



U.S. GROCERY RETAIL DOLLAR-TO-WEIGHT CONVERSION FACTORS

2019

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This report describes the methodology used to quantify U.S. grocery retail food prices per pound at the department and category levels. ReFED has developed this dataset with data from Nielsen.

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OVERVIEW

One of the greatest barriers to food waste measurement for businesses is the difficulty to convert dollar amounts of food to weight and vice versa. Many datasets critical to food waste measurement are in dollar values, such as the cost of food purchased from suppliers and the dollar amount of food sold to customers. Other datasets that are also critical to food waste measurement are typically in weight units, such as the tons of food donated to food banks or the tons of compost or rendering picked up by third-party waste haulers. In order to bring these various datasets together into a comprehensive food waste measurement system, dollar-to-weight conversion factors are necessary. This barrier extends beyond the issue of food waste to environmental sustainability measurement in general, because most sustainability metrics are weight-based units (e.g., greenhouse gas emissions or water use per ton of product produced, etc.). Dollar-to-weight conversions will enhance the ability of food businesses to not only reduce food waste, but to measure, manage, and improve performance for other sustainability issues as well.

Dollar-to-weight conversion factors are difficult for businesses to obtain, because food business enterprise software systems were initially designed to track cost and sales flows of inventory, with weight included as an afterthought. If you look into the data systems of most food businesses, you'll generally find that there is no single database field that stores the weight of product purchased or sold using a common unit of measurement. Instead, each item is recorded in various units such as pounds, eaches, fluid ounces, or counts and tracked accordingly. In order for businesses to quantify the weight of product purchased or sold, they have to convert these various units into a common unit of weight for every single item. For a business that sells thousands or millions of products, that is a time and resource intensive process. Furthermore, information maintenance at the item level is not often prioritized (e.g., the item level weight fields are often left blank or fail to get updated when the purchase or sell units change)..

This report outlines the methodology used to develop a set of U.S. industry average grocery retail dollar-to-weight conversion factors to help grocery retailers overcome these barriers. ReFED has partnered with Nielsen to develop department level and category level conversion factors to enable simpler calculations at the department and category level, rather than at the item level. **It is important to note that average retail prices per pound vary significantly among retailers. For this reason, we strongly recommend you use data specific to your company for more accurate estimates.**

METHODOLOGY

Calculations

Nielsen data represents over 85% coverage of grocery retail sales in the U.S. Each year top U.S. grocery retailers report item level point-of-sale sales data to Nielsen, including information about each item such as the grocery chain where it was sold, the brand name of the product, the food classification (department, category, subcategory), the weight of food and packaging, and many other attributes. This data is the basis of the following calculations that were done to quantify the retail value (the price customers pay at the register) and weight of food sold at grocery stores in the U.S. in 2019.

Table 1. Calculations Performed to Determine Average Retail Prices Per Pound

DATA	DATA SOURCE OR CALCULATION	EXAMPLE
Item Sales	Annual U.S. 50-state register sales for a single item according to Nielsen point-of-sale (POS) data	\$3 Million in sales of a particular cookie product (a single UPC item)
Item Weight	Item weight according to Nielsen POS data	0.07 lbs per unit
Item Units Sold	Annual U.S. 50-state item units sold reported to Nielsen by grocery stores	1 Million units sold
Item Weight Sold	= Item Weight * Item Units Sold	= 1 Million units sold * 0.07 lbs per unit = 70,000 lbs sold
Department or Category Sales	= SUM of Item Sales for all items in each Department or Category	\$8.6 Billion of products sold in the Cookie Category of the Dry Goods Department (all items across various brands in the Cookie Category)
Department or Category Weight Sold	= SUM of Item Weight Sold for all items in each Department or Category	3.25 Billion lbs of products sold in the Cookie Category of the Dry Goods Department (all items across various brands in the Cookie Category)
Department or Category Industry Average Retail Price per Pound	= Department or Category Sales / Department or Category Weight Sold	= \$8.6 Billion sales / 3.25 Billion lbs sold = \$2.65 per lb industry average retail price of products in the Cookie Category of the Dry Goods Department

Limitations

The accuracy of these estimates is limited to the accuracy of the Nielsen sales and weight data. The weight data for UPC items comes directly from up-to-date product packaging images. For non-UPC items sold in eaches, Nielsen estimates weight using a weight conversion factor (e.g., the average weight of a lemon). For other non-UPC items, Nielsen is reliant on the retailer transaction data to provide the item sale weight units (e.g., lbs of apples sold).

