Results

For each food group, this study presents the new loss estimates for 2005 and 2006 from the Perishables Group, Inc., grant and then analyzes the updated Loss-Adjusted Food Availability data after ERS incorporated the 2005-06 average supermarket loss estimate as an estimate for retail loss for each fresh food. The new supermarket loss estimates do not include loss in megastores, club stores, mom-and-pop grocery stores, or convenience stores. There are determinants of supermarket losses, such as product turnover, inherent product perishability (e.g., spoilage and moisture loss) and availability, and appropriate application of technologies to prevent product deterioration (e.g., refrigeration and produce-misting equipment). Loss rates may change over time as consumer demand changes, new products are introduced that broaden food choices, and new technologies are adopted by industry.

The study compared loss estimates for 2005 and 2006 data as a validation of methods used. Widely varying estimates in 2005 and 2006 for a particular fresh food could suggest that there is greater year-to-year variability in the loss estimates. Or, more importantly, widely varying estimates could mean that one of the estimates may be an outlier, and it should be considered more closely when deciding whether to use it to compute the 2005-06 average for inclusion as an estimate of the retail loss for that food in the Loss-Adjusted Food Availability data. However, 2 years of data are insufficient to make firm conclusions about increases or decreases in loss estimates. The study also compared the 2005-06 average loss estimates for each food group with the data used in the Loss-Adjusted Food Availability data.

Fresh Fruit

The overall average supermarket loss rate during 2005-06 varied considerably for individual commodities covered in the fresh fruit section. Average estimated food loss for fruit at the supermarket level decreased 2.3 percentage points from 10.7 percent in 2005 to 8.4 percent in 2006. One possible theory for this decreased loss could be the increased popularity of fresh-cut fruit. During the 52 weeks ending June 30, 2007, national average weekly sales of fresh-cut produce per store rose 8.3 percent from the previous year (Morley, 2007). Fresh-cut produce is one of the fastest-growing categories in the produce department. Although fresh-cut fruit tends to have a shorter shelf life than other types of processed fruit and although more rinds, cores, etc., were trimmed away by supermarkets in preparing the fresh-cut fruit, the demand for fresh-cut fruit may have been sufficiently high to reduce the total loss for fresh fruit. ERS used the 2005-06 average change because it provides a snapshot of what might potentially be a longer term trend, arising from a new technology or a change in demand, for example. On the other hand, changes could also reflect some unidentified fluctuations in the data.

Blueberries had the lowest loss in 2006 (4.6 percent), though cherries had the lowest 2005-06 average loss (3.9 percent). Blueberries are typically sold in clear plastic clamshells, which prevent high food loss and allow for a longer shelf life. Over the past year, several new varieties of hardy blueberries have increased overall blueberry shelf life.

Table 1

Supermarket loss estimates for fresh fruit

Fruit	2005	2006	2005-06 percentage-point change	2005-06 average
	Percent		*Number*	*Percent*
Papayas	58.7	51.0	-7.7	54.9
Apricots	37.5	32.6	-5.0	35.1
Honeydew melons	20.9	24.6	3.7	22.8
Tangerines	19.5	21.4	1.9	20.4
Pears	19.7	15.4	-4.3	17.6
Plums	20.7	14.0	-6.7	17.3
Watermelons	18.7	14.9	-3.8	16.8
Pineapples	16.8	12.5	-4.3	14.6
Mangoes	21.2	7.7	-13.5	14.5
Grapefruits	12.9	12.8	-0.1	12.8
Kiwis	15.7	9.6	-6.0	12.7
Cantaloups	11.1	13.3	2.3	12.2
Peaches	14.8	9.1	-5.7	11.9
Oranges	12.8	10.3	-2.5	11.6
Strawberries	10.0	9.5	-0.4	9.8
Avocados	9.7	9.0	-0.7	9.3
Apples	9.5	7.8	-1.7	8.6
Limes	10.9	5.7	-5.2	8.3
Bananas	9.4	6.5	-2.8	8.0
Grapes	8.1	7.1	-1.0	7.6
Lemons	8.1	5.9	-2.2	7.0
Cranberries	7.1	4.8	-2.3	6.0
Blueberries	5.9	4.6	-1.3	5.2
Cherries	2.8	4.9	2.1	3.9
Average	10.7	8.4	-2.3	NA[1]

[1]When the impact of incorporating the new estimates on ERS Loss-Adjusted Food Availability data was analyzed, the estimate of the overall average supermarket loss for fresh fruit was 11.4 percent.

