identified several resources needed for initiating or improving food recovery programs in school foodservice. The study population was public school foodservice programs located in the U.S. Department of Agriculture (USDA) Mountain-Plains Region that participated in Child Nutrition Programs (CNPs).

A random sample of 887 programs was selected from lists of districts obtained from state directors of CNPs. A survey of school foodservice directors or school food authorities (SFAs) was conducted following Dillman's Tailored Design Method. The response rate was 70.2% for usable questionnaires. Among 623 program respondents, only 37 CNPs (5.9%) participated in food recovery. The CNPs participating in food recovery were most frequently located in metropolitan and urban areas. The annual donation ranged from 5 to 5,000 lbs. of perishable food and from 40 to 100 lbs. of non-perishable food items. Foods were donated most often to food banks and community soup kitchens. The majority (n=23) initiated food recovery programs to reduce the amount of edible food discarded. Transportation and labor were the primary costs associated with the programs.

The school foodservice directors indicated that providing food for the hungry was the most important benefit, and noted that maintaining food safety of the donated food was the greatest challenge. Insufficient quantity of food to donate and lack of information about regulations were reasons identified for not participating in food donation programs. The directors without food recovery programs were interested in obtaining information about state and USDA regulations.

Food recovery is an effective strategy to reduce edible food waste while providing nutritious food to the hungry within a community. The results of this study can be used for developing tools to assist CNPs in implementing food recovery programs.

### **INTRODUCTION**

Despite the rich agricultural production and sound domestic economy of the past decade, hunger has been one of America's most complex health problems (U.S. Department of Agriculture [USDA], 1999a; USDA, Food & Nutrition Service, 1999). While the terms "hunger" and "food insecurity" often are used interchangeably, hunger is defined as "the uneasy or painful sensation caused by a lack of food," and food insecurity refers to "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (American Dietetic Association [ADA], 1998, p. 337). Both food insecurity and hunger are not only moral issues, but also affect the long-term health and well

being of vulnerable groups such as children and older adults (ADA, 1998; USDA, 1999a).

National hunger data in the United States were not available until 1997, when results of the Food Security Supplement Survey conducted by the U.S. Bureau of the Census as a supplement of Current Population Survey in 1995 were released. At that time, 11.9% of U.S. households were classified as food insecure, and 4.1% of U.S. households were food insecure with hunger or severe hunger (Hamilton et al., 1997). Households with children experienced food insecurity twice as often as those without children (Andrews, Nord, Bickel, & Carlson, 1999).

Although hunger exists in the United States, significant amounts of food are wasted in the food chain. USDA's Economic Research Service (ERS) estimated that, in 1995, roughly 96 billion pounds (27%) of edible food available for human consumption in the country were lost by retailers, consumers, and foodservice establishments. Four million people could be fed daily and \$50 million in landfill costs could be saved annually if only 5 percent of that 96 billion pounds were recovered (Kantor, Lipton, Manchester, & Oliveira, 1997).

Kantor et al. (1997) defined food recovery as "the collection, or recovery, of wholesome food from farmers' fields, retail stores, or foodservice establishments for distribution to the poor and hungry." Food recovery includes field gleaning, perishable food rescue or salvage, food rescue, and non-perishable food collection (USDA, 1999a). Public and private agencies have encouraged better use of food supplies by recovering safe and nutritious food that would otherwise be wasted. In 1997, USDA initiated a public and private partnership through the National Summit on Gleaning and Food Recovery, and started a campaign to enhance public awareness and to support private efforts to rescue the wasted food (USDA, 1997). To promote food recovery and gleaning, the Bill Emerson Good Samaritan Food Donation Act became a permanent law within the Child Nutrition Act of 1996. This Act limits the liability of donors to instances of gross negligence or intentional misconduct (USDA & EPA, 1999).