RESULTS

Table 2. Department Level Retail Price per Pound

FOOD DEPARTMENT	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
All Food	\$2.31
Breads & Bakery	\$2.36
Dairy & Eggs	\$1.28
Deli & Prepared Foods	\$5.89
Dry Goods	\$3.19
Fresh Meat & Seafood	\$4.40
Frozen	\$2.36
Produce	\$1.57
Ready-To-Drink Beverages	\$0.76

Table 3. Category Level Retail Price per Pound

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
BREADS & BAKERY	
Artisan and specialty bread	\$2.28
Bagels	\$2.19
Brownies	\$5.69
Cake	\$5.46
Cheesecake	\$6.41
Cookies	\$3.85
Cupcakes	\$5.77
Donuts	\$1.65
English muffins and crumpets	\$3.22
Flatbreads and pizza crusts	\$3.99
Muffins	\$3.19
Naan	\$5.41
Other desserts	\$4.38
Pies, cobblers, and crisps	\$3.49

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
BREADS & BAKERY	
Pita bread	\$3.33
Rolls and buns	\$2.26
Sliced bread	\$1.87
Soft tortillas	\$1.37
Sweet goods	\$2.66
DAIRY & EGGS	
Butter, margarine, and substitutes	\$2.81
Buttermilk	\$0.89
Cheese	\$4.06
Creams and creamers	\$1.75
Dairy milk	\$0.43
Egg nog	\$1.32
Eggs	\$1.79
Lactose reduced/free milk	\$0.99
Liquid egg mix	\$2.47
Plant-based dairy alternatives	\$0.86
Refrigerated doughs	\$2.53
Sour cream	\$1.97
Yogurt	\$2.21
DELI & PREPARED FOODS	
Appetizers	\$8.45
Breakfast foods	\$6.86
Calzones or stromboli	\$6.10
Chilled salsa, dips, and spreads	\$4.20
Deli cheeses	\$7.63
Deli lunchmeat	\$7.74
Deli salads	\$4.56
Deli trays	\$7.36
Fully cooked beef	\$6.30

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
DELI & PREPARED FOODS	
Fully cooked chicken	\$4.61
Fully cooked pork	\$4.91
Fully cooked turkey	\$5.85
Handheld entrees	\$3.03
Hummus	\$5.15
Lasagna	\$5.60
Mac and cheese	\$7.72
Meal kits	\$5.13
Meat alternatives	\$3.29
Other meat	\$4.94
Pasta	\$5.18
Pizza	\$3.65
Pot pies	\$5.38
Potatoes	\$2.84
Prepared fruit or vegetables	\$3.90
Prepared meals	\$6.56
Rice	\$4.64
Sandwiches	\$7.77
Snack combos	\$7.07
Soups, stews, and broth	\$4.52
Sushi	\$16.77
DRY GOODS	
Apple sauce	\$1.57
Baby food	\$4.63
Bagged or loose tea	\$2.12
Baking chips and chocolate	\$3.90
Baking cocoa	\$6.90
Baking coconut	\$3.32
Baking milks	\$1.74

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
DRY GOODS	
Baking mixes	\$2.25
Baking nuts	\$8.38
Baking powder	\$3.55
Baking soda	\$0.73
Baking sprinkles	\$8.58
Baking yeast	\$16.55
Bouillon	\$6.19
Boxed dinners	\$3.26
Breakfast syrups	\$2.41
Broth	\$1.76
Canned beans	\$1.13
Canned fruit	\$1.71
Canned meat and seafood	\$4.48
Canned soup	\$2.18
Canned vegetables	\$1.47
Cereal	\$3.11
Cereal and granola bars	\$6.69
Chocolate candy	\$6.13
Coating mixes and crumbs	\$2.76
Coffee	\$7.48
Coffee enhancers	\$2.49
Coffee pods	\$15.69
Condiments	\$2.74
Cookies	\$2.65
Cooking oils	\$1.75
Cooking syrups	\$3.22
Cooking wine and vinegar	\$0.88
Corn and other food starch	\$1.66
Crackers	\$3.87

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
DRY GOODS	
Cranberry sauce	\$1.68
Dessert toppings	\$3.21
Diet and nutrition	\$4.75
Dried fruit and vegetables	\$5.25
Dry beans	\$1.24
Edible cake decoration	\$10.18
Flour and meal	\$0.70
Frosting	\$2.10
Fruit snacks	\$4.10
Gift baskets	\$13.50
Gnocchi and dumplings	\$3.18
Grits	\$1.62
Gum	\$2.53
Hard shell tortillas	\$3.32
Herbs, spices, and seasonings	\$14.47
Hot cider	\$8.86
Hot cocoa	\$7.17
Jams and jellies	\$1.99
Marshmallows	\$2.02
Milk enhancers	\$1.83
Mints	\$6.47
Nut butters	\$2.56
Nuts and seeds	\$6.02
Oatmeal and hot cereal	\$2.42
Other candy	\$3.87
Other grains	\$4.51
Other noodles	\$3.27
Other sauce, gravy, and marinades	\$2.77
Pasta	\$2.12

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
DRY GOODS	
Pasta sauce	\$1.75
Pickles, olives, and pickled vegetables	\$2.89
Pie crusts	\$4.57
Pie filling	\$1.91
Pudding and gelatin	\$7.25
Ramen	\$6.48
Rice	\$1.32
Salad dressing	\$2.52
Salad toppings	\$6.77
Salty snacks	\$4.81
Sauce, soup, and seasoning mixes	\$11.50
Shake and smoothie mix	\$4.00
Shelf-stable dips and salsa	\$2.53
Shortening and lard	\$1.67
Snack cakes	\$4.36
Specialty wraps	\$3.64
Sugar and sweeteners	\$1.58
Toaster pastries	\$2.71
Tomato sauce and paste	\$1.41
FRESH MEAT & SEAFOOD	
Bacon	\$5.24
Beef ribs	\$8.64
Beef roast	\$10.40
Chicken breast	\$4.98
Chicken legs	\$0.78
Chicken thighs	\$2.33
Chicken wings	\$3.44
Clams and mussels	\$4.68
Crab	\$12.58