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

Papayas had the highest loss in 2006 (51 percent) and for the 2005-06 average (54.9 percent). Lack of consumer knowledge of when papaya is ripe, how to prepare it, and how to use it as an ingredient is key to high papaya loss. This lack of familiarity with the fruit may mean consumers are more hesitant when deciding whether to purchase papayas at the supermarket and as a result, the loss rate is higher.

The largest loss percentage-point decrease between 2006 and 2005 occurred in mangoes, with a 13.5-percentage-point decrease. However, the previous 12-percent estimate used in the Loss-Adjusted Food Availability data lies in between the 21.2-percent 2005 estimate and the 7.7-percent 2006 estimate. This means that there is no information to support the theory that either of the two new estimates might be an outlier. Mangoes may simply be a fresh food item with great year-to-year variability. One theory about the decrease in estimated loss from 2005 to 2006 may be greater consumer awareness about how to select store, cut, and use mangoes. The National Mango Board introduced its marketing programs in early 2006 and selection and ripening were key message points. Mangos are very popular in the fresh-cut sector; as a result, the once-exotic tropical fruit is becoming more mainstream with consumers. The Loss-Adjusted Food Availability data estimate that per capita availability for mangoes is still small compared with more popular fruits. Mango per capita availability increased more than 56 percent between 1996 and 2006 from 0.55 pounds per year to .86 pounds per year. Meanwhile, significant declines in loss also occurred for papayas, plums, kiwis, peaches, and limes. The decline in lime loss may be attributed to increased lime sales over the past year, especially within specific regions of the United States.

The largest loss percentage-point increase between 2005 and 2006 occurred for honeydew melons (3.7 percent) and cantaloups (2.3 percent). These increases are small and do not suggest that there were outliers in the new data. Honeydew and cantaloup quality often varies from year to year based on crop conditions. Increased loss of these two products could be due to a lower quality crop in 2006. ERS used the 2005-06 average loss for each fresh food, and this reduced the impact of a single low-quality crop year of these melons on the Loss-Adjusted Food Availability data.

Both apples and bananas had declines in loss from 2005 to 2006 (1.7 and 2.8 percent, respectively), a portion of which can be attributed to the use of new postharvest technology that better controls ripening and rotting. According to the Loss-Adjusted Food Availability data, Americans consume more fresh apples and bananas than any other fresh fruits.

Next, ERS used the 2005-06 estimated average supermarket losses for each type of fruit in the Loss-Adjusted Food Availability data to see how these estimates would change the per capita estimates of the food available for consumers to take home from retail stores. One important concept to understand here is that the updated per capita commodity estimates (after incorporating the Perishables Group loss estimates) represent the loss-adjusted food available for consumption at the retail level and that additional consumer-level losses (e.g., plate waste at home and away from home) are accounted for later in the Loss-Adjusted Food Availability data to calculate the final estimates of food available for consumption.

Table 2 shows that the total impact of using the 2005-06 average Perishables Group estimates from table 1 for all fruit was small, with less than 1-pound difference (.67 pounds or 0.6 percent) in the fruit available at the retail level in 2005. Overall, ERS estimates that the average loss rate for 2005-06 for fresh fruit at this level was 11.4 percent (not shown), compared with 12 percent for the previous assumptions in the Loss-Adjusted Food Availability data. The similarity in these two estimates suggests that the previous estimates for fresh fruit in the ERS data series were reasonable, despite the lack of documentation.