USDA identified schools as good candidates for food recovery, since school foodservice is one of the largest foodservice programs in the United States. School cafeterias often have excess edible food, despite careful planning (USDA, 1999b). As a way to encourage food recovery in school foodservice, USDA funded 12 school districts to assist them in establishing or expanding food recovery programs (USDA, 1998). *Best Practices for Food Recovery and Gleaning* (USDA, 1999b) describes results of these programs and provides models for other schools that want to be involved in food recovery. Mann, Shanklin, and Cross (1994) reported that 1.5% of school foodservice programs saw the act of donating foods to charity organizations as a way of decreasing food waste. To date, no studies have been found in the literature regarding specific food recovery practices and related issues in school foodservice. The objectives of this study were to investigate current food recovery and donation practices in school foodservice and to identify issues for improving or initiating food recovery programs.

## METHODOLOGY

The population for the study was public school districts located in the USDA Mountain-Plains Region that participated in the National School Lunch Program (NSLP). The Mountain-Plains

Region includes Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. The state directors for these child nutrition programs (CNPs) were contacted and asked to provide a list of school districts that participated in the NSLP. To obtain an equal representation, 100 participating school districts were randomly selected from each state, except Utah and Wyoming. All public schools districts participating in the NSLP in Utah and Wyoming were included in the study sample, since these states had fewer than 100 districts. The size of the final sample was 887.

A questionnaire was developed to address the availability of food recovery programs and the food recovery practices used in school foodservice operations. For school districts that did not participate in food recovery, a series of questions addressing factors that discouraged implementation of food recovery and information needed for initiating food recovery were included. Demographic information of the CNPs also was obtained. Ten school foodservice directors from the Midwest tested the content validity of the questionnaire. Based on feedback from these directors, the questionnaire was modified.

The survey was administered following Dillman's Tailored Design Method (2000). Pre-notification postcards that explained the purposes of the study were sent to school foodservice directors or school food authorities (SFAs) of the selected school districts one week before the questionnaires were mailed. Reminder postcards and replacement questionnaires followed questionnaire mailing, and a total of 657 questionnaires were returned. Personalization of correspondence, use of return envelopes with first-class stamps, and multiple contacts appear to have influenced the high response rate. The usable response rate was 70.2% (623) after 34 questionnaires with excessive missing data were excluded. The distribution of questionnaires and responses by state is presented in **Table 1**. Results were summarized using descriptive statistics with Statistical Package for Social Science (Version 10.0, SPSS, Inc., Chicago, IL).

State	Mailed Questionnaires	Returned Questionnaires	Response Rate by State (%)	% Total Responses
Colorado	100	67	67.0	10.8
Iowa	100	75	75.0	12.0
Kansas	100	92	92.0	14.8
Missouri	100	67	67.0	10.8
Montana	100	64	64.0	10.3
Nebraska	100	69	69.0	11.1
North Dakota	100	61	61.0	9.8
South Dakota	100	67	67.0	10.8
Utah <sup>a</sup>	40	31	77.5	5.0
Wyoming <sup>a</sup>	47	30	63.8	4.8

*Note: A total of 623 usable questionnaires were returned out of 887*

*<sup>a</sup>These states had less than 100 districts, so questionnaires were mailed to all of the districts in the states*

## RESULTS AND DISCUSSION

### General Information From Responding Operations

Despite encouragement from USDA, the participation rate in food recovery was low. Among the 623 responding school districts, only 37 (5.9%) reported that their district participated in a food recovery/donation program. The majority of the responding foodservice programs (79%) were located in rural areas. The 24 school districts with specific food recovery programs, however, were located in metropolitan or urban areas with populations of more than 2,500. The majority (82%) of the school districts without food recovery programs were located in rural areas in each state. Between one and six schools donated food, except for Missouri, where no school foodservice program reported donating food. The percentage of schools districts in the Mountain-Plains Region that donated food was higher than what Mann et al. (1994) reported in their national study. However, the participation rate was lower than that reported in the private sector. Koukol (2000) found that 33% of Wisconsin restaurants surveyed donated food. Even though participation in food recovery programs was low, the majority (73%) of the schools did participate in food drives.

