



Food Waste Measurement and Reporting: Best Practices for Businesses

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Acknowledgments

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Special Thanks

ReFED would like to thank Kai Robertson for her contribution to this report.

Interested in engaging with us? Retailers and foodservice contractors that are ready to put this guidance into practice can join the U.S. Food Waste Pact and begin reporting through ReFED's sector calculators. For businesses just starting to measure and report food waste data, those interested in moving towards the Best tier, and those ready to turn their data into action, ReFED's Business Services offerings can provide individualized support.

Learn more by contacting David Ly at david.ly@refed.org



ReFED



ReFED is a U.S.-based nonprofit that partners with food businesses, funders, solution providers, policymakers, and more to solve food waste. Its vision is a sustainable, resilient, and inclusive food system that makes the best use of the food we grow. The organization serves as the definitive source for food waste data, providing the most comprehensive analysis of the food waste problem and solutions to address it. Through its tools and resources, in-person and virtual convenings, and services tailored to help businesses, funders, and solution providers scale their impact, ReFED works to increase adoption of food waste solutions across the supply chain. To learn more about ReFED and solutions to reduce food waste, please visit refed.org.

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Executive Summary

Businesses cannot reduce food waste effectively until they can measure it consistently. Measuring food waste is the first step toward transforming an abstract, seemingly insurmountable problem into achievable goals and strategies. It allows businesses to realize the value of addressing food waste instead of accepting it as business as usual. It also streamlines external reporting to initiatives such as the U.S. Food Waste Pact (Pact), led by ReFED and World Wildlife Fund, while generating anonymized peer benchmarks that help businesses build buy-in, prioritize action, and track progress against their waste reduction targets.

This report translates ReFED's refined data collection and reporting guidance for Pact signatories and clients of ReFED's Business Services offerings into a "Good, Better, Best" framework that serves three audiences:

- **Pact signatories and Business Services clients**, who can see how their data is interpreted in ReFED reporting and how they could improve their measurement.
- **Retail and foodservice companies outside of the Pact**, who can learn how ReFED's methodology works and identify their own data gaps.
- **Sustainability and environmental, social, governance (ESG) teams from food businesses**, who can see where data reported to ReFED aligns with external disclosure frameworks.

This report helps businesses answer five questions:

1 What should be counted?

See [Measurement & Reporting Approach](#) and [Appendix 1: Scope Boundary Diagrams](#).

2 How good is our current data?

See [Retail Framework](#) and [Foodservice Framework](#).

3 What should we report?

See [Framework Components](#).

4 How does measurement differ for retail and foodservice?

See [Framework Components](#) and [Appendix 1: Scope Boundary Diagrams](#).

5 How does ReFED reporting support external disclosure?

See [Reporting Disclosure Framework Alignment](#).

A complete view of surplus food—how much is generated, where it goes, and why it occurs—allows businesses to better prioritize the solutions that can effectively prevent food waste. Comprehensive measurement allows companies to use the same underlying data to meet the requirements of multiple disclosure frameworks. The remainder of this executive summary previews five areas covered in the full report:

■ **Measurement & Reporting Approach.**

ReFED's framework is organized into three tiers: Good, Better, and Best. These tiers do not rank a company's food waste performance, but rather, they describe the quality of the data that a given company reports. "Good" establishes a benchmarkable baseline. "Better" replaces default values with company-specific records. "Best" uses verified, granular data that can support department-level prevention planning and external reporting.

This framework acknowledges and is rooted in the understanding of a critical trade-off: Actionability vs. Friction. Business-specific, granular data can help businesses prioritize reduction efforts; however, it can be difficult for a business to recognize when obtaining that level of data is worth the extra time, effort, or cost. Throughout the framework, recommendations are shared on where investment in improving a data area yields greater gains in reported data accuracy than the additional friction it introduces.

■ **Framework Design & Components.** ReFED's reporting process breaks down data into three categories or "metric groups": Surplus, Destinations, and Causes. Surplus measures how much food went unsold, unused, or uneaten. Destinations capture where that surplus went. Causes capture why the surplus was generated.

Pact reporting follows a sector-specific approach for increased accuracy and actionability, at the expense of additional friction. The inputs for measuring and reporting surplus food differ significantly between retail and foodservice. These differences require sector-specific data fields to represent a business's surplus food generation while conforming to an industry-wide approach that enables meaningful benchmarking.

The report provides an in-depth look at both the Retail and Foodservice frameworks, and provides specific recommendations for tracking waste for the Surplus, Destinations, and Causes metric groups.

Explore the Retail Framework on [page 12](#).

Explore the Foodservice Framework on [page 16](#).

■ **Reporting Disclosure Framework Alignment.**

Currently, six frameworks (five voluntary, one California regulation) cover most of the food waste reporting landscape for retailers and foodservice companies. ReFED provides full or partial data support for five of these six frameworks. It satisfies all food-waste reporting requirements for the FLW Accounting & Reporting Standard (FLW Standard), SASB's Food Retailers & Distributors standard (FB-FR-150a), and the S&P Global Corporate Sustainability Assessment (CSA). Additionally, it provides the essential food-specific metrics for two others that fold food waste into broader waste figures (SASB's Restaurants standard, FB-RN-150a, and GRI 306). California's SB 1383, the lone regulation among the six, requires a monthly record of pounds donated, broken down by location and recovery organization.

■ **Methodology.** The Good, Better, Best tiers are grounded in the data collection process used by ReFED for Pact reporting and in the methodology underpinning ReFED's Insights Engine, an online data and information source on food waste and its solutions. This methodology builds upon the common language and requirements in the Food Loss and Waste Accounting and Reporting Standard. The sector calculators that operationalize this framework have been tested and validated against companies that represent the majority of the U.S. retail and foodservice market share, ensuring the guidance reflects the data realities businesses encounter in practice.

■ **Looking Ahead.** ReFED will continue to refine this framework to reinforce its commitment to make food waste reporting easier for businesses while making the resulting data more consistent, comparable, and useful. As regulatory and voluntary disclosure requirements for food waste and operational waste evolve, ReFED will update this report to keep its framework alignment current and reduce the need for businesses to translate the same data across multiple reporting systems. This work is also intended to contribute to the broader food loss and waste measurement landscape. By translating lessons from company reporting into practical guidance, future efforts can help inform the revision of existing standards and the development of new measurement and reporting guidelines that clarify how food waste should be measured, reported, and ultimately prevented.

Ultimately, this report is a guide to comprehensive food waste measurement and reliable benchmarks that turn data into strategic objectives. It gives Pact signatories clarity on how their data is interpreted; helps retailers and foodservice companies outside the Pact identify measurement gaps; and gives ESG, sustainability, finance, operations, and data teams a common language for turning food waste reporting into credible benchmarks, stronger disclosure, and more targeted prevention.