The greatest positive impacts were observed for fresh bananas, apples, and grapes, largely because consumption of these fruits accounts for a large share of total fruit consumption and because the PG estimates of food loss for these commodities were substantially lower than the 12-percent estimate previously used for each fruit in the Loss-Adjusted Food Availability data. Some fruits, such as kiwis, peaches, and cranberries, saw little to no change in the levels of fruit available at the retail level. For some fruits, such as watermelons, papayas, tangerines, and honeydew melons, the per capita annual

Table 2

Comparison of ERS and Perishable Group (PG) estimates of annual fresh fruit loss at the retail/ institutional level (per capita)

Commodity	Retail weight[1]	Percent loss from retail/ institutional level to consumer level		Percent difference between ERS and PG estimates	Pounds of commodity available at the consumer level		Difference in pounds between ERS and PG estimates
		ERS estimates	PG estimates		ERS estimate	PG estimate	
	Pounds	*Percent*			*Pounds*		
Fresh bananas	25.1	12.0	8.0	-4.0	22.1	23.1	1.01
Fresh apples	16.2	12.0	8.6	-3.4	14.3	14.8	0.55
Fresh grapes	7.8	12.0	7.6	-4.4	6.9	7.2	0.34
Fresh lemons	2.8	12.0	7.0	-5.0	2.5	2.6	0.14
Fresh strawberries	5.4	12.0	9.8	-2.2	4.7	4.8	0.12
Fresh avocados	3.1	12.0	9.3	-2.7	2.7	2.8	0.08
Fresh limes	2.0	12.0	8.3	-3.7	1.8	1.9	0.08
Fresh cherries	0.8	12.0	3.9	-8.1	0.7	0.8	0.06
Fresh oranges	11.1	12.0	11.6	-0.4	9.7	9.8	0.05
Fresh blueberries	0.4	12.0	5.2	-6.8	0.4	0.4	0.03
Fresh cranberries	0.1	12.0	6.0	-6.0	0.1	0.1	0.01
Fresh peaches	4.5	12.0	11.9	-0.1	4.0	4.0	0.00
Fresh kiwis	0.4	12.0	12.7	0.7	0.4	0.4	0.00
Fresh cantaloups	9.3	12.0	12.2	0.2	8.2	8.2	-0.02
Fresh grapefruits	2.6	12.0	12.8	0.8	2.3	2.2	-0.02
Fresh apricots	0.1	12.0	35.1	23.1	0.1	0.1	-0.03
Fresh mangoes	1.8	12.0	14.5	2.5	1.6	1.5	-0.04
Fresh plums	1.1	12.0	17.3	5.3	0.9	0.9	-0.06
Fresh pineapples	4.7	12.0	14.6	2.6	4.1	4.0	-0.12
Fresh pears	2.8	12.0	17.6	5.6	2.4	2.3	-0.15
Fresh honeydew melons	1.7	12.0	22.8	10.8	1.5	1.4	-0.19
Fresh tangerines	2.3	12.0	20.4	8.4	2.1	1.9	-0.20
Fresh papayas	0.9	12.0	54.9	42.9	0.8	0.4	-0.38
Fresh watermelons	12.4	12.0	16.8	4.8	10.9	10.3	-0.59
Total selected	119.4	-----	-----	-----	105.1	105.8	0.67

[1]Retail weight from ERS Loss-Adjusted Food Availability data for 2005.

Source: Computed by authors using Perishables Group data and ERS Loss-Adjusted Food Availability data.

estimates of fruit available at the retail level declined because the PG estimates were notably larger than the baseline 12-percent estimate.

Fresh Vegetables

Table 3 shows how the average supermarket loss for the different varieties of fresh vegetables varied during 2005-06. Estimated food loss for vegetables at the supermarket level decreased 1.9 percentage points from 10.3 percent in 2005 to 8.4 percent in 2006.

Sweet corn's low loss in both 2005 and 2006 (0.6 percent) may be attributed to its limited seasonal availability, mostly from mid-summer to the first frost. Consumers actively purchase corn during this limited season, which results in limited loss at the store level. Also, most fresh sweet corn is sold in its husk, which may protect the corn from damage and may suggest that any spoilage might not be apparent until the husk is removed. New packaging innovation has also increased shelf life for sweet corn, as it has for some other vegetables. For example, tomatoes have seen declines in loss due to improved clamshell packaging and the introduction of varieties with improved shelf life.

