

Results of Informal Discussions and Semistructured Interviews on Estimating Retail-Level Loss Factors for the Loss-Adjusted Food Availability (LAFA) Data Series

Contractor and Cooperator Report

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Food loss and waste is a challenge both nationally and globally and has implications for nutrition security, environmental sustainability, and economic growth. USDA, Economic Research Service contracted with RTI International to conduct exploratory research to assess the feasibility of a potential nationally representative survey to measure retail food loss. This report documents the results of informal discussions with food retail chains, trade associations, and other organizations. The study collected information on whether and how retailers track food loss; the availability of data on product shipments, product sales, and donations and other information for estimating food loss; retailers' ideas for recruiting participants for a national study and their own willingness to participate; and potential nonmonetary incentives that might encourage retailer participation in the future. This report provides key findings and recommendations regarding a potential national study on retail food loss.

The views expressed are those of the authors and should not be attributed to the Economic Research Service or USDA.

Results of Informal Discussions and Semistructured Interviews on Estimating Retail-Level Loss Factors for the Loss-Adjusted Food Availability (LAFA) Data Series

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Contents

Executive Summary	1
1 Background	3
1.1 Retail-Level Loss Factors in the LAFA Data Series	3
1.2 Original Work Plan for the Retail-Level Loss Factors for the LAFA Data Series Project	4
1.3 Study Objective	5
2 Methods	6
2.1 Informal Discussions	6
2.1.1 Purpose	6
2.1.2 Participants	6
2.1.3 Methods	7
2.2 Semistructured Interviews	8
2.2.1 Purpose	8
2.2.2 Sample Unit and Selection	8
2.2.3 Recruitment Procedures	10
2.2.4 Recruitment Outcomes	11
2.2.5 Participants	12
2.2.6 Interview Procedures	13
2.2.7 Confidentiality Procedures	14
2.2.8 Analysis Procedures	14
3 Findings	15
3.1 Food Loss Data	15
3.2 Approaches to Maintaining Data Needed to Estimate Food Loss	16
3.3 Response to Potential National Study	16
3.4 Considerations for Data Collection for a National Study	17
3.5 Comparison of Retailer Response to Participating in the Informal Discussions and Semistructured Interviews	19
3.6 Limitations for the Semistructured Interviews	19
4 Recommendations	21
4.1 Recommendations for a Potential Field Test	21
4.1.1 Sampling Plan	22

4.1.2	Recruitment Procedures.....	23
4.1.3	Data Collection Materials and Approach	24
4.2	Field Working Group.....	26
References		28
List of Appendices		30
Appendix A: Informal Discussion Guide		
A.1	Informal Discussion Guide, Round 1 (Trade Associations)	
A.2	Informal Discussion Guide, Round 1 (Retailers)	
Appendix B: Recruitment Materials for Semistructured Interviews		
B.1	Wave 1 Recruitment Materials	
B.2	Wave 2 Recruitment Materials	
Appendix C: Interview Guides for Semistructured Interviews		
C.1	Wave 1 Interview Guide	
C.2	Wave 2 Interview Guide	

Figures

Number	Page
Figure 1. Number of Semistructured Interviews Completed, by Census Region	20

Tables

Number	Page
Table 1. Summary Description of Informal Discussion Participants	6
Table 2. Retailers in the Wave 1 Sample, by Source.....	9
Table 3. Retailers in the Wave 2 Sample, by Source.....	10
Table 4. Recruitment Outcomes for Sampled Retailers, by Wave	12
Table 5. Summary Description of Semistructured Interview Participants	13
Table 6. Recommendations for Conducting a Potential Field Test.....	21

List of Acronyms

ABS	Annual Business Survey
ARTS	Annual Retail Trade Survey
CFS	Commodity Flows Survey
CIPSEA	Confidential Information Protection and Statistical Efficiency Act
EPA	Environmental Protection Agency
ERS	Economic Research Service
LAFA	Loss-Adjusted Food Availability
NGO	Nongovernmental Organization
OMB	Office of Management and Budget
PCFWC	Pacific Coast Food Waste Commitment
POS	Point of sale
ReFED	Rethink Food Waste Through Economics and Data
SNAP	Supplemental Nutrition Assistance Program
USDA	United States Department of Agriculture

Executive Summary

Background

Food loss and waste is a pressing challenge both nationally and globally and has implications for nutrition security, environmental sustainability, and economic growth. In 2015, the U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA) jointly established an ambitious goal to reduce US national food loss and waste by 50% by 2030 against a 2010 baseline.

The USDA Economic Research Service's (ERS's) Loss-Adjusted Food Availability (LAFA) data series, inception in 1997, is used to estimate the amount of food loss at the retail and consumer levels for specific commodities. In 2009 and 2016, ERS updated the retail-level loss factors for selected commodities, such as fresh fruits, vegetables, meat, and poultry. However, these updates were limited in scope and representation.

Objective

ERS contracted with RTI International in 2018 to develop updated, nationally representative, and fully documented estimates of retail-level loss factors for most LAFA commodities. The approach proposed originally was to collect transactions-level data on product shipments, product sales, and other information from a random sample of food retail stores. However, based on guidance from the Office of Management and Budget early in the study, ERS directed RTI to conduct additional exploratory work with food retailers prior to conducting a nationally representative study. The purpose of this work was to assess the availability of data to measure food loss and retailers' willingness to provide such data to the government.

Methods

RTI conducted two rounds of informal discussions with staff from seven national and regional food retail chains and eight trade associations and other organizations that work with retailers on addressing food loss and other sustainability initiatives. These discussions were followed by two sets (waves) of semistructured interviews with a total of 12 food retailers. This exploratory research collected information on whether and how retailers track food loss; the availability of data on product shipments, product sales, and donations and other information for estimating food loss; retailers' ideas for recruiting participants for a national study and their own willingness to participate; and potential nonmonetary incentives that might encourage retailer participation in the future.

Key Findings and Recommendations

The exploratory research findings presented in this report are specific to the retailers and organizations RTI spoke with and may not be representative of all retailers or organizations that engage with retailers on food loss. Although the exploratory research was very informative, it was limited by the small number of retailers engaged in the research. Additionally, the diversity

of the retail industry makes it challenging to draw broad conclusions about retailers' ability and willingness to provide data for a nationally representative study on retail food loss.

Consequently, the overarching conclusion of the exploratory research is that ***there is insufficient information to recommend that ERS move forward with a nationally representative study on retail food loss at this time.*** Should ERS decide to further explore the feasibility of a national study, we recommend that ERS establish a Field Working Group (FWG) comprising experts, academics, and practitioners familiar with the retail food industry. The function of a FWG would be to identify solutions to address the challenges identified in the exploratory research for conducting a national study and to advise on the design and implementation of a field test.

The key findings from the exploratory research are summarized below along with possible implications for a national study:

- **Retailers' own estimates of food loss are insufficient for use in a national study.** Retailers use varying methods to track food loss that is measured in dollar values and not by weight. National and regional chains use electronic systems, whereas independent retailers use manual methods because they lack electronic point-of-sale (POS) systems.
- **The feasibility of providing transactions-level data on product shipments, product sales, and donations for a national study varied by type of retailer.** National and regional chains generally maintain disaggregated data. However, the data vary in terms of granularity and quality. Participation in a national study would not be feasible for independent retailers that lack electronic POS systems.
- **Some retailers expressed concerns about participating in a national study that would need to be addressed.** Retailers' concerns centered around data confidentiality and security, the level of effort required to compile transactions-level data, and the lack of perceived benefits to the company. Data collection procedures for a national study would need to address these concerns, including the use of meaningful nonmonetary incentives to motivate participation.
- **The diversity in the approaches used to maintain transactions-level data and varying organizational structures across retailers would make it challenging to develop standardized data collection procedures for a national study.** Retailers stressed the importance of offering flexibility to minimize retailers' burden. Conversely, they also emphasized the need to ensure consistency in data reporting to yield accurate national estimates of retail food loss.
- **The response rate to the semistructured interviews was very low (6% to 8%). A low response rate would also likely be expected for a national study.** We suggest that the FWG explore options to increase response. Options to consider include excluding independent retailers without POS systems from the study population or focusing data collection on the largest retailers representing the greatest sales volume.