### Food Recovery Practices of Programs Participating in Food Donation

Among the 37 school foodservice operations with food recovery donations, 9 school districts donated both perishable and non-perishable, prepared foods and 7 operations donated only non-perishable food items. Using a range of 1 to 10 years, researchers determined that the participating districts had donated food for an average of 4.7 years. The annual donation ranged from 5 to 5,000 pounds of perishable, prepared food and from 40 to 100 pounds of non-perishable food items. The frequency of donation may explain the wide range in the quantity of food donated. Fourteen school districts donated food only when schools were closed or when they had special events (**Table 2**). Three school districts donated food daily.

**Table 2. Food recovery practices of participating schools<sup>a</sup>**

<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Frequency of food donation (n=37)</b>		
Daily	3	8.1
1-4 times/week	4	10.8
1-2 times/month	4	10.8
3-4 times/month	3	8.1
Less than 4 times/year	3	8.1
Only when school closes or special events	14	37.8
Other	6	16.2
<b>Recipient organization<sup>b</sup> (n=37)</b>		
Food bank	18	48.6
Community soup kitchen	9	24.3
Homeless shelter	7	18.9
Local church	2	5.4
Emergency shelter	2	5.4
Other	9	24.3
<b>Motivation to initiate food recovery (n=36)</b>		
Reducing edible food discarded	23	63.9
Enhancing public image	5	13.9
Decreasing waste removal costs	3	8.3
Right thing to do	2	5.6
Complying with school policy	1	2.8
Other	2	5.6
<b>Primary cost of program participation (n=28)</b>		
Transportation	9	32.1
Labor	7	25.0
Packaging	2	7.1
Volunteer training	2	7.1
No cost	7	25.0
Other	1	3.6
<b>Delivery responsibility<sup>b</sup> (n=36)</b>		
School foodservice staff	18	37.5
Staff from recipient organizations	16	33.3
School volunteers	7	14.6
Volunteers from the community	6	12.5
Other	1	2.1

<sup>a</sup>Participating schools were those schools that were involved to some extent in food recovery activities (N=37)

<sup>b</sup>Respondents were allowed to select more than one choice; therefore, the sum of the percentages exceeds 100

The school foodservice programs donated food most frequently to food banks, community soup kitchens, and homeless shelters (**Table 2**). Twenty-three foodservice directors whose programs

donated food indicated that they started food recovery to reduce edible food discarded (**Table 2**). Five directors responded that enhancing the public image of their CNP was their major motivator for initiating a program.

Transportation (n=9) and labor (n=7) were most frequently listed as the primary costs incurred by participating districts. For seven school foodservice programs, no additional costs were involved in food recovery, except the food itself or a telephone call to request an agency to pick up the donation. Additional staff training for food recovery should not be a deterrent to participation, since school foodservice staff already have expertise in safe food handling (Fitzgerald, 2000).

The school foodservice staff (n=18) and staff from recipient organizations (n=16) were most frequently responsible for delivering foods to the recipient organizations (**Table 2**). Free pick-up is one of the services most food recovery and gleaning organizations provide (USDA & EPA, 1999). Schools should work with the agency to establish a convenient pick-up time if this service is available.

Providing food for the hungry (n=25), reducing the amount of edible food discarded (n=24), and enhancing public image (n=6) all were identified as the most important benefits for participating in food recovery programs (**Table 3**). Challenges faced in implementing food recovery included concern about food safety of donated food (n=16) and availability of staff and volunteer time (n=7). Obtaining administrative support and limited knowledge of food recovery were not identified as challenges by the directors surveyed, who had initiated food recovery programs.