The highest loss was for fresh mustard greens, with a 2005-06 average of 63.6 percent. A general lack of consumer knowledge of the product and its preparation may contribute to this high loss. The demand for fresh mustard greens is relatively low compared with the demand for frozen mustard greens. That is, consumers who typically buy mustard greens purchase them frozen. Although the new average loss estimate for mustard greens is far higher than the 12-percent ERS estimate, it was relatively similar in magnitude in 2005 (66.6 percent) and 2006 (60.7 percent). This means that there is no information about whether either of the new estimates are outliers.

Other vegetables with high loss levels included escarole/endive, turnip greens, kale, and collard greens. Leafy greens are relatively more prone to moisture loss than many other types of produce and hence tend to have higher loss levels. Despite the massive spinach recall that occurred in September 2006 due to contamination with *E. coli* O157:H7, spinach loss remained constant in 2006 versus 2005. The recalled spinach shipments were not used in the loss calculations. Spinach sales were limited during the month following the recall.

Other information gleaned from retailers by the Perishables Group included the observation that head lettuce realized a slight spoilage decline, partly because many retailers reduced shelf space of head lettuce. By reducing shelf space and inventory, retailers increased turnover of the product, reducing its time on the shelf. Another observation by the retailers is that red and yellow bell peppers typically have higher loss than green peppers. They believe this is due to lower prices for green peppers that make them relatively more attractive to consumers when deciding which peppers to buy. Nevertheless, more people are purchasing bell peppers in general, thus attributing to the decline in loss.

The largest loss percentage-point decrease between 2005 and 2006 occurred in collard greens—a 10.6-percentage-point improvement. We do not have a

Table 3
Supermarket loss estimates for fresh vegetables

Vegetable	2005	2006	2005-06 percentage-point change	2005-06 average
	Percent		*Number*	*Percent*
Mustard greens	66.6	60.7	-5.9	63.6
Escarole/endive	47.6	47.8	0.2	47.7
Turnip greens	39.1	42.9	3.8	41.0
Kale	42.1	36.3	-5.8	39.2
Collard greens	42.8	32.2	-10.6	37.5
Okra	22.9	25.9	2.9	24.4
Eggplant	21.5	21.2	-0.3	21.3
Radishes	22.4	19.6	-2.8	21.0
Artichokes	19.8	18.8	-1.1	19.3
Brussel sprouts	20.1	17.4	-2.8	18.8
Snap beans	19.2	17.9	-1.2	18.6
Spinach	14.4	14.4	0.0	14.4
Sweet potatoes	15.2	13.2	-2.0	14.2
Cabbage	16.4	11.8	-4.6	14.1
Cauliflower	12.9	15.1	2.1	14.0
Romaine and leaf lettuce	14.6	13.3	-1.3	13.9
Tomatoes	14.4	12.0	-2.3	13.2
Mushrooms	14.2	11.2	-3.1	12.7
Squash	12.5	12.4	0.0	12.5
Broccoli	12.5	11.4	-1.0	12.0
Pumpkins	12.7	9.8	-2.9	11.2
Onions	12.0	7.5	-4.5	9.8
Asparagus	10.8	8.0	-2.8	9.4
Head lettuce	9.1	8.3	-0.8	8.7
Bell peppers	9.7	5.8	-3.9	7.8
Garlic	9.8	5.0	-4.8	7.4
Potatoes	7.4	5.6	-1.7	6.5
Cucumbers	6.5	5.7	-0.8	6.1
Carrots	6.2	4.1	-2.2	5.1
Celery	5.9	4.3	-1.5	5.1
Sweet corn	0.6	0.6	0.0	0.6
Average	10.3	8.4	-1.9	NA[1]

[1]When the impact of incorporating the new estimates on ERS Loss-Adjusted Food Availability data was estimated, the overall average supermarket loss or shrinkage for fresh vegetables was 9.7 percent.