1 Background

Food loss and waste is a critical issue nationally and globally and has implications for nutrition security, environmental sustainability, and economic growth. Recognizing its importance, the U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA) jointly established an ambitious goal in 2015 to reduce US national food loss and waste by 50% by 2030 against a 2010 baseline (U.S. Environmental Protection Agency, 2023).

In a 2019 report, the Government Accountability Office (U.S. Government Accountability Office, 2019) identified limited data and information about food loss and waste as one of three key challenges to reducing food loss and waste in the US.

1.1 Retail-Level Loss Factors in the LAFA Data Series

The ERS's LAFA data series is one of two federal government sources of food loss data (U.S. Department of Agriculture, Economic Research Service, 2020b); the other data source being the EPA (U.S. Environmental Protection Agency, 2020). The LAFA data series provides the loss-adjusted per capita amount of food, calories, and food patterns equivalents (also called "servings") available for consumption in the US for 215 commodities. For example, LAFA has data for different types of fresh, canned, dried, and frozen fruits and vegetables and fresh and frozen meat, poultry, and seafood; but not for products like frozen beef ravioli or prepared fruit salad. It also estimates the amount of food loss at the retail and consumer levels nationwide. ERS defines food loss as the edible amount of food, postharvest, that is available for human consumption but not consumed for any reason; for example, cooking loss and natural shrinkage; loss from mold, pests, or inadequate climate control; and plate waste (U.S. Department of Agriculture, Economic Research Service, 2020a).¹

Since LAFA's creation in 1997, ERS has undertaken a series of initiatives to update the original underlying loss factors (i.e., percentages), many of which were from the 1970s or earlier. Most recently, ERS contracted with the Perishables Group, Inc. (Buzby et al., 2009) and later with Nielsen's Perishables Group, Inc. (Buzby et al., 2016) to obtain updated loss factors at the retail level for selected LAFA commodities, including fresh fruits, vegetables, meat, poultry, and seafood. These data were gathered through a combination of qualitative interviews and a comparison of supplier shipment data with point-of-sale data from stores in large national supermarket retail chains.

In 2017, an ERS-sponsored expert panel charged with developing recommendations for addressing data gaps and technical weaknesses in the LAFA data series recommended that ERS develop updated and nationally representative retail-level loss factors for all LAFA commodities, beyond just fruits and vegetables (Muth et al., 2018). Additionally, to improve the

¹ The *Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics* (December 2023) defines food loss as "when food leaves the human food supply chain on the farm, following harvest, or in the processing or distribution sector" and food waste as "when food leaves the human food supply chain in the retail, food service or household sector." Available at <https://www.federalregister.gov/documents/2023/12/05/2023-26574/draft-national-strategy-for-reducing-food-loss-and-waste-and-recycling-organics-request-for-public>

generalizability of the findings, the panel recommended that ERS collect data from a wider range of food retailers, including supercenters and independent retailers.

In September 2018, ERS contracted with RTI International to conduct a study to develop updated, nationally representative, and fully documented estimates of retail-level loss factors in the US for most LAFA commodities.

1.2 Original Work Plan for the Retail-Level Loss Factors for the LAFA Data Series Project

RTI's original research work plan for a nationally representative study included two phases. In Phase 1, we planned to collaborate closely with ERS to design and execute a field test with 20 food retail stores to gather preliminary data and evaluate the feasibility of our planned methods for calculating retail-level loss factors. In Phase 2, we planned to refine the instrumentation, data collection protocols, and analysis procedures, and then conduct the full data collection and analysis with a nationally representative sample of 281 supermarkets, supercenters, and club stores.²

Before filing a clearance package for the planned Phase I, ERS met with the Office of Management and Budget (OMB) in May 2019 to discuss the proposed study design. Under the original plan, RTI would develop loss factors for LAFA commodities as the difference between the total annual weight of product sold in stores and the total annual weight of product shipped to stores, expressed as a percentage of the shipment weight for the most recent year available. We would use data on intrastore transfers of food³ and food donations, if available, to adjust the loss estimates downward. The proposed plan involved collecting store-level data from corporate headquarters and providing a standardized electronic template for each sampled store to facilitate data transfer in a consistent format. Furthermore, we would ask each sampled retail store to complete a brief survey regarding the drivers of food loss specific to that store, including factors such as spoilage, theft, and product recalls. In this original plan, we proposed using the Nielsen TDLinx database⁴ (Cho et al., 2019) as the sample framework for both the field test and the nationally representative data collection.

The ERS OMB desk officer and other staff expressed concerns about the coverage of the TDLinx database as the sample frame because it excluded stores with annual sales below \$1 million. These stores may have different food loss patterns compared with larger stores. Additionally, OMB expressed concerns about the willingness of food retailers to provide their confidential data to a government agency, which would negatively affect response rates. OMB also had concerns about asking companies to use a standardized electronic template for data

² A supermarket sells a wide variety of food, beverages, and household products. It has a wider selection than grocery stores but is smaller and more limited in the range of merchandise than a supercenter or club store. Supercenters are large stores that combine nonfood mass merchandise with supermarkets. Club stores are large outlet stores that sell food and beverages in bulk and require consumers to buy a membership.

³ Intrastore transfers are specific food products used by the store to make prepared foods; for example, the deli uses raw chicken from the meat department to make chicken salad.

⁴ TDLinx is a proprietary commercial database, which includes the name, address, and corporate owner of individual food stores with at least \$1 million in annual sales.

capture that may not be compatible with how some retailers store and maintain their data. To address these concerns, OMB asked ERS and RTI to evaluate a potential alternative study methodology by consulting with the U.S. Census Bureau.

After a series of meetings with the Census Bureau to explore possibilities for collaborative data collection using existing survey vehicles—such as the Commodity Flows Survey (CFS), the Annual Retail Trade Survey (ARTS), and the Annual Business Survey (ABS)—the ABS showed promise as a viable option. However, it was subsequently determined that using the ABS to conduct a pilot would not be feasible within the period of performance of the RTI contract. Instead, the Census Bureau recommended that ERS work with RTI to conduct additional exploratory research with retailers to inform appropriate methods for a future field test and nationally representative data collection.

1.3 Study Objective

The objective of the revised study was to conduct exploratory research through informal discussions with retailers, trade associations, and other organizations and semistructured interviews with retailers. The results of the exploratory research helped RTI to develop recommendations for ERS to consider should they decide to implement a field test and to assess the feasibility of conducting a nationally representative study to estimate retail-level loss factors for commodities in the LAFA data series.

2 Methods

2.1 Informal Discussions

2.1.1 Purpose

RTI conducted two rounds of informal discussions with seven retailers and eight other organizations. The first round took place at the beginning of the project during November and December 2018 to inform the design and approach for the originally planned field test. During these discussions, we collected information about methods for tracking and measuring food loss, how data on food donations are managed, potential approaches for obtaining data to calculate food loss, potential nonmonetary incentives to encourage participation in a national study, and suggestions on the types of individuals to contact within retailers' corporate headquarters to request data for calculating food loss.