Introduction

Businesses cannot reduce food waste effectively until they can measure it consistently. Measuring food waste is the first step toward transforming an abstract, seemingly insurmountable problem into achievable goals and strategies. It allows businesses to realize the value of addressing food waste instead of accepting it as business as usual. It also enables external reporting and benchmarking to programs like the U.S. Food Waste Pact (Pact).¹ Currently, businesses rely on disparate definitions of food “waste,” systems, and assumptions, making benchmarking performance difficult. Food waste reporting is only useful when it is reported against a shared scope, a shared data structure, and clear data quality expectations. Without that consistency, comparisons to industry benchmarks, and the internal buy-in they help build, fall apart.

ReFED is committed to reducing the measurement and reporting burden on businesses while increasing the value they receive in return for the data they report. To achieve reliable retail and foodservice benchmarks² for the Pact, ReFED offers hands-on technical assistance to help reporting signatories navigate the challenges of measurement and reporting. This publication translates ReFED’s refined data collection and reporting guidance for Pact signatories into a “Good, Better, Best” framework. It serves three audiences: Pact signatories, who can see how their data is interpreted in ReFED reporting and how they could improve their measurement; retail and foodservice companies outside of the Pact, who can learn how ReFED’s methodology works and identify their own data gaps; and sustainability and environmental, social, governance (ESG) teams from food businesses, who can see where data reported to ReFED aligns with external disclosure frameworks.

Measuring and reporting on food waste yields actionable data for companies. A complete view of surplus food—how much is generated, where it goes, and why it occurs—allows businesses to better prioritize the solutions that can effectively prevent food waste. Measuring comprehensively also lets companies satisfy multiple disclosure frameworks from a single foundation, rather than building a separate process for each. The [Reporting Disclosure Framework Alignment](#) section in this report maps ReFED’s approach onto these frameworks, so businesses can see how their measurement approach aligns.



¹ The U.S. Food Waste Pact is an initiative co-led by ReFED and World Wildlife Fund that accelerates progress on food waste reduction through business collaboration.

² Currently, ReFED calculates benchmarks for only the Business & Industry segment of the Foodservice sector.

Measurement & Reporting Approach

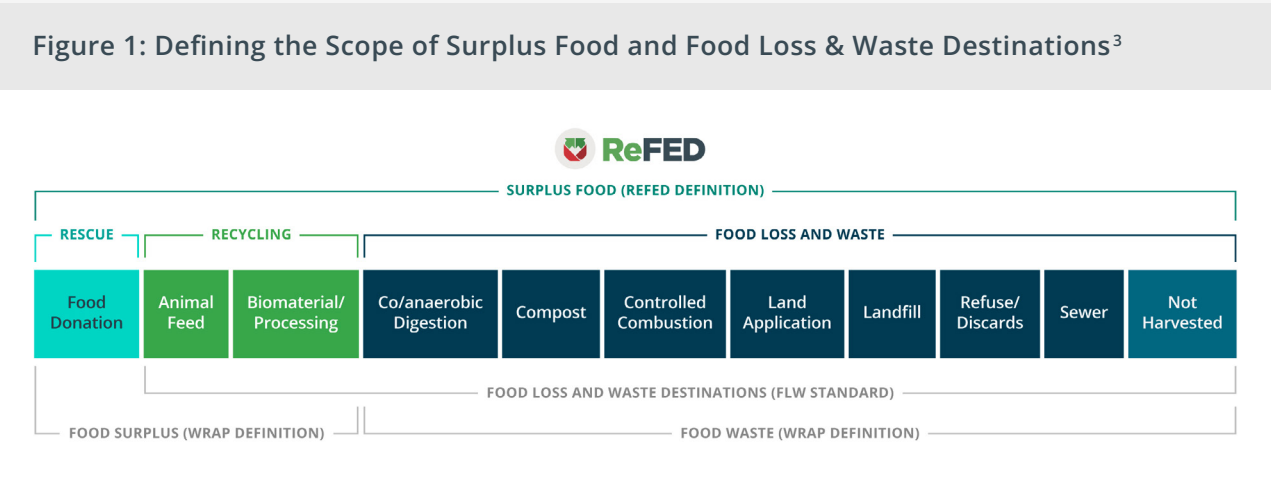
ReFED’s framework is organized into three tiers: Good, Better, and Best. These tiers do not rank a company’s food waste performance, but rather, they describe the quality of the data that a given company reports. “Good” establishes a benchmarkable baseline. “Better” replaces default values with company-specific records. “Best” uses verified, granular data that can support department-level prevention planning and external reporting.

ReFED’s Insights Engine Pro (available to all Pact members) is the online platform built to facilitate this framework. It translates business inputs into a consistent reporting structure grounded in [ReFED’s Insights Engine](#) methodology and aligned with the [Food Loss and Waste Accounting and Reporting Standard](#) (FLW Standard), with an eye for capturing a more complete picture of total food surplus. These tools are especially valuable to companies that have not yet built data capacity. The calculators accept company-specific data where available along with ReFED-provided defaults informed by industry-accepted, credible third-party sources like [NielsenIQ](#). It’s a structure that allows companies to participate before they have perfect measurement systems, while still showing where better data would improve the result.

Surplus Food

Across all food business sectors, ReFED uses a broad definition of surplus food that includes all unsold, unused, or uneaten food and inedible parts, regardless of where it goes and why it wasn’t sold, used, or eaten (Figure 1). This scope may be broader than the subset that a company may call “waste,” as it includes donations, animal feed, and all causes. ReFED reporting is based on total food surplus because a product can indicate an operational inefficiency even when it is donated or diverted.

For business decision-making, measuring total surplus is recommended. A retailer with high donation volume may be keeping food out of the landfill, but that volume can still indicate opportunities for improved forecasting, ordering, or merchandising. A foodservice operator with a high composting volume may be diverting material responsibly, but that volume can still indicate issues with production, trimming, or plate waste.

