Food Data Collection, Processing, and Data Validation Tips

Tips for collecting food data:

- Explore other relevant data sets (e.g., AASHE STARS, Real Food Challenge)
- Make contact with your institution's dining manager and have multiple meetings throughout the year
- Determine system bounds (e.g., including athletic facilities, including dining halls only, including retail locations on campus)
- Determining if you will use scaling metrics such as:
  - % of purchases (if dollars spent is an available dataset)
  - A shorter time period (at least 2 months)
  - Major dining locations only

Tips for processing and entering food data:

- Calculate food weights using:
  - Information in purchase records
  - Online resources such as USDA Food Composition Database
  - Ask us! We have common conversion factors (e.g., #10 can weight, bushel of apples)
- Determining food categories:
  - Refer to SIMAP users guide appendix 3 tables A1 and A2 ([here](#))
    - Note: A food should only be categorized as multi-ingredient if the second product is half or 1/3 of the food mass, respectively
  - Use online resources to determine ingredients (and weights) of certain multi-ingredient food products (e.g., Larabar granola bars)
  - Ensure categorizations are same from year to year (if you have multiple years food data)
  - Determine if the food category is in an acceptable range using Table 1. And Figure 1. below
  - Ask us! We have a list of some multi-ingredient items
- Using the food uploader
  - Do NOT change the template
  - Correct errors if you receive any after uploading your dataset. A common error is "duplicate text error"; all text labels must be unique which can be done by either:
    - Using "Consolidate" function in Excel to combine weights of all items with the same name
    - Creating unique names for each duplicate named item (ex: multiple entries of apples to apples1, apples2, apples3…..) using "numbering" and "concatenate" functions in Excel
  - Confirm the data uploaded by comparing the total food weight in your data set to the food weight in the Food Report (found on "reports" tab in SIMAP)

○ Delete data if you need to restart on SIMAP "Data MGMT" tab

Additional data sets to request for data validation

● Number of meals served (can be in meal swipes, number of transactions, etc)
● Types of meal plans and number of each type (ex: 2,500 students on unlimited meal plans, 1,000 on 100 swipe per semester meal plans, etc)
● Dollars spent on food (total dollars and dollars by location)
● List of locations included and data set separated by location

Data validation methods:

1. **Top 10 Calculation**

   Using the template attached (Top 10 Template), evaluate the top 10 items purchased from each food category. This evaluation can help determine if weights in each category are similar to previous years or help to begin a year to year calculation.

   Evaluate top 10 calculations by:
   a. Identify food category total weights that have changed (higher or lower) by 50% from previous year
   b. Identify items previously in top 10 that are no longer in top 10
   c. Highlight any numbers significantly higher or lower than in previous years
   d. Identify items categorized differently from year to year and correct in your spreadsheet

   Steps to talk after evaluation:
   A. Correct miscategorized items
   B. Determine if any items total weights were calculated incorrectly
   C. Talk with dining provider to determine if any significant changes occurred within dining such as:
      a. New dining facilities opened
      b. Meal plan changes
      c. Renovated locations serving different foods
      d. Change in vendor for certain foods (ex: new vendor not included in datasets N footprint has been working with)

2. **Evaluate weight on per capita or meal basis**

A. Determine the number of meals served, number of meal "swipes" in dining halls, and, the full-time equivalent student population. It is best to have all of these metrics from your dining provider but if you do not, then any one or two of these metrics are acceptable.

B. Divide the total weight of food purchased at the institution by the number of meals served, number of meal swipes, and total FTE student population. This can be adjusted to make the calculation more appropriate for your institution. (ex: divide weight of food from only dining halls by number of meal swipes if meal swipes are only used in dining halls or if students, faculty and staff eat at dining facilities regularly, divide by total FTE).
C. Complete this calculation for all years with N footprint data and compare. If there is a large change (greater than 50%) in the per capita or per meal calculation, talk with dining providers to determine if:
   a. Meal plan or swipes from year to year changed (ex: unlimited meal swipes in dining halls were implemented)
   b. Determine if total purchase weight went up or down and why
   c. Ask about new initiatives that reduced waste per meal