The second round of informal discussions occurred between October 2022 and July 2023 prior to and during the data collection for the semistructured interviews. During these discussions we gathered information from organization representatives that work closely with retailers on sustainability issues. We asked these representatives about their knowledge of retailers' methods for tracking and measuring food loss and collecting and maintaining data on product shipments, product sales, and donations. We also asked participants to share recommendations for engaging with retailers and to identify potential participants for the semistructured interviews.

2.1.2 Participants

We purposively selected organizations and retailers for these discussions to provide a diverse mix of retailer type and size (national and regional chains) and to hear the perspectives of a variety of organizations that work with retailers to address food loss and other sustainability issues. **Table 1** summarizes the types of companies and organizations that participated in the two rounds of informal discussions.

Table 1. Summary Description of Informal Discussion Participants

Description	Round
Retailer, national chain	Round 1
Retailer, national chain	Round 1
Retailer, national chain	Round 1
Retailer, regional chain	Round 1
Retailer, regional chain	Round 1
Retailer, regional chain	Round 1
Retailer, regional chain	Round 1
Retail trade association	Rounds 1 and 2*
Retail trade association	Rounds 1 and 2*

Description	Round
Nonprofit (closely collaborates with retailers on sustainability initiatives and has knowledge about retail-level data collection for food loss)	Rounds 1 and 2*
Nongovernmental organization (NGO) (supports sustainability initiatives)	Round 1
Nonprofit (works with retailers on sustainability assessments, including food loss)	Round 1
Nonprofit (supports sustainability initiatives)	Round 2
Food donation company (facilitates connections between retailers that want to donate food with food banks and local service agencies)	Round 2

*Had multiple contacts with the organization during Rounds 1 and 2.

2.1.3 Methods

Based on our knowledge of the retail industry, in combination with contacts provided by the expert panel convened by RTI for the original research work plan,⁵ we created a list of retailers, trade associations, and other organizations to contact for the Round 1 informal discussions. For Round 2, we conducted follow-up calls with several of the organizations we spoke with during Round 1 and identified the other participants via networking and referrals. We did not use structured recruiting materials for either round of the informal discussions, whereas we did use structured recruiting materials for the semistructured interviews. For the informal discussions, project staff contacted prospective participants by email or phone (tailoring these communications as appropriate) and provided a brief overview of the study's purpose and a description of the topics.

We conducted the informal discussions via telephone (Round 1) or videoconference (Round 2). Each discussion ranged from 30 to 60 minutes. Two RTI staff participated in the discussions, with one person leading the discussion and the other person taking notes. For Round 1, the person leading the discussion used a discussion guide (**Appendix A**) to guide the discussions. A discussion guide was not developed for Round 2; instead, the person leading the discussion used an agenda to guide the discussion.

To synthesize the findings from the informal discussions, we used an Excel spreadsheet to organize the call notes by topic area. We then reviewed the spreadsheet to identify common themes across participants within each topic area.

⁵ As part of the original research work plan, we established an expert panel comprised of five academics with experience conducting research on retail-level food loss. The purpose of the expert panel was to review the draft instruments and data collection procedures for the field test and to review the draft report on the field test findings. After the decision was made to not proceed with a field test, we discontinued the expert panel.

2.2 Semistructured Interviews

2.2.1 Purpose

The semistructured interviews with retailers gathered additional information to guide the design of a potential field test and, if feasible, a nationally representative study on retail food loss. We conducted the interviews in two consecutive waves. The interviews collected information about methods for tracking and measuring food loss; data availability and approaches for maintaining data on product shipments, product sales, intrastore transfers of food, and donations; participants' opinions on RTI's proposed data collection approach for a national study; the process for providing proprietary transactions-level data to a third party; and potential nonmonetary incentives to encourage participation in a national study. Some of these topics were also addressed in the informal discussions.

We used the findings from the Wave 1 interviews to refine the approach for the Wave 2 interviews. The main change we made between the two waves was to reduce the interview burden from 60 minutes to 30 minutes. We also made a few minor revisions to the recruitment materials to help enhance response and added probes to the interview guide.

We anticipated completing up to 20 interviews (10 for Wave 1 and 10 for Wave 2) and obtained OMB approval for each wave. Following receipt of OMB approval for Wave 1 in January 2023, we initiated recruitment efforts in February 2023 and conducted five interviews between March and May 2023. We obtained OMB approval for Wave 2 in August 2023 and completed a total of seven interviews.

2.2.2 Sample Unit and Selection

The sample unit for the semistructured interviews was the corporate headquarters of a food retail company (referred to as “company” or “retailer” for brevity) that owns supermarkets, supercenters, or club stores. Companies own individual retail stores or chains of retail stores. We interviewed companies, not individual stores. Additionally, we planned to interview retailers of different types (supermarket, supercenter, or club store), with different organizational structures (such as national chain, regional chain, and independent retailers⁶) and in different Census regions.

Wave 1. We assumed we would need to contact 50 companies to complete 10 interviews. This estimate was based on RTI's experience with the Round 1 informal discussions. We used Nielsen's TDLinx database to select the sample. We supplemented the original sample of 50 companies with 12 companies identified through informal networking during the recruitment process and from recommendations provided during the Round 2 informal discussions, for a total sample size of 62 companies (see **Table 2**).

⁶ Independent retailers were defined as companies that own 10 or fewer stores.

Table 2. Retailers in the Wave 1 Sample, by Source

Source	Number
TDLinx database	
Interview completed	2
Interview not completed	48
Total	50
Additional companies added from networking	
Interview completed	3
Interview not completed	9
Total	12
Total Sample	62
All Sources	
Interview completed	5
Interview not completed	57
Total Sample	62

Wave 2. Based on the 8% response rate for Wave 1 (5 of the 62 companies in the sample completed an interview), we assumed we would need to contact up to 125 companies to complete 10 interviews for Wave 2. As in Wave 1, we used the TDLinx database to select companies for the sample (n = 53). To include more independent retailers, we supplemented the sample with 59 companies from a trade association conference attendee list whose membership primarily consists of independent retailers and local grocery chains. The attendee list could include retailers that are not in the TDLinx database because their annual sales may be less than \$1 million.

We supplemented the sample with eight companies identified through other sources and three companies from Wave 1 that had been amenable to participate but did not because of time constraints (see **Table 3**).⁷ With the addition of these companies, the total sample size for Wave 2 was 123 companies.

⁷ One of the retailers that participated in the informal discussions was contacted again for the semistructured interviews but declined to participate.

Table 3. Retailers in the Wave 2 Sample, by Source

Source	Number
TDLinx database	
Interview completed	3
Interview not completed	50
Total	53
Trade association conference attendee list	
Interview completed	1
Interview not completed	58
Total	59
Wave 1 contacts amenable to participate in Wave 2	
Interview completed	1
Interview not completed	2
Total	3
Other source	
Interview completed	2
Interview not completed	6
Total	8
Total Sample	123
All Sources	
Interview completed	7
Interview not completed	116
Total Sample	123

2.2.3 Recruitment Procedures

Individuals targeted for the interviews included corporate staff knowledgeable about how product data are maintained across their company's individual stores. This could include someone in sustainability, loss prevention, pricing, inventory, operations, supply chain management, or procurement. For the national and regional chains with a dedicated sustainability office, we initially identified and contacted someone within that group to get their support for the interview and then worked with them to identify the individual(s) who maintain(s) data on product shipments and sales as the individual to take part in the interview. For the selected retailer sample, we searched for staff contact information on the ZoomInfo database, company websites, and LinkedIn. For Wave 2, we also compiled a list of email addresses for the Communications, Public Relations, Media Relations, or Corporate Affairs divisions when available, so that we could reach out to a technical contact and a corporate/communications contact simultaneously, as suggested by an informal discussion participant.