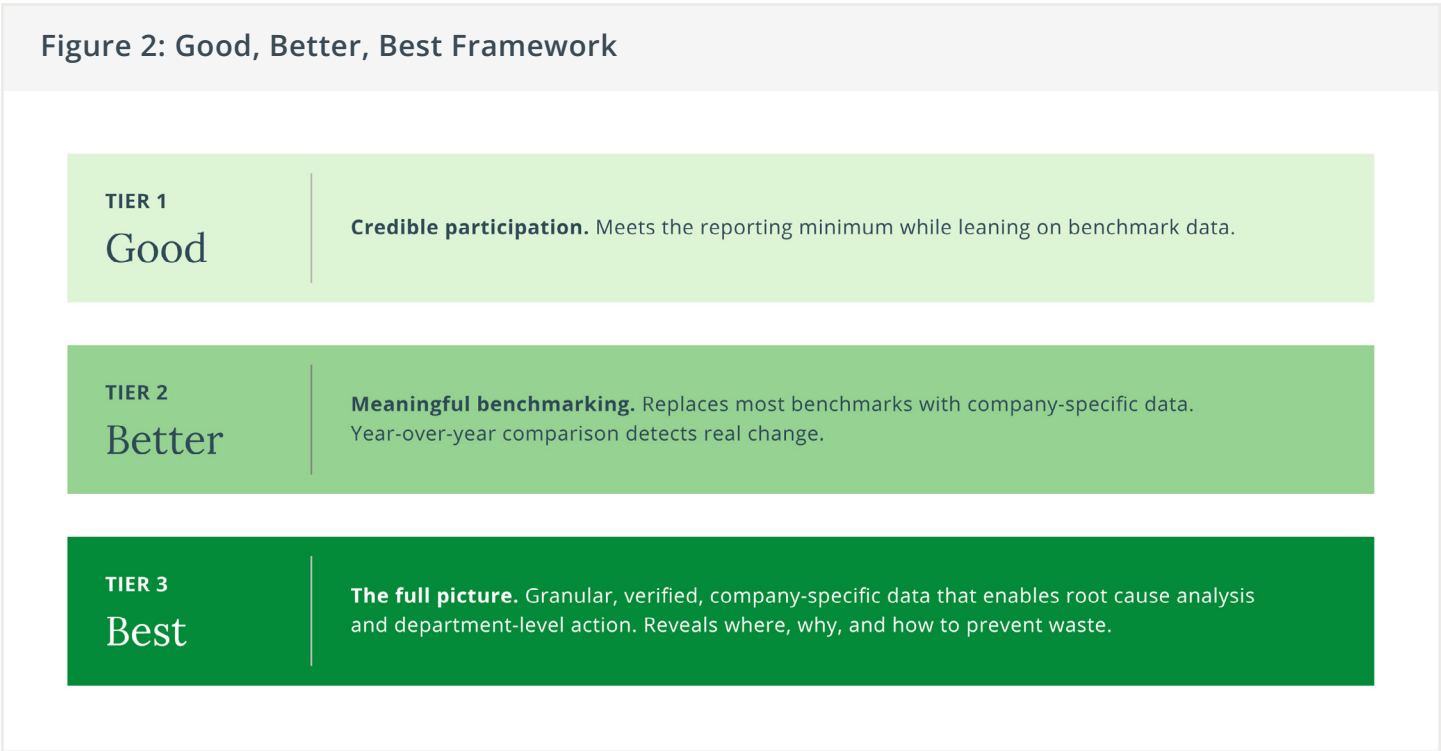


³ Waste and Resources Action Programme (WRAP).

ReFED’s framework complements existing food waste measurement and reporting resources. The FLW Standard defines the accounting and reporting scope needed for comparable food loss and waste inventories. The [CEC/WRI Practical Guide](#) builds on the FLW Standard’s supplement—Guidance on FLW Quantification Methods—to give facility-level quantification methods, including direct weighing, waste sorts, and composition analysis. ReFED’s framework translates those principles into an annual, sector-specific reporting model for retail and foodservice companies. See the [Reporting Disclosure Framework Alignment](#) section for more details on how this framework fits within the food waste measurement and reporting landscape.

Framework Design

The Good, Better, Best framework gives companies a way to improve measurement without waiting for perfect data. Each tier reflects the evidence behind a reported value, and the framework is grounded in the Pact’s data collection process. The progression from Good to Best is determined by the specificity and granularity of the collected data, inherently enhancing the quality of industry benchmarks, with differentiators between tiers varying by metric, data field, and/or data pipeline stage (Figure 2).



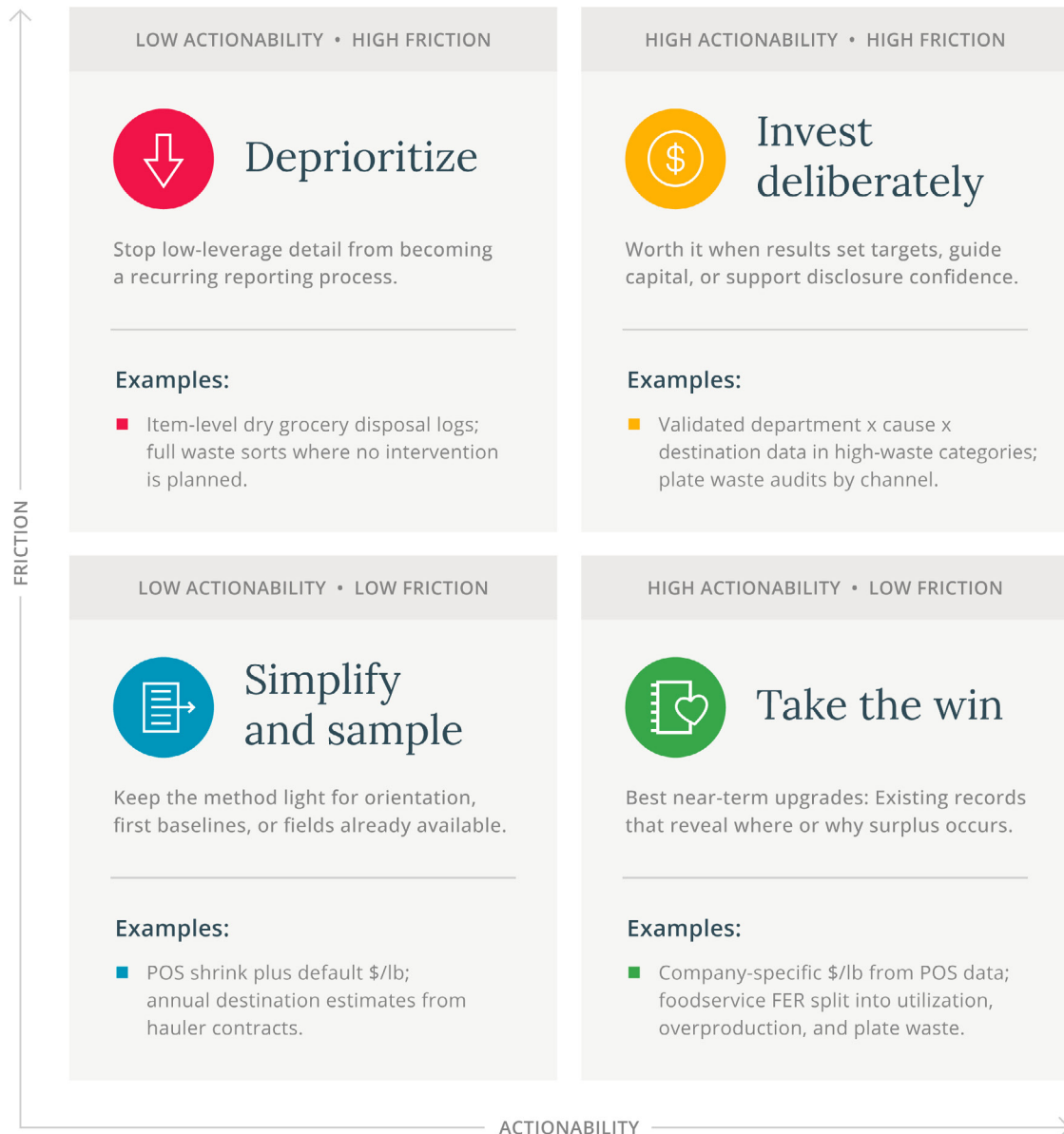
Note that a company may be Good in one data area, Better in another, and Best in a third. This matters because companies may prioritize accuracy or precision in certain areas and may not opt to improve every data stream at the same pace. This framework acknowledges and is rooted in the understanding of a critical trade-off: Actionability vs. Friction. Business-specific, granular data can help businesses prioritize reduction efforts; however, it can be difficult for a business to recognize when obtaining that level of data is worth the extra time, effort, or money. Throughout the framework, recommendations are shared on where investment in improving a data area yields greater gains in reported data accuracy than the additional friction it introduces.⁴

⁴ The [2024 Food Waste Index Report](#) by UNEP provides further detail on comparisons of measurement methodologies for the retail sector in Table 27 (p. 57) and for the foodservice sector in Table 31 (p. 62).