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
FRESH MEAT & SEAFOOD	
Fowl and exotics	\$7.12
Ground beef	\$4.52
Ground chicken	\$3.79
Ground turkey	\$4.04
Ham	\$2.76
Lamb	\$7.24
Lobster	\$17.01
Lunchmeat	\$4.60
Meat alternatives	\$7.40
Other beef	\$6.63
Other chicken	\$5.78
Other fish	\$8.33
Other meat	\$2.92
Other seafood	\$14.41
Other shellfish	\$4.44
Other turkey	\$1.85
Oysters	\$11.97
Pork	\$4.96
Salmon	\$15.05
Sausage and franks	\$3.24
Shrimp	\$8.90
Steaks	\$10.99
Whole chicken	\$2.32
FROZEN	
Frozen appetizers	\$3.75
Frozen bagels	\$2.83
Frozen bakery desserts	\$4.06
Frozen beans	\$2.19
Frozen beef	\$4.01

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
FROZEN	
Frozen bread	\$3.25
Frozen breakfast foods	\$4.01
Frozen calzones and stromboli	\$6.04
Frozen chicken	\$3.11
Frozen dairy desserts	\$1.47
Frozen dessert toppings	\$2.76
Frozen dough and batters	\$1.92
Frozen fruit	\$3.10
Frozen fruit juice	\$2.33
Frozen handheld entrees	\$3.83
Frozen lasagna	\$3.01
Frozen mac and cheese	\$4.32
Frozen meals	\$4.03
Frozen meat alternatives	\$6.17
Frozen pasta	\$3.54
Frozen pie crust	\$3.08
Frozen pizza	\$3.17
Frozen pork	\$2.85
Frozen pot pies	\$3.55
Frozen potatoes	\$1.69
Frozen rice	\$4.12
Frozen rolls and buns	\$3.84
Frozen sausage and franks	\$3.51
Frozen seafood	\$6.97
Frozen toaster pastries	\$2.92
Frozen turkey	\$2.35
Other frozen desserts	\$0.56
Other frozen meat	\$3.23
Other frozen vegetables	\$2.43

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
PRODUCE	
Apples	\$1.66
Apricots	\$3.20
Artichokes	\$3.06
Asparagus	\$2.99
Avocados	\$2.38
Bananas	\$0.56
Bell peppers	\$2.58
Blackberries	\$6.28
Blueberries	\$4.61
Broccoli	\$2.01
Brussel sprouts	\$2.97
Cabbage	\$0.87
Cantaloupe	\$0.78
Carrots	\$1.21
Cauliflower	\$1.66
Celery	\$2.01
Cherries	\$3.14
Chili peppers	\$1.59
Clementines, mandarins, and tangerines	\$1.46
Coconut	\$1.07
Cranberries	\$2.72
Cucumbers	\$1.29
Dipped fruit	\$3.41
Eggplant	\$1.63
Figs	\$6.72
Fruit or vegetable trays	\$4.42
Garlic	\$3.17
Grapefruit	\$1.24
Grapes	\$2.09

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
PRODUCE	
Green beans	\$2.59
Greens	\$1.89
Honeydew	\$0.96
Kale	\$2.04
Kiwis	\$2.11
Leeks	\$4.20
Lemons	\$1.95
Lettuce	\$1.92
Limes	\$1.36
Mangos	\$1.29
Mixed vegetables	\$2.76
Mushrooms	\$4.34
Nectarines	\$2.03
Onions	\$1.15
Oranges	\$1.24
Other beans	\$1.83
Other berries	\$6.16
Other citrus	\$2.84
Other fruit	\$3.04
Other melons	\$1.16
Other squash	\$1.08
Other vegetables	\$2.00
Packaged salads	\$4.40
Papayas	\$0.99
Peaches	\$1.71
Pears	\$1.54
Peas	\$5.35
Pineapples	\$0.73
Plums	\$2.09

Table 3. Category Level Retail Price per Pound Continued

FOOD CATEGORY	2019 INDUSTRY AVERAGE RETAIL PRICE PER POUND
PRODUCE	
Pomegranates	\$2.71
Potatoes	\$0.80
Pumpkins	\$0.65
Radishes	\$1.01
Raspberries	\$7.62
Root vegetables	\$2.07
Spinach	\$2.90
Sprouts	\$5.14
Squash	\$1.63
Strawberries	\$2.71
Sweet corn	\$0.80
Tomatoes	\$2.08
Value added fruit	\$3.57
Value added vegetables	\$3.21
Watermelons	\$0.37
READY-TO-DRINK BEVERAGES	
Coffee	\$2.41
Fruit and vegetable juice	\$0.67
Other drinks	\$1.62
Shakes and smoothies	\$2.36
Sparkling juice	\$0.54
Tea	\$0.59