Targeted company staff were initially contacted via email (if an email address was available) or telephone (if no email address was available) using the OMB-approved recruiting materials.⁸

Appendix B provides the recruiting materials for Waves 1 and 2. If a response was not received from the initial call or email, we called again or sent a follow-up email.

We made up to four email/phone contact attempts to a company over a 2- to 3-week period, including leaving two or three voicemails with a callback number. If both an email address and telephone number were available, we made two email attempts and two phone call attempts. If a response was not received after four attempts, the company was considered a passive refusal and was not contacted again.

Companies that agreed to an interview received an email reminder—including the informed consent form and a list of interview questions for informational purposes—a few days before the scheduled date.

2.2.4 Recruitment Outcomes

Table 4 presents the number of companies that were contacted for Wave 1 and Wave 2 and the outcomes of the recruitment effort.

Wave 1 Sample. Among the 62 companies in the Wave 1 sample, five companies participated and 57 companies did not participate, for a response rate of 8%. Of those companies that did not participate, five companies explicitly refused, citing lack of time and interest or confidentiality concerns. Three companies were amenable to participating but did not take part in Wave 1; however, one of these companies eventually participated in Wave 2. One of these companies indicated a willingness to participate by providing a written response to the interview questions but ultimately did not send their responses to RTI. Most companies (n = 44) exhibited a passive refusal by not responding to any contact attempts. Additionally, five companies were challenging to reach because of a lack of valid contact information, leading to their replacement in the sample.

It is important to note that for the five companies that did participate in Wave 1, the contact was either introduced or referred to us directly or otherwise suggested by someone knowledgeable about the retail industry. For three of the five companies, the introduction/referral initially led us directly to the correct person to interview, indicating that this recruitment approach was very effective.

Wave 2 Sample. Among the 123 companies in the Wave 2 sample, seven companies participated and 116 companies did not participate, for a response rate of 6% (see **Table 4**). Of those companies that did not participate, five companies directly refused and 107 were passive refusals. Of the five explicit refusals, three stated that they did not have time to participate or that the project was not a priority for them, one cited confidentiality concerns, and one said they were the wrong point of contact but did not provide contact information for anyone else.

⁸ For Wave 1, RTI planned to work with two industry trade associations to recruit companies and participated in multiple meetings with these organizations. Although the trade associations initially agreed to assist, ultimately they did not. This was due to changes in the point-of-contact at these organizations and delays in the timeline.

One retailer had initially agreed to participate via written response but ultimately did not participate. We also scheduled interviews with three companies that we were ultimately unable to interview. Of these, two companies were no-shows and did not respond to follow-ups; and one company ultimately declined to participate, mentioning the strain on their bandwidth because of staffing shortages.

The recruitment period for Wave 2 was shorter as we neared the end of the contract period of performance: 3 weeks for Wave 2, as compared with 3 months for Wave 1. This time constraint limited our ability to conduct more follow-ups and decreased the likelihood of recruiting additional participants.

Table 4. Recruitment Outcomes for Sampled Retailers, by Wave

Outcome	Wave 1	Wave 2
Interview completed	5	7
Interview not completed		
Explicit refusal	5	5
Passive refusal (did not respond to contact attempts)	44	107
Unable to contact (e.g., email bounced back, no phone number). Retailers were replaced in the sample.	5	0
Amenable to participating but did not participate	3	1
Interview scheduled but not completed	0	3
Total (not completed)	57	116
Total Sample	62	123

2.2.5 Participants

Table 5 describes the general characteristics of the retail companies that participated in the Wave 1 and Wave 2 interviews, all of which were supermarkets. Some food retail companies own multiple banners, which is a set of stores defined by a common name and unified advertising programs. Most companies operating multiple banners have a “flagship” banner, which is their most well-known banner. We only interviewed staff from these flagship banners, and all questions were exclusively related to them.

Table 5. Summary Description of Semistructured Interview Participants

Organizational Structure	Number of Stores	Census Region of Store(s) Operated by Retailer	Source	Organizational Unit (Number of Person[s] Interviewed)
Wave 1 (n = 5)				
Independent	1-10	South	Company added to sample from state sustainability organization referral	Owner (1)
Regional chain	11-100	West	Company added to sample from industry contact that provided contact information	Operations (1)
Regional chain	11-100	West	Company added to sample from industry contact that provided contact information	IT, Sustainability (2)
Regional chain	11-100	Midwest	Contact suggested by a trade association for company already in sample (previously cold-contacted company unsuccessfully)	Regulatory affairs (1)
National chain	>100	National	Contact suggested by industry contact for company already in sample	Sustainability (2)
Wave 2 (n = 7)				
Independent	1-10	Northeast, South	TDLinx	Operations (1)
Regional chain	11-100	Northeast	Contact provided by other source	General manager, Purchasing (2)
Regional chain	11-100	West	Company identified through outreach to a regional sustainability organization that had indicated willingness to participate in Wave 1	Merchandising (1)
Regional chain	11-100	Northeast	TDLinx	Technology services, Operations (2)
Regional chain	>100	West	TDLinx	Sustainability (1)
Regional chain	11-100	Northeast, South	Company listed in a trade show participant list	Risk management (1)
National chain	>100	National	Contact identified at a national conference	Waste reduction (1)

2.2.6 Interview Procedures

We conducted interviews via secure Zoom. We began each interview by ensuring that participants understood the informed consent process and had time to ask any questions. The interviewer used the interview guide to structure the discussion so that all participants were

asked the same set of questions and then probed for further clarification, as needed. **Appendix C** contains the interview guides for Wave 1 and Wave 2.

2.2.7 Confidentiality Procedures

We collected the interview data under the Confidential Information Protection and Statistical Efficiency Act (CIPSEA).⁹ All staff involved in the recruitment and interview process completed required CIPSEA training and signed the ERS confidentiality agreement. To comply with CIPSEA, RTI stored and accessed the interview data within its Federal Information Processing Standards Moderate Enhanced Security Network.

We aggregated the interview findings for reporting and all responses were de-identified. Interview participants were provided with an informed consent form detailing these confidentiality procedures and submitted a signed form via a Qualtrics survey link. To ensure confidentiality using the Zoom platform, the waiting room feature was enabled, allowing RTI staff to screen for unauthorized attendees. Once all expected attendees were present, RTI staff locked the meeting access.

2.2.8 Analysis Procedures

To synthesize the findings from the semistructured interviews, we used an Excel spreadsheet to organize the call notes by topic area. We then reviewed the spreadsheet to identify common themes across participants within each topic area.

⁹ The Confidential Information Protection and Statistical Efficiency Act (CIPSEA) is a United States federal law enacted in 2002 as Title V of the E-Government Act of 2002, Public Law, 116 Stat. 2899, 44 U.S.C. § 101. (2002). <https://www.govinfo.gov/content/pkg/PLAW-107publ347/pdf/PLAW-107publ347.pdf>

3 Findings

This section summarizes the findings from the semistructured interviews with retailers and the informal discussions with retailers, trade associations, and other organizations. These findings are specific to the retailers, trade associations, and other organizations we spoke with during the interviews and informal discussions. Consequently, the findings may not be representative of all retailers and organizations. However, these findings are useful for informing recommendations for a future field test and/or national study on retail food loss.