**Table 3. Benefits and challenges in implementing food recovery of participating schools<sup>a</sup>**

Variable	N	%
<b>Benefits<sup>b</sup> (n=37)</b>		
Providing food for the hungry	25	67.6
Reducing edible food discarded	24	64.9
Enhancing public image of program	6	16.2
Decreasing waste disposal expenses	4	10.8
Involving students in community service	4	10.8
Increasing awareness about hunger	3	8.1
Other	1	2.7
<b>Challenges (n=31)</b>		
Food safety	16	51.6
Staff and volunteer time	7	22.6
Employee training	3	9.7
Lack of information	2	6.5
Cost of implementing program	1	3.2
Other	2	6.5

<sup>a</sup>Participating schools were those schools that were involved to some extent in food recovery activities (N=37)

<sup>b</sup>The respondents were asked to select two choices; therefore, the sum of the percentages exceeds 100

### School Foodservice Programs Not Participating in Food Recovery

Foodservice directors whose programs did not participate in food recovery (n=586) were asked about operational and administrative/regulatory factors that discouraged them from having a food recovery program (**Table 4**). The majority of these directors (64%) indicated that they did not donate food because they did not have enough food to donate. Having little or no food left at the end of service is the goal of all programs. However, even small quantities can be frozen until larger quantities are available for food donation ("School districts qualify plate waste, recovery, 2001). Approximately 16% of the respondents indicated that they were not aware of available options. Some directors reported that concern about food safety (5.7%), need for special equipment (2.2%), and labor availability (2.1%) were reasons they did not donate food.

**Table 4. Factors that discouraged non-participating districts from implementing food recovery<sup>a</sup>**

Variable	N	%
<b>Operating factors (n=582)</b>		
Not enough edible food to donate	373	64.1
Lack of knowledge about options available	95	16.3
Concern about food safety	33	5.7
Need for special equipment	13	2.2
Labor availability	12	2.1
Lack of employee support	4	0.7
Fear of poor evaluation	1	0.2
Other	51	8.8
<b>Administrative/regulatory factors (n=540)</b>		
Lack of information about regulations	186	34.4
Cost of implementing a program	98	18.2
Fear of legal liability	69	12.8
Difficulty in obtaining school board's/ administrator's approval	22	4.1
Laws that prevent donation	5	0.9
Other	160	29.6
<b>Information needs<sup>b</sup> (n=504)</b>		
State and USDA regulations	344	68.3
Examples of participating schools	274	54.4
Cost of implementing the program	258	51.2
Availability of food banks	238	47.2
Food safety requirements	208	41.3
Other	43	8.5

<sup>a</sup>Non-participating schools were those schools that donated neither perishable nor non-perishable foods (N=586)

<sup>b</sup>Respondents were allowed to select more than one choice; therefore, the sum of the percentages is

Non-participating directors also indicated that administrative or regulatory factors inhibited them from implementing a food recovery program. Lack of information about regulations (34.4%) was the most frequently mentioned reason for not participating (**Table 4**). Respondents also were

concerned about the cost of program implementation (18.2%) and legal liability (12.8%). Instead of selecting one administrative or regulatory barrier, some respondents indicated in the "other" response option that they did not have a food bank or a homeless or emergency shelter in their community to receive food donations. This reason was identified most often by those school districts that are located in rural communities.

Directors of non-participating foodservice programs were interested in obtaining more information about food recovery (**Table 4**). They were most interested in state and USDA regulations (68.3%) related to food recovery, including food safety and the use of commodity foods. They also wanted to know how other schools practiced food recovery (54.4%) and costs associated with implementing a program (51.2%).

### **The Bill Emerson Good Samaritan Food Donation Act**

The respondents rated their knowledge of the Bill Emerson Good Samaritan Food Donation Act as low, regardless of their participation. Only 1 out of the 37 directors with a food recovery program reported being very knowledgeable about the Act, and 13 of these directors had never heard of the Act. Approximately 80% of directors without a food recovery program had never heard of the Act. Low awareness of the Act also was found in a study of restaurant managers. According to Koukol (2000), 33% of the responding restaurant managers in Wisconsin were aware of the Act.

## **CONCLUSIONS & APPLICATION**

Despite the benefits of food recovery, only a small number of school foodservice programs in the Mountain-Plains Region donated perishable or non-perishable food to organizations that feed the needy. Results of this study indicate a need to develop food recovery campaigns and promotion programs targeted at school foodservice. Food recovery provides several benefits to donors and their communities:

- Recipient programs can reallocate money spent on food to other services;
- Tax savings are available for farmers, food manufacturers, retailers, foodservice operators, and others who donate food;
- Participation educates students about hunger and nutrition and improves staff morale; and
- Food recovery reduces waste going to landfills and decreases the costs and environmental impact of solid waste disposal (Fitzgerald, 2000; National Restaurant Association & USDA, 1997; USDA & EPA, 1999). The school districts that received USDA grants for food recovery and gleaning reported that food recovery provided great educational opportunities for students (USDA, 1999b).