3. Compare rates ($/kg or $/lb) by product category

A. Determine the total dollars spent on food from your dining provider if it is available.
B. Divide the total weight of food purchased at the institution by the dollars spent on food by category (ex: dollars spent on grain products/ total weight of grain products). Note: this pricing will vary widely by category (ex: 1 kg of nuts will be much more expensive than 1 kg of liquids or vegetables).
C. Complete this calculation for all years with N footprint data and compare. If there is a large change (greater than 25%) in the dollars per kg or lb in any given category, talk with dining about:
   a. Changes in vendors (ex: non-local to local provider for a certain product)
   b. Changes in purchasing patters (ex: bulk rate for potatoes is lower as the institution purchases more)

4. Compare location or vendor specific datasets

A. Collect food datasets split out by location (dining hall 1, dining hall 2, coffee shop A, Deli B…) and vendor (ex: Sysco, US Foods, local food hubs, Carter's Dairy Farm).
B. Determine total weight by category from each location.
   a. Evaluate results by determining if any changes by category at each location is more than 50% different than previous years. If so ask dining providers about:
      i. Change in types of food served at each location (ex: burger place to a plant forward cafe)
      ii. Changes in top items purchased (ex: quesadillas were the most popular in previous years but now taco salad is the most popular)
      iii. Any closures or renovations at each location
C. Determine total weight by category from each vendor.
   a. Evaluate results by determining if there are significant changes in the total weights or types of foods purchased at each location such as:

Table 1: Expected ranges for food categories weights by percent. If your institution is outside of these ranges, the values may still be correct. This table is more of a guideline for what we see at most institutions.

Category	Weight Class
Meat (sum of beef, chicken, pork, fish)	5% to 30%
Animal-based products (sum of milk, eggs, cheese)	5% to 40%
Plant-based products (sum of grains, vegetables, fruits, potatoes, beans, nuts)	20% to 70%
Pantry Staples (sum of liquids, coffee and tea, oils, sugars, spices)	5% to 30%

*Note: Percentages within categories will vary depending on the product. For example, in "pantry staples" spices will likely make up a small percentage of the total weight while liquids will likely make up a larger portion.
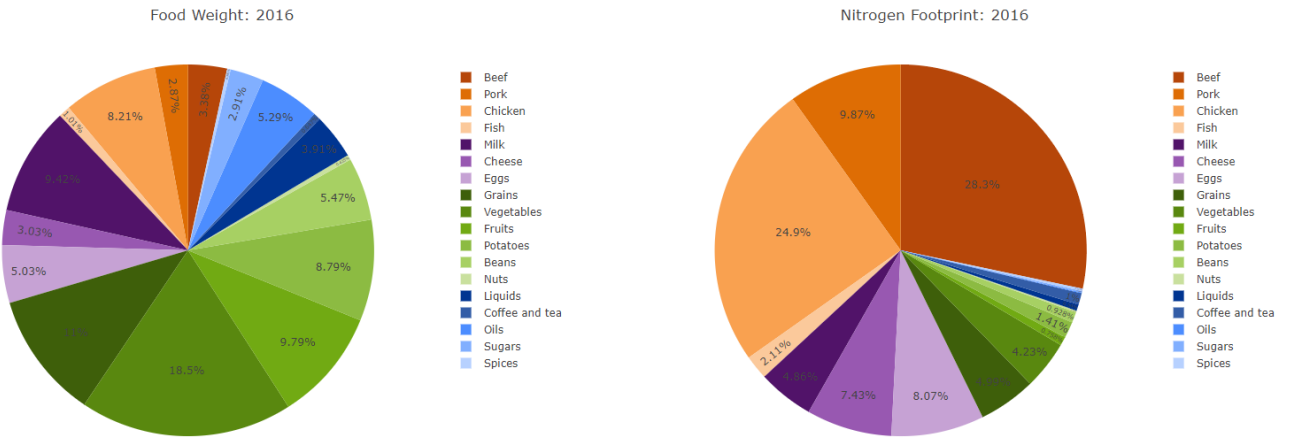
Figure 1: Image taken from SIMAP Food Report tab showing an example food nitrogen footprint and weight pie chart. Meat is in orange: beef, chicken, pork, and fish; animal products are in purple: milk, cheese, and eggs; fresh products are in green: grains, vegetables, fruits, potatoes, beans, and nuts; and pantry staples are in blue: liquids, coffee and tea, oils, sugars, and spices.