3.1 Food Loss Data

Most retailers use the term “shrink” to characterize unsold food, rather than the term “food loss,” indicating that any data collection effort would need to clearly define terminology.¹⁰ Most retailers defined “shrink” as any product that is purchased and not sold; or more colloquially, anything that comes in the back door that does not go out the front door as a sale. Interestingly, theft was not specifically mentioned by the retailers we talked with. National and regional chains generally classified “shrink” into several categories using terminology specific to their companies.¹¹ In contrast, independent retailers used “shrink” more narrowly, to encompass products that are donated, composted, or discarded.

Methods used to track food loss vary by organizational structure. National and regional chains use electronic systems to track food loss, but the granularity of tracking varies, from the aggregate to store or department level. Within the same retail company, methods used to track food loss may vary from store to store, yielding inconsistent data. Some retailers keep very detailed records with product-specific identifiers. Others are much less sophisticated. For example, the independent retailers we talked with tracked food loss manually using paper records because they do not have electronic point-of-sale (POS) systems.

Several retailers said they do not track food loss for random-weight products¹² because of the challenges associated with weighing products and because products sold by count require a unit-to-weight conversion; for example, individual apples to pounds of apples. Of the retailers that track food loss for random-weight products, their methods are similar to those used for barcoded products, with some exceptions. For example, some retailers used a manual method instead of an electronic system to track bulk produce loss.

Retailers primarily measure food loss in dollar values, not by weight. Some of the national and regional chains measured food loss by calculating the difference between the dollar value of product shipped and dollar value of product sold. Other retailers measured food loss by calculating the total value of unsold product by destination, such as donation centers, waste haulers, and animal feed companies.

¹⁰ In the report, we use the term “food loss” although the retailers we spoke with used the term “shrink.”

¹¹ Examples of terms used to classify types of shrink include “known shrink,” “unknown shrink,” “predelivery shrink,” and “postdelivery shrink.”

¹² Random-weight products are those sold with varying amount of product and do not have identical net weight declarations, such as meat, poultry, seafood, fruits, vegetables, and nuts.

3.2 Approaches to Maintaining Data Needed to Estimate Food Loss

During the interviews, we presented retailers with our proposed approach for a potential national study. This approach would ask retailers to provide the USDA contractor¹³ conducting the study with data on product shipments, product sales, intrastore food transfers, and donations for sampled stores, including details such as department, number of units, total dollar value, weight or volume, and additional information over a one-year period. The USDA contractor would use these data to calculate loss factors for most LAFA commodities.¹⁴

Most national and regional chains have sophisticated electronic record systems that use in-house or third-party software to track product shipments and sales at a disaggregated product level. However, the level of detail—such as product, product category, or department—varies across different sizes of retailers. In contrast to national and regional chains, independent retailers only tracked aggregated shipments and sales data because of the lack of electronic record-keeping systems.

Generally, it is difficult for retailers to track intrastore transfers of food because of insufficient data. Except for the large national chains, we found that tracking data for intrastore transfers of food is challenging. These large national chains collect data on the total amount of food that is prepared and discarded, but not at the ingredient level. Retailers noted that it is difficult to connect shipments and sales amounts for products that arrive at the store in one form (such as chicken, celery, mayonnaise) and leave in another form (such as chicken salad).

Most retailers have some form of system in place for tracking food donations. While some retailers use a specific “donations” code for scanning donated products, others use codes like “outdated,” “discard,” or “throw-aways” for items intended for donation. Retailers generally track the retail value of donated food products, whereas food banks often provide retailers with monthly or periodic reports that itemize donations into broad product categories by weight and by store, which help retailers to track their donations.

Data on product shipments, product sales, intrastore food transfers, and donations are typically managed by separate divisions within national and regional chains. National and regional chains centralize food product data at the company’s headquarters. However, different parts of a company are often responsible for different types of data. For example, the sustainability team may maintain donation data, whereas other divisions, such as IT or finance, may manage product shipments and sales data.

3.3 Response to Potential National Study

Retailers provided mixed responses about the feasibility of providing the product-level data that a USDA contractor would need to calculate loss factors for LAFA commodities. Independent retailers considered the proposed approach unfeasible because they use paper

¹³ “USDA contractor” refers to the contractor that would be responsible for conducting a field test/national study.

¹⁴ Section 4 (Availability of Food Loss Metrics) of the interview guides details the proposed approach as presented to retailers during the interviews (see Appendix C for the Wave 1 and Wave 2 interview guides).

records. In contrast, most of the national and regional chains considered the proposed approach feasible but also expressed concerns, as described in more detail below.

Confidentiality, data security, and time constraints were top retailer concerns about the proposed study approach. Many retailers expressed concerns about the potential harm to their companies if their financial data—specifically sales information in dollar values—were inadvertently accessed by others. Some retailers indicated a willingness to provide most of the data that would be needed for a national study, such as product categories, descriptions, and weights, if a nondisclosure agreement was in place.¹⁵ However, they would be hesitant to provide price information. Because of the sensitive nature of price data, a few retailers suggested providing data only on product weight.

For national and regional chains, senior leadership, in consultation with their legal department, would need to approve the sharing of data with a USDA contractor. These retailers anticipated that their leadership would want to know the benefit to the company and the level of effort required to compile and provide the data. Despite assurances about confidentiality and data security, some retailers were uncertain if they would receive approval to provide certain sensitive business information, such as prices.

Retailers had different views about the level of effort required to provide the data needed for a national study. While some retailers thought that the effort would be minimal, others stated they would be unwilling to have their staff spend time compiling the required data. Retailers who would be unwilling to participate said they would be reluctant to take on extra projects given the current labor market and difficulties hiring staff to complete basic business functions. Additionally, we learned from some retailers that the approval process to release proprietary data to the government could be time consuming but feasible if acceptable assurances were provided about data confidentiality.

Other concerns raised by retailers included a lack of experience in interacting with government bodies perceived by them to be regulatory authorities and a belief that food loss is not relevant to their core business mission. Additionally, some retailers noted that it would be difficult to justify participating in a national study that they perceived had no direct benefit to their company. These retailers emphasized the importance of providing a clear description of the required data, including a list of products and descriptions for each product, and a clear statement of the potential benefits to a company when recruiting for a future national study.

3.4 Considerations for Data Collection for a National Study

Retailers that might be willing to participate in a national study would prefer the flexibility to provide data in their own format rather than a standardized format. However, a few of the retailers we talked with acknowledged that allowing retailers to provide the data in their own format would be burdensome to the USDA contractor conducting the study given the significant

¹⁵ A nondisclosure agreement should not be necessary because the protections offered under CIPSEA are the most stringent guarantees available.

amount of data cleaning that would be required and suggested that using a standardized format might be more desirable to ensure data quality.

Responses were mixed about whether it would be less burdensome for retailers to provide a “data dump” of all products stocked and sold by the retailer or to respond to specific instructions on which food categories to include or exclude. Most retailers said it would be easier to provide data for all food categories and have the USDA contractor conducting the study extract the product categories of interest (i.e., a data dump). However, others said it would be easier to compile data for a specific list of food categories, and some retailers said it would be a similar level of effort either way.

Despite some retailers’ preference for using their own data format, several retailers highlighted the need for establishing a consistent approach for requesting product-level data so that the USDA contractor conducting the study would receive uniform product-level information. Such an approach is important because the same product can have different identifiers across various stores within the same company. Retailers suggested developing unique product identifiers, such as numerical or alphabetical codes, tailored for specific food-product categories. This approach would help in ensuring compatibility across the diverse data-tracking platforms and reporting formats used by retailers.