Actionability vs. Friction

This framework is designed to balance the need for actionable data against the friction of collecting it by prioritizing the metrics most likely to drive meaningful surplus reduction (Figure 3).

Figure 3: Actionability vs. Friction



Framework Components

ReFED’s data reporting process breaks down data into three categories, which ReFED calls “metric groups”: Surplus, Destinations, and Causes (Figure 4). Surplus measures how much food went unsold, unused, or uneaten. Destinations capture where that surplus went. Causes capture why the surplus was generated. Within each metric group, the framework is broken into two dimensions: the data field submitted and the data pipeline used to produce it. Data fields define what the company reports. The data pipeline explains how the value was collected, calculated, and validated (Figure 5).

Figure 4: Metric Groups

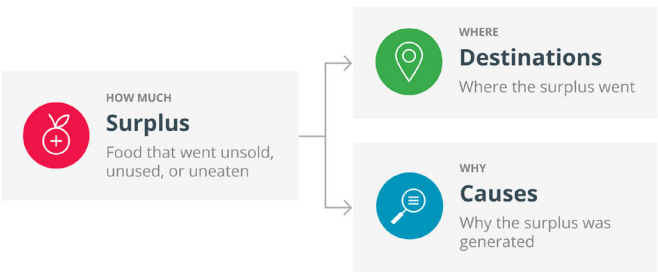
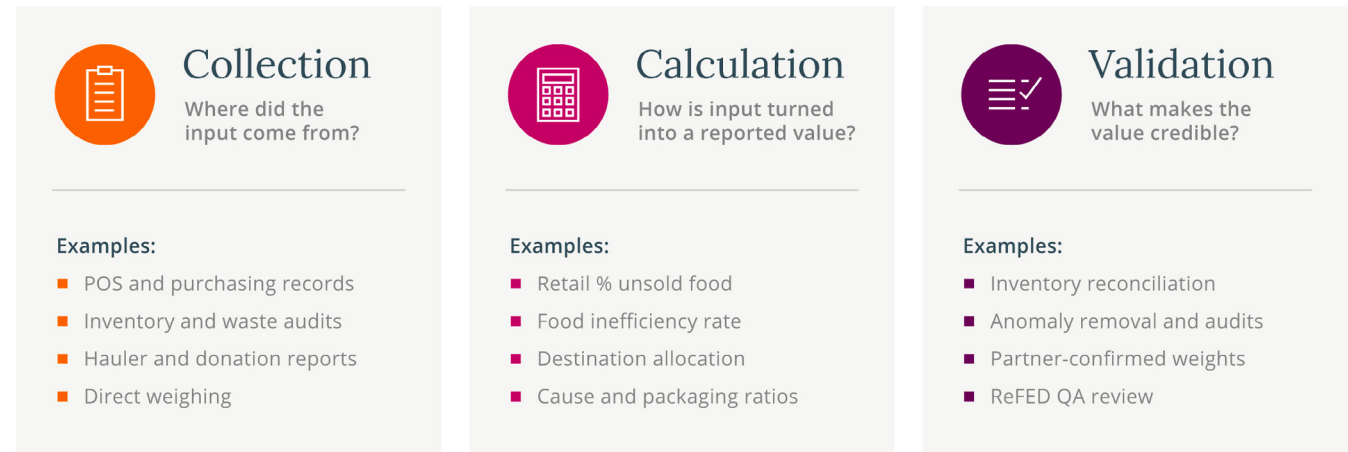


Figure 5: Data Pipeline



Site representation is not included in this framework, but does impact data accuracy. While Pact data collection supports site extrapolation when full-site coverage is not possible, reporting on all sites will naturally yield the most accurate data. Companies should distinguish between measured coverage and extrapolated coverage when interpreting their results. For more details on the scope of sector reporting, see the [Scope Boundary Diagrams](#) appendix.

Food department granularity—a distinct element of ReFED’s surplus food measurement and reporting—is also not included in the tables below. Within Surplus and Causes, surplus food data is requested at the food department-level using Nielsen categories: Breads & Bakery, Dairy & Eggs, Dry Goods, Fresh Meat & Seafood, Frozen, Prepared Foods, Produce, and Ready-To-Drink Beverages. Department-level

reporting is one of the main ways the framework becomes actionable. A company cannot prioritize prevention effectively if it knows only its total surplus.

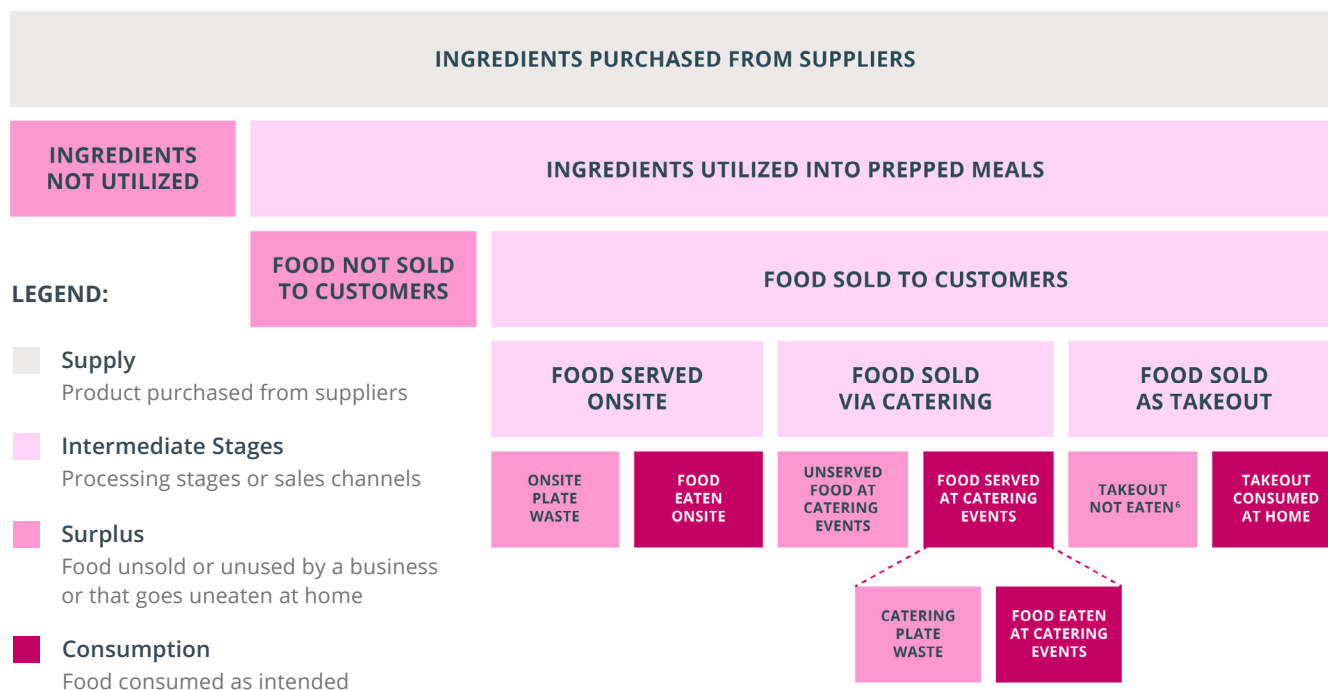
(For more details on the data fields and data pipeline stages, see the [Key Terms Glossary](#) appendix.)