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

Table 4

Comparison of ERS and Perishable Group (PG) estimates of annual fresh vegetable loss at the retail/ institutional level (per capita)

Commodity	Retail weight[1]	Percent loss from retail/ institutional level to consumer level		Percent difference between ERS and PG estimates	Pounds of commodity available at the consumer level		Difference in pounds between ERS and PG estimates
		ERS estimates	PG estimates		ERS estimate	PG estimate	
	Pounds	*Percent*			*Pounds*		
Fresh potatoes	40.3	12.0	6.5	-5.5	35.4	37.7	2.22
Fresh sweet corn	8.0	12.0	0.6	-11.4	7.1	8.0	0.92
Fresh head lettuce	19.4	12.0	8.7	-3.3	17.0	17.7	0.63
Fresh carrots	8.4	12.0	5.1	-6.9	7.4	8.0	0.58
Fresh onions	19.6	12.0	9.8	-2.2	17.2	17.7	0.44
Fresh celery	5.4	12.0	5.1	-6.9	4.8	5.2	0.38
Fresh cucumbers	5.8	12.0	6.1	-5.9	5.1	5.4	0.34
Fresh bell peppers	6.4	12.0	7.8	-4.2	5.7	5.9	0.27
Fresh garlic	1.9	12.0	7.4	-4.6	1.7	1.8	0.09
Fresh pumpkin	4.5	12.0	11.2	-0.8	4.0	4.0	0.03
Fresh broccoli	5.1	12.0	12.0	0.0	4.5	4.5	0.00
Fresh asparagus	1.0	12.0	9.4	-2.6	0.9	0.9	0.03
Fresh squash	4.0	12.0	12.5	0.5	3.5	3.5	-0.02
Fresh mushrooms	2.4	12.0	12.7	0.7	2.1	2.1	-0.02
Fresh cauliflower	1.4	12.0	14.0	2.0	1.2	1.2	-0.03
Fresh Brussels sprouts	0.3	12.0	18.8	6.8	0.2	0.2	-0.02
Fresh spinach	2.1	12.0	14.4	2.4	1.8	1.8	-0.05
Fresh tomatoes	17.0	12.0	13.2	1.2	14.9	14.7	-0.20
Fresh artichokes	0.6	12.0	19.3	7.3	0.5	0.5	-0.04
Fresh radishes	0.5	12.0	21.0	9.0	0.4	0.4	-0.04
Fresh okra	0.4	12.0	24.4	12.4	0.4	0.3	-0.05
Fresh sweet potatoes	4.3	12.0	14.2	2.2	3.8	3.7	-0.09
Fresh eggplant	0.8	12.0	21.3	9.3	0.7	0.6	-0.08
Fresh cabbage	7.4	12.0	14.1	2.1	6.5	6.4	-0.15
Fresh escarole and endive	0.2	12.0	47.7	35.7	0.2	0.1	-0.09
Fresh Romaine and leaf lettuce	9.8	12.0	13.9	1.9	8.6	8.4	-0.19
Fresh kale	0.3	12.0	39.2	27.2	0.3	0.2	-0.09
Fresh snap beans	1.7	12.0	18.6	6.6	1.5	1.4	-0.11
Fresh turnip greens	0.4	12.0	41.0	29.0	0.3	0.2	-0.11
Fresh collard greens	0.5	12.0	37.5	25.5	0.4	0.3	-0.12
Fresh mustard greens	0.4	12.0	63.6	51.6	0.3	0.1	-0.20
Total selected	180.3	12.0	-----	-----	158.7	162.9	4.23

[1]Retail weight from ERS Loss-Adjusted Food Availability data for 2005.

Source: Computed by authors using Perishables Group data and ERS Loss-Adjusted Food Availability data.

theory on this change but, like the mustard greens finding, both collard green estimates (42.8 percent in 2005 and 32.2 percent in 2006) were much higher than the ERS baseline estimate of 12 percent so there is no information on whether either estimate is an outlier. In general, collard greens are best eaten when the leaves are older, allowing the product to have longer shelf life.

The largest loss percentage-point increase was in turnip greens (3.8-percent increase). In general, the high loss rate for turnip greens can be partly based on the lack of high-quality packaging. Turnip greens need to be refrigerated promptly after harvest in order to retain their moisture content and stay fresh.