Identifying the appropriate staff to contact for a national data collection would be challenging because of varying company sizes and structures. A few of the retailers we talked with suggested starting recruitment efforts with a contact in the sustainability office of large national and regional chains, with the goal of encouraging that person to become an internal advocate for the data request. This approach is consistent with the approach used by RTI for the semistructured interviews. For retail chains without a sustainability division or for independent retailers, it would be more challenging given that staff may serve multiple roles and consistent terminology is not used across retailers to describe different business functions. Suggestions for potential divisions or departments to use as a starting point to gain cooperation for a national study included operations, data, finance, sales, IT, and logistics. Additionally, some retailers recommended reaching out to trade organizations such as the Food Industry Association, National Grocers Association, National Co+op Grocers, or state-level food retailer’ associations. As previously noted, RTI initially worked with trade associations to assist with recruitment for the semistructured interviews, but this strategy ultimately proved to be unsuccessful.

To encourage participation in a national study, USDA would need to highlight a clear benefit of participation. Most retailers said a benchmarking report that compared their company’s food loss estimates to national averages would not be useful, citing their unique business models and operational contexts. Instead, they suggested that the USDA provide a report that compared their loss performance with retailers within similar geographic regions or with similar business models. To motivate participation, some retailers suggested that the USDA could provide information on waste-reduction best practices and/or formal recognition of their company participation.

3.5 Comparison of Retailer Response to Participating in the Informal Discussions and Semistructured Interviews

As previously noted, the response rate for the two waves of semistructured interviews was very low (6% to 8%), which resulted in a smaller number of completed interviews than anticipated. Based on retailer response to the informal discussions, it appears that retailers may have been more receptive to participate in an informal discussion compared with a semistructured interview. One potential reason may be the time difference: the Round 1 informal discussions were conducted in 2018 and the semistructured interviews were conducted in 2023. Compared to 5 years ago, retailers may now be more reluctant to provide data to the government because of increased concerns about data security, views of the government, or other factors. Another potential reason may be that the semistructured interviews required a more formal, structured approach that is similar to what would be needed for a field test/national study, in that we used a script for making recruiting calls and for sending out recruiting emails. Participants were informed the interviews were being conducted under CIPSEA and had to sign an informed consent (electronically), thus increasing the formality of the recruiting and data collection procedures. Additionally, because of the large number of retailers that needed to be contacted, we used trained RTI recruiters instead of project staff to make the recruiting calls, which resulted in these contacts being more formal.

3.6 Limitations for the Semistructured Interviews

The semistructured interviews had several limitations that should be noted, particularly concerning the small sample size and the potential for self-selection bias. While the study sample was diverse—by including national chains, regional chains, and independent retailers; retailers in different geographical locations; and retailers that varied by number of stores—it was constrained by the small number of interviews and the absence of participants from specific company types. Despite efforts to recruit a broad range

Limitations for the Semistructured Interviews

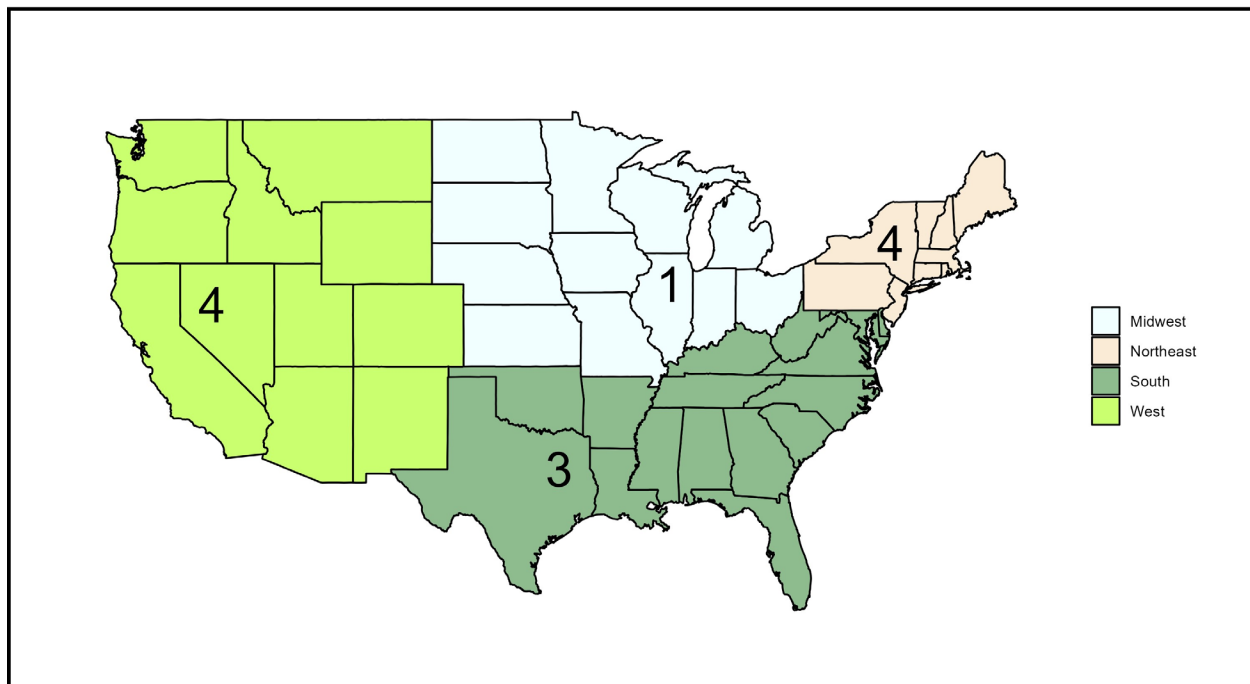
- Findings and recommendations based on interviews with a small number of retailers (12 retailers out of an anticipated 20).
- Study sample included supermarkets only.
- Study sample included only one retailer with its headquarters in the Midwest census region.
- Study sample predominantly included retailers actively engaged in food loss initiatives and underrepresented retailers that are not actively engaged in such initiatives, leading to potential self-selection bias in the study sample.

of interview participants, we found that retailers actively engaged in food loss initiatives were more likely to participate. These retailers either have an electronic system to monitor and track food loss or they are in the process of adopting such a system. Because many of the retailers we interviewed were actively engaged in food loss initiatives, there is the potential for self-

selection bias, which occurs when individuals are allowed to choose whether they want to participate in a research study; this, in turn, can affect the generalizability of the results.

As previously noted, although the study sample was somewhat diverse, it was small ($n = 12$); consequently, the results are not generalizable to all retailers. All the interview participants were companies that owned supermarkets (no companies that own supercenters and club stores). Although the study sample covered the four Census Bureau regions, most of the retailers had their corporate headquarters in the Northeast, West, and South; only one retailer had their corporate headquarters in the Midwest (see **Figure 1**).

Figure 1. Number of Semistructured Interviews Completed, by Census Region



4 Recommendations

Based on the exploratory research findings, we conclude that there is insufficient information to recommend that ERS move forward with a nationally representative study on retail food loss at this time. In this section, we provide our recommendations for conducting a potential field test based on the exploratory research findings, should ERS decide to explore the feasibility of conducting a national study. To address some of the challenges we identified for conducting a national study, we recommend that ERS establish a Field Working Group (FWG). Our recommendations for establishing a FWG, including the composition of the group, its purpose, and its potential role are described at the end of this section.