Pact reporting follows a sector-specific approach for increased accuracy and actionability, at the expense of additional friction. As shown in the diagrams below, the inputs for measuring and reporting surplus food differ significantly between retail and foodservice. These differences require sector-specific data fields to represent a business’s surplus food generation while conforming to an industry-wide approach that enables meaningful benchmarking.

Figure 6: Retail Diagram



Figure 7: Foodservice Diagram



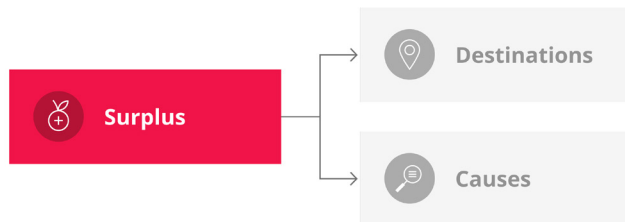
⁵ QA rejections are excluded from a retailer's surplus accounting, and this should be clearly communicated to manufacturers or other suppliers so they capture this material in their own accounting instead.

⁶ ReFED considers takeout not eaten to be out of scope for the Foodservice sector. However, the calculator does estimate this surplus for businesses that are interested, because it is important for businesses to consider the role they play in terms of portion sizes, packaging, etc., that factor into whether or not takeout gets consumed.

Retail Framework

The tables below show the Good, Better, Best framework for the retail surplus food measurement and reporting metric groups, including the data fields submitted and the data pipeline stages: collection, calculation, and validation.

Retail: Surplus



Estimating surplus answers the question of “how much was generated.” At this stage, data generally comes from internal tracking systems, such as point-of-sale (POS) systems or other inventory management tools. The data from POS systems can vary in accuracy for weight, particularly at the universal product code (UPC) level. However, as POS systems are used to manage sales and process transactions, they are highly accurate in terms of value.

There are two methods for reporting Surplus using ReFED’s calculator: (1) Retail \$ Sold and % Unsold Food, or (2) Surplus Weight and % Unsold Food. Most businesses report using the first method due to financial data being more readily available or having more confidence in the retail values assigned to UPCs. Retailers that track item weights by UPC could report the tonnage of surplus directly, without calculations. While Surplus Weight is considered the “best” tier within the framework, that is dependent upon the accuracy and confidence a retailer has in their UPC weight data.

Both methods require the entry of the % Unsold Food, also referred to as the Unsold Food Rate, by food department. The unsold food rate is used to calculate the tonnage of surplus food when a business reports Retail \$ Sold. While it is not used to calculate tonnage when businesses report surplus weight directly, it is still a required input to enable benchmarking and progress tracking.

Unsold Food Rate

Unsold food includes all food that went unsold in each grocery store department, including both edible food and inedible scraps (pits, peels, etc.), and includes all destinations as defined under [Surplus Food](#). Unsold food rates are the most important metrics for tracking progress in retail because they represent actual surplus food reduction practices rather than market fluctuations or business performance.

There are optional data points that can help improve the accuracy of the analysis, including the Price-to-Weight Conversion (Retail \$ Per Lb) and Refinement Factors. ReFED provides default values for all of these data fields, so retailers could still report within the Good tier without providing company-specific data. To move into the Best tier, a retailer would need to report company-specific inputs for each of these data fields; however, this may introduce more friction than increased actionability. The most important optional metric to report is company-specific Retail \$ Per Lb, as this has the most impact on the accuracy of the results. Different pricing strategies implemented by retailers would not be accounted for in the default values and would affect the tonnage calculation for those reporting with Retail \$ Sold, as well as the economic analysis provided back to reporting businesses.

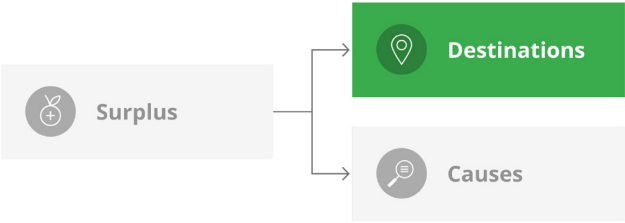
Tips for Retail

- Use direct Surplus Weight only if highly confident in the accuracy of the weights assigned within POS systems.
- The highest value in providing company-specific data, rather than using the provided defaults, is calculating internal Retail \$ Per Lb.

Table 1: Retail Surplus Framework

Metric	Stage	Good	Better	Best
Surplus Metric	Data Field	Retail \$ Sold + % Unsold Food	Retail \$ Sold + % Unsold Food	Surplus Weight + % Unsold Food
	Collection	Aggregate POS data	POS reconciliation cross-validated	Granular POS weight data (SKU-level, bottom-up tonnage) OR site-level surplus measurement
	Calculation	$\% \text{ Unsold Food} = \text{Retail \$ Not Sold} / (\text{Retail \$ Sold} + \text{Retail \$ Not Sold})$	$\% \text{ Unsold Food} = \text{Retail \$ Not Sold} / (\text{Retail \$ Sold} + \text{Retail \$ Not Sold})$	$\% \text{ Unsold Food} = \text{Retail \$ Not Sold} / (\text{Retail \$ Sold} + \text{Retail \$ Not Sold})$ OR $\% \text{ Unsold Food} = \text{Retail Weight Not Sold} / (\text{Retail Weight Sold} + \text{Retail Weight Not Sold})$
	Validation	None	Inventory audit adjustments	Inventory audit adjustments
Price-to-Weight Conversion	Data Field	ReFED benchmark Retail \$/lb	Company-specific Retail \$/lb	Company-specific Retail \$/lb
	Collection	None	POS weight data from a proxy set of representative SKUs	Individual SKU weight data
	Calculation	None	Retail \$ Sold by Department / Weight of Retail Sold by Department	Retail \$ Sold by Department / Weight of Retail Sold by Department
	Validation	None	None	Anomalies removed
Refinement Factors	Data Field	All ReFED benchmarks (% Quality Assurance (QA) Rejection, % Packaging, % Inedible Parts)	Company-specific % QA Rejection, ReFED Benchmarks for % Packaging and % Inedible Parts	Company-specific % QA Rejection, % Packaging, and % Inedible Parts
	Collection	None	Purchase order (PO) records	PO records (QA), direct measurement (packaging and inedible parts)
	Calculation	None	$\% \text{ QA} = (\text{Weight ordered on PO} - \text{Weight received into inventory}) / \text{Weight ordered on PO}$	QA calculation; $\% \text{ Packaging} = \text{Weight of Packaging} / \text{Total Weight of item}$; $\% \text{ Inedible parts} = \text{Weight of Inedible Parts} / \text{Total Weight of Item}$
	Validation	None	None	Periodic re-measurement of data fields