When ERS used the 2005-06 average supermarket losses for fresh vegetables in the Loss-Adjusted Food Availability data, the total impact for all fresh vegetables in 2005 was a 4.2-pound (2.7-percent) increase in the fresh vegetables available at the retail level, per capita, over the course of a year (table 4). Overall, ERS estimates that the average loss rate for 2005-06 for fresh vegetables at the supermarket level was 9.7 percent (not shown), compared with 12 percent for the previous assumptions in the Loss-Adjusted Food Availability data. Although these estimates are not as close as they were for fruit, they are still similar and this suggests that the previous estimates for fresh fruit in the ERS data series were reasonable, despite the lack of documentation.

The greatest positive impacts on per capita consumption estimates were observed for potatoes, sweet corn, and head lettuce—once again largely because consumption of these commodities accounts for a large share of total vegetable consumption and because the new estimates of food loss were substantially lower than the 12-percent estimate previously used for each vegetable in the Loss-Adjusted Food Availability data. Most of the fresh vegetables saw less than a 0.1-pound change in the level of vegetables available at retail outlets (per capita) over the course of a year. These small changes were mostly due to their relatively small share of total fresh vegetable consumption.

Fresh Meat, Poultry, and Seafood

Table 5 shows how the loss rates for the different types of fresh meat, poultry, and seafood varied during 2005-06. Meat and poultry had a slight 0.3-percentage-point (rounded) increase in loss between 2005 (4.3 percent) and 2006 (4.5 percent).

Veal had the highest 2005-06 average loss in the meat, poultry, and seafood group. Historically, veal and lamb have significantly higher loss than other proteins. They represent a small percentage of the overall meat category in terms of dollars and volume. According to the Perishables Group's discussions with retailers, the retailers feel that veal is an item that they must offer to consumers to enhance the perception of variety in the meat department even though relatively few consumers purchase it. Some consumers, however, do purchase veal routinely or for special-occasion meals. Although veal realized the highest percentage-point increase (4.7 percent) in loss between 2005 (23 percent) and 2006 (27.8 percent) of the fresh foods in table 5, in absolute terms, the 2006 estimate for veal was only 20 percent higher

Table 5
Supermarket loss estimates for fresh meat, poultry, and seafood[1]

Meat/Poultry/Seafood	2005	2006	2005-06 percentage-point change	2005-06 average
	Percent		*Number*	*Percent*
Veal	23.0	27.8	4.7	25.4
Lamb/goat	14.0	10.6	-3.3	12.3
Pork	4.1	4.6	0.6	4.4
Beef	4.3	4.4	0.1	4.3
Chicken	3.7	4.2	0.5	4.0
Turkey	3.4	3.5	0.2	3.5
Average	4.3	4.5	0.3	NA[2]
Shellfish	9.4	9.2	-0.2	9.3
Fish	8.8	8.6	-0.2	8.7
Average	9.1	8.9	-0.2	NA[3]

[1]Numbers may not total due to rounding.
[2]A small portion of goat was included in the Perishables Group data for lamb although goat is not included in the Loss-Adjusted Food Availability data. The PG data estimates that goat made up 0.12 percent of this category.
[3]When the impact of incorporating the new estimates on ERS Loss-Adjusted Food Availability data was analyzed, the overall average supermarket loss or shrinkage for fresh meat, poultry, and seafood was estimated to be 4.5 percent.

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

than the 2005 estimate. This difference does not provide evidence that either estimate might be an outlier.

While lamb remains one of the highest loss categories, its loss decreased by over 3 percentage points between 2005 and 2006. Retailers indicated to the Perishables Group that they feel they must offer lamb to consumers, just as they offer veal. Consumers are often unclear on how to prepare lamb and therefore decide not to buy it. Lamb is more likely than some other meats not to be sold before its expiration date. Fewer lamb products are typically available to consumers, compared with other meats, and some consumers forgo purchasing lamb if a desired cut is not available. But lamb trimming and processing practices have changed over time to provide cuts that more closely meet consumer demand and this may have attributed to the lower loss.