4.1 Recommendations for a Potential Field Test

Table 6 summarizes RTI's recommendations for conducting a potential field test. Some of these recommendations include approaches that we used for the semistructured interviews and are considered best-practice when conducting data collection with establishments (such as collaborating with third-party organizations). The following sections expand on each of these recommendations.

Table 6. Recommendations for Conducting a Potential Field Test

Sampling Plan	<ul style="list-style-type: none"> ▪ Create a convenience sample of retailers that represent different types, sizes, organizational structures, and geographic locations by leveraging referrals, network, and industry connections. ▪ Include mainly national and regional chains and a few independent retailers that maintain electronic records in the convenience sample.
Recruitment Procedures	<ul style="list-style-type: none"> ▪ Create recruitment materials that allow recruiters the flexibility to build rapport and obtain study buy-in and identify appropriate contact(s) for the study. ▪ To motivate participation, create persuasive recruitment materials that highlight the benefits of study participation and explain the protections offered under CIPSEA. ▪ Prioritize recruitment in early fall and spring and allocate sufficient time to secure internal approvals for participation. ▪ Collaborate with third-party organizations to capitalize on existing industry relationships.
Data Collection Materials and Approach	<ul style="list-style-type: none"> ▪ Develop the data collection materials using a user-centered approach and conduct cognitive interviews to test the materials. ▪ Clearly define the product descriptions and data categories to be collected. ▪ Design a data collection template with defined specifications but also provide flexibility. ▪ Request data with a minimum 1-year lag rather than requesting the most recent calendar or fiscal year data. ▪ To address confidentiality concerns, allow retailers the flexibility to provide volume data without information on price, and collect information on how retailers record weight for product shipments and sales. ▪ Collect written documentation on the methods retailers use to track donations and intrastore food transfers and their approaches for estimating product weight. ▪ To motivate participation, offer to provide retailers with a benchmarking report that compares their food loss estimates to similar retailers and explore other nonmonetary participation incentives.

4.1.1 Sampling Plan

Create a convenience sample of retailers that represent different types, sizes, organizational structures, and geographic locations by leveraging referrals, networks, and industry connections. Given the recruitment challenges and low response rates for the semistructured interviews, we do not recommend using a probability-based sample for a field test because it would take a significant amount of time and resources and may not yield a sufficient number of field test participants. Instead, we recommend forming a convenience sample that provides for variation in the operational structure (national chains, regional chains, and independent retailers), type (supermarkets, supercenters, and club stores), size (number of stores), and geographic location. As was the case with the exploratory research, it may be challenging to recruit a supercenter or club store to participate given there are very few of these types of retailers compared with supermarkets.

We learned from the semistructured interviews that cold calling was not an effective recruitment strategy. For a field test, we recommend leveraging the connections already established with participants from the informal discussions and semistructured interviews to identify companies to include in the convenience sample, as some participants expressed interest in continuing their engagement in food loss measurement efforts. We also found that retailers that are actively engaged in food loss and food waste initiatives or have made public commitments to reduce food loss were more likely to participate. These companies have a designated point of contact for food loss tracking and actively track and maintain data for estimating food loss. It will be important to ensure that the convenience sample also includes retailers who are not actively engaged in food loss and food waste initiatives to have a full understanding of the feasibility of a nationally representative study.

Include mainly national and regional chains and a few independent retailers that maintain electronic records in the convenience sample. We recommend prioritizing national and regional chains in the sample because these retailers account for the largest percentage of food sales and are more likely to maintain electronic data on product shipments and sales. However, we also recommend including a few independent retailers to further assess the feasibility of such retailers to participate in a national study. For independent retailers, we recommend limiting participation to those that maintain electronic records by asking a screening question as part of the recruiting process (i.e., independent retailers that use paper records or do not have an electronic POS system would not be eligible for participation). A 2019 USDA, Food and Nutrition Service survey of Supplemental Nutrition Assistance Program (SNAP)-authorized small retailers (U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support, August 2019) found that 66% of small grocery stores and 47% of medium grocery stores do not have an electronic POS system.¹⁶ Consequently, it would not be feasible for a

¹⁶ The Food and Nutrition Service defines small grocery stores as those that have a small selection of the four staple food products (most stores in the survey had annual sales less than \$300,000) and medium grocery stores as those with a moderate selection of food products (most stores in the survey had sales ranging from about \$660,000 to over \$1.4 million). Excludes chains with 10 or more stores.

relatively large number of independent retailers to participate in a national study based on the requirement to have electronic records.

4.1.2 Recruitment Procedures

Create recruitment materials that allow recruiters the flexibility to build rapport and obtain study buy-in and identify appropriate contact(s) for the study. We recommend that the recruitment materials be designed as talking points, which allows greater flexibility compared with a formal script¹⁷ and will allow contacts made by recruiters to the appropriate contact person within a company to be more informal. We used this approach for the first round of informal discussions and achieved a higher response rate compared with the semistructured interviews, which used a formal script.

Additionally, this less formal approach allows the recruiter to tailor the approach for each company, which may be more effective in helping build rapport and buy-in. We heard in the informal discussions that securing participation in such a study will involve relationship building and that using a more conversational tone may be more effective in establishing these relationships.

To motivate participation, create persuasive recruitment materials that highlight the benefits of study participation and explain the protections offered under CIPSEA. We recommend that recruitment materials for a field test clearly communicate the value and benefits to participating retailers (suggested nonmonetary incentives are discussed in the Data Collection Materials and Approach section below).

Additionally, we recommend the recruitment materials explain in an easy-to-understand format the protections offered under CIPSEA. Although the recruitment materials for the semistructured interviews provided the standard disclosure regarding CIPSEA, either participants did not read it or did not understand it. Some interview participants expressed concerns about confidentiality when asked about their willingness to share data. Although ERS is a statistical agency and not a regulatory agency, it is unlikely that retailers understand this distinction. These findings illustrate the importance of clearly communicating to prospective participants how their data would be protected under CIPSEA and how their data would be shared with ERS.

Because retailers may need to obtain permission from senior leadership and their legal department to release data to a government agency, we suggest developing a one-page project description that prospective participants can share with them. This document should outline what is required from participating retailers; the benefits of participation, including any nonmonetary incentives; and confidentiality procedures. The one-page project description and other recruitment materials should use engaging and persuasive language and be tested as part of the cognitive interviews to evaluate the materials for a field test (discussed in the Data Collection Materials and Approach section below).

¹⁷ OMB requires copies of all recruitment materials. Consequently, a copy of the recruitment talking points will need to be included in the OMB package for a field test.

Prioritize recruitment in early fall and spring and allocate sufficient time to secure internal approvals for participation. The months of October through January are the busiest time of the year for retailers and should be avoided when recruiting retailers for a field test. Additionally, the summer months should be avoided because many staff typically take vacation during this period. Consequently, we recommend focusing recruitment efforts in spring and early fall to avoid retailers' peak periods and ensure maximum staff availability.

We found that 2 to 3 months is insufficient to identify the correct point-of-contact within a company and secure cooperation. Additionally, securing approvals from senior leadership and the legal department for releasing data could range from a month to a year, depending on the company. Consequently, when designing a field test, we recommend allocating adequate time for recruitment, securing the necessary approvals, and allowing the company to compile and deliver the required data.

Collaborate with third-party organizations to capitalize on existing industry relationships. As previously noted, RTI engaged with two national retail trade associations prior to conducting the semistructured interviews to obtain their buy-in for the study and to assist with identifying prospective retailers to interview. Although the trade associations initially agreed to assist, ultimately these organizations did not. This was due to changes in the point-of-contact at these organizations and delays in the timeline.