Retail: Destinations



Reporting surplus food destinations answers the question of where surplus food is going. ReFED collects data across 10 destinations that capture the full range of surplus and waste: Donations, Animal Feed, Industrial Uses, Composting, Anaerobic Digestion, Land Application, Sewer, Incineration, Landfill, and Dumping. Any difference between what is reported within the Destinations metric group and what was calculated within the Surplus metric group is accounted for as “Unknown.” Destination data is collected as the tonnage going to each destination, and the data field remains the same across all tiers.

The progression to the Best tier in Destinations is dependent upon how the data is collected and whether there is any validation of the inputs. For destinations that only accept food material, such as Donations or Animal Feed, retailers may receive reports from their third-party

partners with high data standards on exactly how much surplus food is being delivered to them. However, some vendors may not provide these reports, which requires the retailer to make internal estimates based on those contracts, putting them in the Good tier.

For destinations with mixed waste streams, such as Landfill, it can be difficult to separate out the food waste from total waste. Working with internal waste teams can yield an estimate of the proportion of landfill tonnage that is considered food surplus, but routine waste characterization studies or audits can increase confidence in this estimate and move a business towards the Best tier.

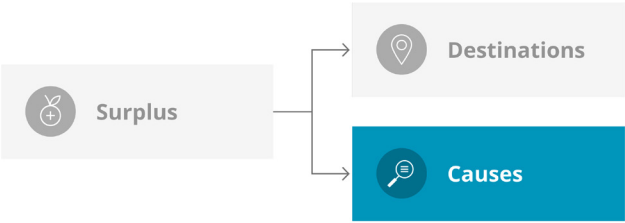
Tips for Retail

- Transitioning from using internal estimates to hauler records whenever possible will make the data much more accurate.
- Conducting waste audits can help identify how much of the landfill waste is actually food waste that could be diverted or possibly even donated, otherwise it remains an invisible problem.

Table 2: Retail Destinations Framework

Metric	Stage	Good	Better	Best
Destination Tracking	Data Field	Tonnage by destination	Tonnage by destination	Tonnage by destination
	Collection	Internal estimates based on hauler contracts	Hauler records with estimated tonnage + donation receipts from food rescue organizations	Verified partner data (documented intake weights, high data standards)
	Calculation	Allocation of total surplus tonnages across destinations using contract assumptions	Hauler-reported tonnage + donation receipts + diversion partner-reported tonnages	Sum of verified intake weights by destination partner
	Validation	None	None	Waste audits

Retail: Causes



Reporting causes accounts for why surplus food is generated across 10 different causes in retail: Cooking Issues, Date Label Concerns, Equipment Issues, Food Safety Recall, Handling Errors, Overproduction, Spoiled, Theft, Trimmings & Byproducts, and Other. Due to feedback from reporting businesses that cause data is not often accessible within retail, cause reporting is considered optional for the sector and defaults are provided.

A starting point for retailers not currently tracking causes is to work with internal operations teams to create a best-guess allocation. The Best tier requires a retailer to use technology-aided tracking, with employees logging causes at the point of disposal. While this may introduce friction and require investment from a business, cause data is one of the most critical pieces of data in helping a business reduce surplus food and prioritize prevention opportunities.

Tips for Retail

- Even a best-guess allocation of causes helps a business prioritize prevention opportunities; without knowing why food becomes surplus, adopted solutions may not be as effective.

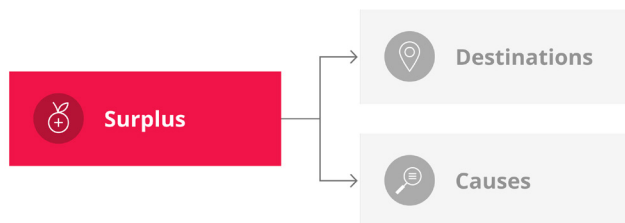
Table 3: Retail Causes Framework

Metric	Stage	Good	Better	Best
Cause Attribution	Data Field	ReFED default cause distributions	Causes at total company level	Causes at food department level
	Collection	None	Best-guess allocation with internal SME perspectives	Technology-aided tracking logging causes at point of disposal
	Calculation	None	None	Weight of surplus due to cause / total weight of surplus (done by individual food department)
	Validation	None	None	Internal quality check of causes calculated

Foodservice Framework

The tables below show the Good, Better, Best framework for the foodservice surplus food measurement and reporting metric groups, including the data fields submitted and the data pipeline stages: collection, calculation, and validation.

Foodservice: Surplus



Estimating Surplus, or answering how much surplus food is generated, can be done in foodservice with a few different methods using a combination of the following inputs: (1) Ingredient Cost or Surplus Weight, and (2) Food Inefficiency Rate (FIR) or Ingredient Utilization Rate and Overproduction data. The combination of inputs depends on an organization's internal tracking systems. Those who have implemented a food waste-specific tracking system may be able to report Surplus Weight directly rather than relying on a conversion from Ingredient Cost, depending on the accuracy of weight data captured by the system.

The two rates that can be used to report Surplus data, Food Inefficiency Rate or Ingredient Utilization Rate, also depend on the tracking system's sophistication. The distinction between these rates is based on the incorporation of overproduction surplus food. The Best tier requires using an ingredient utilization rate and overproduction data because that approach is more granular. However, a business may have more confidence in its FIR than in the more granular Ingredient Utilization Rate, and should then report using FIR despite it being the Best tier. As FIR is generally the more accessible rate for businesses, the public reporting done for the Business & Industry segment currently uses FIR as the basis for industry benchmarks.

There are optional data points that can help improve the accuracy of the analysis, including the Price-to-Weight Conversion and Refinement Factors. ReFED provides default values for all of these data fields, so foodservice operators can still report without having company-specific data for these metrics. The Price-to-Weight Conversion is the most important optional metric for which businesses should have company-specific data. This metric impacts the tonnage calculated for those reporting Ingredient Costs rather than direct Surplus Weight, and it also impacts the economic analysis of surplus

food. Within foodservice, there are potentially two Price-to-Weight Conversion factors: Wholesale Ingredient \$ Per Lb, and, for those reporting overproduction data, Retail \$ Per Lb.