Beef, with one of the relatively lower loss numbers, realized a slight increase from 4.3 percent in 2005 to 4.4 percent in 2006. During discussions with the Perishables Group, one explanation given by retailers for the increase in beef loss was that more retailers have introduced case-ready beef prepared at satellite centers or packing plants instead of prepared in the butcher section of the store. These retailers claim that some consumers may be hesitant to purchase some case-ready products. A reduction in the amount of regrinding that ground-beef products undergo may have also attributed to the increase in beef loss. Retailers now record items as out of code and dispose of the product at that time. When meat departments were doing more cutting, they would often pull less expensive cuts of meat from the counter prior to the cuts going out of code and add those products to their grind mixture for ground beef.

While overall meat, poultry, and seafood loss is low compared with the losses of fresh fruit and vegetables, increased loss of all protein foods can be attributed to the growth in the variety of products available in supermarkets over the past few years. As consumers look for new flavors, different cuts, and more convenient options (e.g., chicken presented as sliced tenders or boneless breasts), the number of unique meat products carried by a retailer increases. This requires more effort by stores to manage inventory and shelf space.

Turkey has the smallest 2005-06 average loss of the meat, poultry, and seafood categories. Turkey is often shipped frozen and is displayed and sold in partially frozen form, increasing shelf life.

Fish and shellfish loss decreased slightly between 2005 and 2006. Part of this decrease may be the result of a growing consumer awareness of seafood preparation and cooking techniques, which has increased seafood purchases outside of traditional products. Seafood loss also varies by retailer and is based on several factors. Consumer relationships with employees working at the retailer's fresh seafood service case may result in the employees sharing information about cooking practices involving different types of seafood options. This interaction makes consumers more inclined to purchase nontraditional seafood varieties. However, retailers with seafood service cases typically have higher loss numbers for seafood than those with packaged fish only. A growing number of stores are offering prepared seafood products, such as heat-and-serve fully cooked seafood entrées and appetizers. These products typically have a longer shelf life than fresh seafood.

When the new supermarket loss estimates for meat, poultry, and seafood were incorporated in the Loss-Adjusted Food Availability data in place of the previous 7-percent estimate for the loss at the retail level, the total annual per capita amount of these foods available for consumption at the retail level in 2005 increased 4.8 pounds per year (table 6). This is roughly a 2.7-percent increase. Overall, the average loss rate for 2005-06 for fresh meat, poultry, and seafood at the supermarket level was 4.5 percent (not shown), compared with the 7-percent assumption previously used in the Loss-Adjusted Food Availability data. This 2.5-percentage-point difference between 4.5 percent and 7 percent is small, suggesting the previous ERS estimate was reasonable.

In the meat, poultry, and seafood category, the greatest changes in per capita consumption for individual commodities were for chicken, beef, and pork. These are the three leading meats with the highest share of total estimated consumption for this food group. The relatively high loss estimates for lamb and veal each had little impact on the per capita estimate for those meats—a change of less than one-tenth of 1 pound over the course of the year.

Table 6

Comparison of ERS and Perishable Group (PG) estimates of annual fresh meat, poultry, and seafood loss at the retail/institutional level (per capita)

Commodity	Retail weight[1]	Percent loss from retail/ institutional level to consumer level		Percent difference between ERS and PG estimates	Pounds of commodity available at the consumer level		Difference in pounds between ERS and PG estimates
		ERS estimates	PG estimates		ERS estimate	PG estimate	
	Pounds	*Percent*			*Pounds*		
Chicken	60.4	7.0	4.0	-3.0	56.2	58.0	1.83
Beef	62.4	7.0	4.3	-2.7	58.0	59.7	1.66
Pork	46.5	7.0	4.4	-2.6	43.2	44.5	1.23
Turkey	13.1	7.0	3.5	-3.5	12.2	12.7	0.47
Lamb	0.8	7.0	12.3	5.3	0.7	0.7	-0.04
Veal	0.4	7.0	25.4	18.4	0.4	0.3	-0.07
Fish	6.1	7.0	8.7	1.7	5.6	5.5	-0.10
Shellfish	5.5	7.0	9.3	2.3	5.1	5.0	-0.12
Total selected	195.1	-----	-----	-----	181.5	186.3	4.84

[1]Boneless-equivalent or edible weight at the retail level from ERS Loss-Adjusted Food Availability data for 2005.

Source: Computed by authors using Perishables Group data and ERS Loss-Adjusted Food Availability data.