Despite these challenges, we recommend engaging with these trade associations again to get their buy-in and assess their interest in helping to identify and recruit prospective retailers for a field test. Working with trade associations also enhances trust and lends credibility for companies that may be reluctant to participate. We also recommend exploring collaboration with regional or state associations. Although we had limited success with this approach for the semistructured interviews, we suggest recontacting these associations again in the event that there are staffing changes and new staff are more receptive to collaboration.

4.1.3 Data Collection Materials and Approach

Develop the data collection materials using a user-centered approach and conduct cognitive interviews to test the materials. We learned from the exploratory research that retailers typically use the term “shrink” instead of “food loss” and use other terminology that is specific to their company. Consequently, when developing the instructions and data collection templates, it will be important to use terminology that is meaningful to retailers and to provide definitions for terms that may be unfamiliar. Using a user-centered approach¹⁸ for developing the data collection materials will help ensure that these materials are easy-to-use and understandable from the perspective of retailers, as opposed to terminology that may only be familiar to the researchers who will collect and analyze the data (Lefebvre, 2009).

Additionally, we recommend conducting cognitive interviews with a small number of retailers (reflective of different operational structures and sizes of retailers) to test the recruitment and

¹⁸ A user-centered approach is an iterative design process in which creators of the material focus on the users and their needs.

data collection materials before conducting a field test. The cognitive interviews will help identify any potentially confusing terminology or instructions, ensure that the instructions are easy to follow and interpreted as intended, and assess whether the recruitment materials are sufficiently motivating to engage response.

Clearly define the product descriptions and data categories to be collected. We learned that collecting data at the product level across multiple retailers will be challenging. For example, differences in naming conventions across retailers will make it difficult to identify the same or similar products because each retailer may use unique product identifiers, such as unique UPCs for private label brands across banners. To address this issue, we recommend providing participating retailers with a clear description of each product for which data are requested. This will allow the USDA contractor conducting the study to easily compile and aggregate the data for similar products across multiple retailers.

Design a data collection template with defined specifications but also provide flexibility. While most retailers preferred providing data in their existing format, they also acknowledged the difficulties that the USDA contractor conducting the study would have managing and analyzing data from different software systems. These retailers suggested providing guidelines on formatting and product categories to reduce data processing burden on the USDA contractor. For a potential field test, we recommend designing a template with detailed guidelines on the data format and product categories but with the flexibility to allow for alternative formats to reduce burden.

Request data with a minimum 1-year lag rather than requesting the most recent calendar or fiscal year data. Requesting data from the most recent calendar year may present challenges, as it may cover data from two different fiscal years. Requesting data for the most recent fiscal year also may present challenges because companies may be currently compiling data and there may be a time lag for data availability. To reduce participant burden, we suggest that a future study request data with a minimum of one year's calendar lag, or data that are readily available for a full 12-month period.

To address confidentiality concerns, allow retailers the flexibility to provide volume data without information on price, and collect information on how retailers record weight for product shipments and sales. During the interviews, retailers expressed concerns about disclosing sales information in monetary terms to third parties. Consequently, we recommend offering flexibility so that retailers report product shipments and product sales in volume terms rather than in dollar values. Additionally, as previously noted, the recruitment materials should include assurances regarding data security and confidentiality.

Collect written documentation on the methods retailers use to track donations and intrastore food transfers and their approaches for estimating product weight. During the interviews, we learned that some retailers record donations and intrastore transfers of food by weight. These weights are often determined using ad hoc methods such as Google searches. Challenges with weight conversion are even more of a concern when accounting for the diverse uses of individual ingredients to make in-store food products; for example, using cheese to

make multiple products such as macaroni and cheese or prepared deli sandwiches. Identifying how a single ingredient contributes to the total weight of a specific in-store food product is challenging.

To address this challenge, we recommend collecting detailed information on the methods retailers use to calculate weights for donations and intrastore food transfers when they are available. The USDA contractor conducting the study could use this information to estimate appropriate adjustment factors for retailers that are unable to provide such data.

To motivate participation, offer to provide participating retailers with a benchmarking report that compares their food loss estimates to similar retailers and explore other nonmonetary participation incentives. To motivate participation, retailers need to be persuaded that taking part in the study will benefit their company. We recommend providing participating retailers with a benchmarking report that offers insights on how their food loss estimates compare with estimates for retailers of comparable size and organizational structure. If preparing such a report is not feasible for field test participants due to the small sample size, it could be provided at a later date if ERS decides to proceed with a national study. We recommend sharing a template for a potential benchmarking report with field test participants to assess whether such a report would be useful in informing their waste reduction efforts.

Additionally, we recommend exploring field test participants' responses to other nonmonetary participation incentives to assess whether specific proposed incentives are of value to retailers. Possible ideas include providing information on waste reduction best practices that are proven to increase profitability or some type of formal recognition by USDA for retailers' participation.

4.2 Field Working Group

Should USDA decide to undertake a field test, we suggest assembling a Field Working Group, a team of six to eight experts, academics, and practitioners familiar with the retail food industry whose expertise might derive from conducting field experiments in retail stores or collaborating with food retailers to collect data on food loss.¹⁹ Specifically, we recommend that ERS include a representative from Rethink Food Waste Through Economics and Data (ReFED) as part of the FWG. ReFED is a national nonprofit working to end food loss and waste across the US food system (<https://refed.com/>). ReFED, through the Pacific Coast Food Waste Commitment (PCFWC), has collected sales and shipment data (in dollar value) to estimate retail-level food loss from 2019 to 2021 from companies with more than 50% of regional grocery market share (Pacific Coast Food Waste Commitment, 2023).

Engaging an FWG to advise on the study design, instruments, and data collection procedures for a field test/national study would help identify potential solutions for the challenges we identified in the exploratory research. The study design plan, including the potential solutions,

¹⁹ The expert panel we convened as part of the original study design reviewed the study design plan and instruments after they were already developed by RTI. In contrast, the Field Working Group would advise on the study design, instruments, and data collection protocols for a field test and would work collaboratively through multiple working sessions (as opposed to the expert panel, which for the most part independently reviewed the study design plan and instruments).

could then be field tested. The FWG could draw on their experience with retail data collection to recommend approaches for engaging and motivating retailers to participate in a field test. Their experience with retail food loss may help to inform the instructions and templates for requesting data on product shipments and product sales. They may also be able to suggest methods for calculating adjustment factors and weight conversions for retailers who are unable or unwilling to provide data on donations and intrastore food transfers. Additionally, the FWG may be able to suggest retailers to include in the convenience sample and provide contact information or make referrals to facilitate recruiting.

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List of Appendices

(Note: The appendices for this report are provided in a separate document.)

Appendix A: Informal Discussion Guide

A.1 *Informal Discussion Guide, Round 1 (Trade Associations)*

A.2 *Informal Discussion Guide, Round 1 (Retailers)*

Appendix B: Recruitment Materials for Semistructured Interviews

B.1 *Wave 1 Recruitment Materials*

Recruitment Script (No contact identified)

Recruitment Script (Contact identified)

Initial Email

Scheduling Email (Participant Identified)

B.2 *Wave 2 Recruitment Materials*

Recruitment Script (No contact identified)

Recruitment Script (Contact identified)

Recruitment Email

Scheduling Email (Participant Identified)

Appendix C: Interview Guides for Semistructured Interviews

C.1 *Wave 1 Interview Guide*

C.2 *Wave 2 Interview Guide*