Food Inefficiency Rate

The Food Inefficiency Rate (FIR)⁷ is a composite metric that combines surplus from overproduction and surplus from unused ingredients (as opposed to tracking an ingredient utilization rate separately from an overproduction rate). FIR quantifies food surplus as a percentage of total food purchases, and a lower FIR indicates less food is going to surplus relative to total purchases.

The refinement factors for foodservice surplus are % Sales by Channel and Plate Waste Rate. The most valuable refinement factor for foodservice operators is reporting the % Sales by Channel. This input identifies the sales distribution across Onsite Dining, Catering Dining, and Take Out Dining, which could increase the data's actionability by better prioritizing prevention opportunities by sales channel. To determine Plate Waste Rates, businesses would need to conduct physical plate waste audits. But this may be too time- and resource-intensive, introducing more friction than actionability. However, plate waste accounts for a significant share of food surplus, so if a business believes its plate waste rate deviates from the average, it may be useful to develop a company-specific rate.

Tips for Foodservice

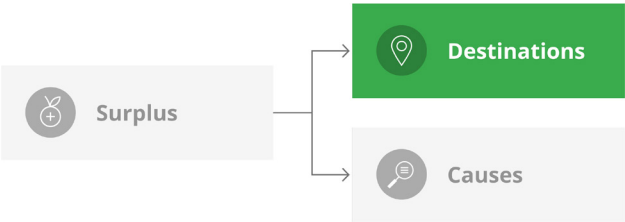
- Report using the Ingredient Utilization Rate and Overproduction data if confident in the data, otherwise report using the Food Inefficiency Rate.
- The Price-to-Weight Conversions are the most important optional metrics to provide company-specific data for.

⁷ This term has previously been referred to as Food Efficiency Rate (FER), & has been renamed to Food Inefficiency Rate (FIR). See [Key Terms Glossary](#) for more details.

Table 4: Foodservice Surplus Framework

Metric	Stage	Good	Better	Best
Surplus Metric	Data Field	Ingredient Cost + company-level Food Inefficiency Rate	Surplus Weight + department-level Food Inefficiency Rate	Ingredient Cost OR Surplus Weight + Ingredient Utilization Rate + Overproduction Data
	Collection	Purchasing records	Food waste tracking systems (without associated menu pricing)	Purchasing, production, and sales data
	Calculation	Food Inefficiency Rate = Cost of Surplus Food / Cost of Total Food	Food Inefficiency Rate = Cost of Surplus Food / Cost of Total Food (done by individual department)	Ingredient Utilization Rate = \$ or Lbs of Ingredients used to produce meals for clients / \$ or Lbs of Ingredients purchased from Suppliers
	Validation	None	Periodic reconciliation of tracking-system entries across BOH inventory counts	Reconciliation across purchasing, production, and sales records; inventory audit adjustments
Price-to-Weight Conversion	Data Field	ReFED benchmark Wholesale Ingredient \$/lb	Company-specific Wholesale Ingredient \$/lb	Company-specific Wholesale Ingredient \$/lb AND Retail \$/lb
	Collection	None	Purchasing system records	Purchasing records + menu pricing + sales data
	Calculation	None	Wholesale Ingredient \$/Lb = \$ of Ingredients Purchased / Lbs of Ingredients Purchased	Wholesale Ingredient \$/Lb calculation; Retail \$ Paid by Customers / Lbs of Food Delivered to Customers
	Validation	None	None	Reconciled against invoices
Refinement Factors	Data Field	ReFED benchmarks for % Sales by Channel + Plate Waste Rate	Company-specific % Sales by Channel; benchmark Plate Waste Rate	Company-specific % Sales + Plate Waste Rate by Channel
	Collection	None	Site-type volumes and sales records	Sales records + physical plate waste audits
	Calculation	None	Sales by Channel = \$ of Sales to Channel / \$ of Total Sales	Sales by Channel calculation; Plate Waste Rate = Lbs of Food Not Eaten / Lbs of Food Sold
	Validation	None	Sales records cross-checked against POS channel tags	Plate waste audit results reconciled

Foodservice: Destinations



Reporting surplus food destinations answers the question of where surplus food is going. ReFED collects data across 10 destinations that capture the full range of surplus and waste: Donations, Animal Feed, Industrial Uses, Composting, Anaerobic Digestion, Land Application, Sewer, Incineration, Landfill, and Dumping. The difference between what is reported within the Destinations metric group and what was calculated within the Surplus metric group is accounted for as “Unknown.” Destination data is collected as the tonnage going to each destination, and the data field remains consistent across all tiers.

There is a unique challenge in reporting destinations for foodservice contractors: clients often own the diversion infrastructure for surplus food, and facilities and waste

are often managed by a different third-party contractor, meaning foodservice contractors may not have visibility into the data. Food waste tracking systems may be able to track the final destinations of surplus food, but they rely on accurate employee logging, which requires employees to have visibility into the diversion programs being used. The highest-quality data for destinations is collected through verified partner data, which businesses may be able to access if they own the diversion relationships, or by working with clients to obtain hauler records. However, obtaining this data can add disproportionate friction or be entirely unattainable. In these cases, relying on tracking systems’ data or working with clients to determine internal estimates may be more attainable.

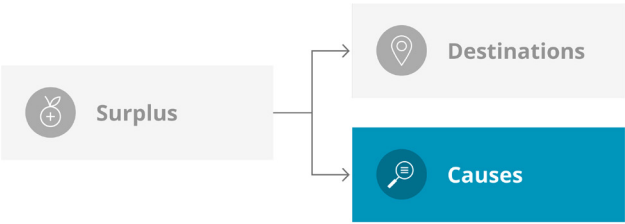
Tips for Foodservice

- To access destinations data, foodservice contractors can work through clients or directly with third-party facilities contractors.

Table 5: Foodservice Destinations Framework

Metric	Stage	Good	Better	Best
Destination Tracking	Data Field	Tonnage by destination	Tonnage by destination	Tonnage by destination
	Collection	Internal estimates based on hauler contracts	Food waste tracking systems’ destination field	Verified partner data (documented intake weights, high data standards)
	Calculation	Allocation of total surplus tonnages across destinations using contract assumptions	Tonnages summed from the destination fields of item-level food waste tracking	Sum of verified intake weights by destination partner
	Validation	None	None	Waste audits

Foodservice: Causes



Reporting causes explains why surplus food is generated across eight different causes in foodservice: Cooking Issues, Date Label Concerns, Equipment Issues, Handling Errors, Overproduction, Spoiled, Trimmings & Byproducts, and Other. Unlike retail, foodservice does not include Theft and Food Safety Recall as causes, based on feedback that these are not relevant in this context. An important distinction between the data field for the Good and Better tiers is reporting causes at the total company level, or at the food department level. The additional granularity of reporting causes at the food department level can help a business prioritize prevention opportunities. Beyond that, the progression to the Best tier is the collection and validation of cause data.