Many non-participating directors indicated that they were not aware of food recovery or gleaning agencies in their communities or did not have enough food to donate. The challenge for some school foodservice professionals appears to be related to attitude or awareness issues rather than feasibility ("School districts qualify plate waste, recovery," 2001). Although most foodservice

directors are effective in forecasting production requirements and have implemented strategies to reduce waste and costs, leftovers often still occur. Even small quantities can be packaged, frozen, and donated when a sufficient quantity is available. Some directors expressed concern that their staff would overproduce for donation (Woods, 1998). The philosophy of food recovery needs to be understood by all school foodservice employees. Food recovery is not a waste of resources of school foodservice, but it should be an option only when the school cannot use the remaining food. Foodservice staff should be trained not to overproduce in order to have food to donate. Excess edible products should be served to students whenever possible (Fitzgerald, 2000; USDA, 1999b).

While individual schools may have a small quantity of food to donate, each donation can make a significant contribution toward reducing hunger in communities when combined with other donations. Woods (1998) indicated that it is not necessary for food donation to occur on a regular basis or in a large amount. Food donation can occur when food does not meet school standards, before the long vacation breaks, after unexpected consecutive snow days, or after special events, such as school dances and holiday parties.

Woods (1998) identified schools with onsite production as good candidates for food recovery and gleaning. Other good candidates for food rescue programs are schools where high school students participate in community service as a curriculum requirement (Woods, 1998). According to USDA's *Best Practices for Food Recovery and Gleaning* (1999b), central kitchens that serve a large number of students within districts have opportunities to rescue foods because of the challenge of accurate forecasting.

In addition to donating foods, school foodservice programs can serve the hungry in their communities by developing community kitchens. The American School Food Service Association (ASFSA) developed a partnership with USDA and the D.C. Central Kitchen and initiated the pilot project School Cafeterias as Community Kitchens (ASFSA, 2001). In using school cafeterias as a community kitchen, school foodservice programs not only provide food to the hungry, but also train low-income individuals and fill open positions in the school cafeterias ("ASFSA/USDA partnership," 2001).

As donors, school foodservice directors need to be aware of several issues. Many school foodservice directors in this study had the misconception that the regulations of the NSLP prohibit them from donating leftovers. School foodservice directors or SFAs who are concerned about state or local laws or regulations that prohibit donating leftover food should contact their state department of education or other state-level administrative agency before initiating food recovery (Woods, 1998). A critical consideration in all food recovery and gleaning projects is maintaining the safety and quality of the donated food while it is stored and transported (USDA, 1999a). School foodservice staff or volunteers from the recipient programs are well trained about safe food handling. Before implementing food recovery, directors should identify the local health and sanitation standards related to handling donated foods (Woods, 1998).

*Best Practices for Food Recovery and Gleaning* (USDA, 1999b) provides the following suggestions to schools considering implementing a food recovery program:

- receive approval from school administrators;
- involve your entire community;
- make food safety a priority;
- establish and maintain good scheduling and record-keeping systems;
- use the Internet to find useful information on funding sources that can be used to support anti-hunger efforts; and
- share your success.

Donating excessive food that would otherwise be wasted to community agencies should be promoted as an effective management strategy. The public and private agencies that provide food for the hungry should cooperate to develop training programs and infrastructure in their communities to make food donation easy. Since this study was conducted in the Mountain-Plains Region, the results may not be generalized to other regions. Most of the responding districts were located in rural areas. Research needs to be conducted about food recovery of the school foodservice programs in larger communities where more agencies and organizations that feed the hungry are located.

### ACKNOWLEDGEMENT

This is contribution number 02-91-J from the Kansas Agricultural Experiment Station.

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