

## Data Collection and Analysis

The Perishables Group, Inc. (PG), an independent consulting firm in the fresh food industry, conducted the data collection, estimated the new loss factors, and analyzed the relationships between the new loss factors and the current activities and trends (e.g., consumer purchasing behaviors, in-store retail activities, such as product handling and industry supply chain activities) in the U.S. supermarket sector.<sup>1</sup> The PG proprietary data represents point-of-sale data collected from conventional U.S. grocery store chains that have more than \$2 million in sales annually. The chains include key national and regional retailers such as Safeway, Kroger, Albertson's, and Ahold. As of May 2008, Perishables Group data represented 62.8 percent of the total grocery-channel dollars. The data omit the total grocery-channel dollars from independent grocers and retailers that do not report sales to syndicated data providers, including convenience stores, mom-and-pop grocery stores, mass retailers/club stores (Costco), and megastores (Walmart). The Perishables Group has a business alliance with Nielsen (formerly ACNielsen), which collects point-of-sale data from over 13,000 retail supermarkets across the United States. Nielsen provides sales data across the five fresh departments (produce, bakery, meat, seafood, and deli) to PG, which has a customized data production process to effectively code and analyze data on food loss.

The Perishables Group identified the shipment data (supplier shipments to retailers) available in their proprietary data set appropriate for this analysis. In order to be used in the analysis sample, data from each store under consideration had to have both weekly shipment data on a particular food commodity (e.g., actual purchases, measured in pounds, of fresh boneless chicken breast shipments sent from a supplier to the store) and point-of-sale data on consumer purchases (e.g., scanner data showing the pounds of fresh boneless chicken breasts sold). Combined, these two types of information enabled the Perishables Group to match shipment data to purchase data so that percentage of food loss could be calculated as the residual for each fresh food commodity covered in the Loss-Adjusted Food Availability data. The data sample includes information from over 600 stores from six large national and regional food retail chains that, combined, are located in all four U.S. regions—East, South, Central, and West. Data were collected for 2005 and 2006 full calendar years. If the complete 2-year timeframe was not available for a specific retailer, the data within this time period were used. Four of the six retailers had complete data. For the two retailers missing some data (one was missing 2 months and the other 5 months), the Perishables Group did not extrapolate the data to a full year, but rather used the data “as is” to develop the averages.

Retailer shipment and point-of-sale data were coded for the fresh commodities covered in the Loss-Adjusted Food Availability data. Both the shipment data and the point-of-sale data are at the item level. For example, a 2-pound bag of fresh carrots would be identified by its universal product code (UPC) and its purchase by a particular store. Therefore, the data can be aggregated to the appropriate product level at a particular store and a loss rate can be calculated. “Fresh carrots” consists of UPC-coded baby carrots, shredded carrots, and 1-, 3-, and 5-pound bags of whole carrots, plus whole carrots sold by random weight. The food-loss percentage was calculated as pounds

<sup>1</sup>The Perishables Group, Inc., conducted the research for the new food loss estimates under Grant No. 53-3K06-06-0801).

of a particular product that came into the store but were not sold (i.e., the “residual food loss”), divided by the pounds (or other appropriate unit) of that product that came into the store. This methodology yields actual, as opposed to estimated, loss rates and provides accurate tracking of food loss trends across fresh food categories. This methodology and the data sources offer the most accurate possible depiction of retail loss activity for fresh food items on a national level (both random-weight and UPC-coded items). These data are based on true aggregates of all store data, not projections.

Retailer categories were aggregated where necessary to match food categories in the ERS Loss-Adjusted Food Availability data as closely as possible, so that the new loss estimates could be incorporated later into the ERS data set. For example, data on all random-weight apples (e.g., Gala, Granny Smith, McIntosh, Red Delicious, and Golden Delicious) were combined with UPC-coded apples to match the ERS category for “fresh apples.” UPC-coded apples included packaged apples sold in a bag or “value-added” ones such as presliced apples. Data were only used for apples by themselves, that is, the data did not include caramel or candy-coated apples or sliced apples mixed with other kinds of fruit. Fresh fruit mixtures were not included because the Perishables Group did not have data on the share or weight of the different fruits in each mixture. Sliced or otherwise minimally processed fresh apples were included if they were not mixed with other fruit and if they were still sold as fresh apples. Similarly, fresh vegetable mixtures were not included. Some aggregations required additional information gathering and decision-making between ERS and the Perishables Group, such as whether arugula should be included with the ERS group “romaine and leaf lettuce.” In each case, the goal was to have store purchase and store sales aggregates that were consistent with the foods in the Loss-Adjusted Food Availability data. The end result was that the Perishables Group aggregated their data and provided new loss estimates for each of the fresh fruits, vegetables, meat, and poultry covered in the Loss-Adjusted Food Availability data plus estimates for all fish and all shellfish (see box, “Fresh Food Commodities Covered in the Perishables Group (PG) Data and Analysis”).

The Perishables Group solicited additional qualitative loss and shipment data and insights for meat, poultry, and seafood (i.e., fish and shellfish, both farm-raised and wild-caught) from more than 10 retailers via their current business relationships. Retailers did not track meat, poultry, and seafood shipment data as effectively as they tracked produce shipment data. Therefore, these departments did not have the same level of detail available as produce departments did. The Perishables Group developed and distributed a supporting study among their retail contacts to obtain additional insight on the food loss as it related to meat, poultry, and seafood.

## Fresh Food Commodities Covered in the Perishables Group (PG) Data and Analysis

Fruit		Vegetables <sup>1</sup>		Meat, Poultry & Seafood
Oranges	Cranberries	Artichokes	Kale	<b>Red Meat</b>
Tangerines	Grapes	Asparagus	Romaine and leaf lettuce	Beef
Grapefruits	Honeydew melons	Bell peppers	Mushrooms	Veal
Lemons	Kiwis	Broccoli	Mustard greens	Pork
Limes	Mangoes	Brussels sprouts	Okra	Lamb/Goat <sup>2</sup>
Apples	Peaches	Cabbage	Onions	<b>Poultry</b>
Apricots	Pears	Carrots	Potatoes	Chicken
Avocados	Pineapples	Cauliflower	Pumpkins	Turkey
Bananas	Papayas	Celery	Radishes	<b>Seafood</b>
Blueberries	Plums	Collard greens	Snap beans	Fish
Cantaloups	Strawberries	Sweet corn	Spinach	Shellfish
Cherries	Watermelons	Cucumbers	Squash	
		Eggplant	Sweet potatoes	
		Escarole/endive	Tomatoes	
		Garlic	Turnip greens	
		Head lettuce		

<sup>1</sup> Lima bean data were not available from any of the retailers participating in the study.

<sup>2</sup> A small portion of goat was included in the PG data for lamb. The PG estimates show that goat made up 0.12 percent of the lamb/goat category.

Source: Perishables Group final report to ERS, September 28, 2007.