The starting point for reporting causes is to work with operations teams to obtain the best-guess allocation of cause distribution. Progressing to the Better tier requires employees to categorize the cause at the time of disposal,

with an internal quality check against subject matter expert (SME) perspectives on causes. The Best tier utilizes technology-aided tracking, such as existing food waste tracking systems, with causes logged at the point of disposal. In addition, the cause results would be cross-referenced against waste audits. Even with technology-aided tracking, validating cause data can be time-intensive and requires coordination between back-of-house teams and internal SMEs.

Cause data is a critical factor for prioritizing prevention opportunities and is one of the most actionable levers in food surplus measurement. Identifying why food surplus is generated ensures that adopted solutions are targeting food surplus generation effectively, resulting in the greatest reductions. For businesses looking to reduce surplus food, the additional friction to get highly accurate data may be worth the investment to progress toward company goals.

Tips for Foodservice

- Invest in technology-aided tracking that supports cause categorization.
- Continual training of frontline staff in categorizing causes can alleviate friction in obtaining accurate cause data; however, it may be difficult in a high-turnover environment.

Table 6: Foodservice Causes Framework

Metric	Stage	Good	Better	Best
Cause Attribution	Data Field	Causes at total company level	Causes at food department level	Causes at food department level
	Collection	Best-guess allocation with internal SME perspectives	Staff categorization at time of disposal	Technology-aided tracking (e.g., smart scales) logging causes at point of disposal
	Calculation	None	Weight of surplus due to cause / total weight of surplus (done by individual food department)	Weight of surplus due to cause / total weight of surplus (done by individual food department)
	Validation	None	Internal quality check of causes calculated	Tracking logs cross-referenced against waste audit observations

Reporting Disclosure Framework Alignment

A company that is deciding whether to report to a new disclosure framework, or streamline the reporting it already does, has few places to turn for guidance. Many current frameworks define surplus food differently, ask for different data, and rarely explain how they relate to one another. ReFED's long-term aim is to simplify this landscape at the source by helping standard setters shape requirements that are easier to meet and more useful once met (see the [Looking Ahead](#) section). This section connects what companies already report to ReFED with the disclosure frameworks they are most likely to encounter.

Six frameworks (five voluntary, one California regulation) cover most of the food waste reporting landscape for retailers and foodservice companies. ReFED provides full or partial data support for five of these six frameworks. It satisfies all food-waste reporting requirements for the FLW Accounting & Reporting Standard (FLW Standard), SASB's Food Retailers & Distributors standard (FB-FR-150a), and the S&P Global Corporate Sustainability Assessment (CSA). Additionally, it provides the essential food-specific metrics for two others that fold food waste into broader waste figures (SASB's Restaurants standard, FB-RN-150a, and GRI 306). California's SB 1383, the lone regulation among the six, requires a monthly record of pounds donated, broken down by location and recovery organization.

When comparing and contrasting what ReFED collects with what these six frameworks collect, a core difference

becomes apparent: ReFED collects more. ReFED counts donated food as part of surplus. In contrast, reduction commitments like Champions 12.3 and 10x20x30 exclude donations from their food waste counts, on the grounds that food consumed by people is not wasted. ReFED also collects surplus and cause data by food department, granularity not required by other frameworks. While collecting data at the surplus and food department level is both a broader and deeper scope than most frameworks require, it helps businesses better evaluate prevention opportunities.

A company may also report ESG data to the Corporate Sustainability Reporting Directive (CSRD), CDP, the GHG Protocol, or the EU Waste Framework Directive. None of these frameworks asks for standalone food waste figures, but food waste informs some of their required metrics. CDP only includes food waste inside the GHG Protocol's Scope 3 figure for waste generated in operations (Category 5), while CSRD's waste disclosure (ESRS E5-5) treats food waste as one slice of the operational waste total, similar to GRI 306's approach. Given the importance of reducing food waste for economic, climate, and social reasons, there's an opportunity to make food waste more prominent in these disclosure frameworks.

Cross-walking ReFED's approach to other disclosure frameworks is outlined in Table 7 below and detailed in Figure 11 in Appendix 3.



Table 7: Reporting Disclosure Framework Alignment: Detailed Mapping

Framework	Disclosure	Surplus & Food Waste Metrics	Metric Details
REFED METHODOLOGY			
ReFED	US Food Waste Pact	Total Surplus Food; Surplus Diverted; Surplus by Destination, Cause & Department; Surplus Donated; Food Waste (subset)	ReFED measures Surplus Food—all food (and inedible parts: peels, pits, bones) that goes unsold or unused, across every destination, including donation, animal feed, and repurposing. Food Waste is the subset sent to the eight disposal and recycling destinations: composting, anaerobic digestion, land application, sewer, landfill, combustion, and dumping. Reported as total weight and weight diverted, with breakdowns by destination, cause, and food department, plus surplus donated.
GUIDELINES + FRAMEWORKS			
Food Loss and Waste Standard	—	Total FW, FW Diverted, FW by Destination, FW by Cause	Weight of food and/or associated inedible parts removed from the food supply chain, reported overall and by destination (required where the amount is known) and by cause (recommended where possible). Food donated or eaten by people remains in the food supply chain & is therefore outside the food-loss-and-waste figure.
VOLUNTARY DISCLOSURES			
SASB — Food Retailers	Food Waste Management (FB-FR-150a)	Total FW, FW Diverted, Surplus Donated	1) Amount of food waste generated—food and inedible parts removed from the food supply chain, including unsaleable food still safe for human consumption. 2) Percentage diverted from the waste stream; food rescued or donated counts toward diversion.
SASB — Restaurants	Food & Packaging Waste Management (FB-RN-150a)	Total FW	FB-RN-150a.1: Total amount of (operational) waste, percentage food waste, and percentage diverted. Food waste uses the same definition as Food Retailers but excludes unsaleable-but-edible surplus that may be donated. FB-RN-150a.2: 1) Total weight of packaging, 2) percentage made from recycled and/or renewable materials, 3) percentage that is recyclable, reusable, and/or compostable.
GRI	Waste 2020 (306)	Total FW, FW Diverted	GRI defines “waste,” not “food waste.” Three quantitative sub-disclosures (306-3: Waste Generated, 306-4: Waste Diverted from Disposal, and 306-5: Waste Directed to Disposal). For (4) and (5): total weight by composition*, plus hazardous vs. non-hazardous broken out by recovery operation (306-4) or disposal operation (306-5) and on-/off-site treatment. <i>*A company can report waste composition via the waste streams relevant to its activities (e.g., a food company reporting its food waste).</i>
S&P Corporate Sustainability Assessment (CSA)	Food Loss and Waste Impact	Total FW, FW Diverted, Surplus Donated	1) Total weight of all food loss & waste. 2) Total weight used for alternative purposes—recycling for energy production (anaerobic digestion, controlled combustion), recycling for land application or animal feed, and food rescue (donation). 3) Total food loss & waste discarded (the remainder: total minus alternative-purpose volumes).
REGULATORY DISCLOSURES			
California SB 1383	Food Donor recordkeeping	Surplus Donated	Edible food recovered for people. From CalRecycle: “Quantity of food donated in pounds per month for each food recovery organization or service they donate to.” Inspectors can also request the types of food received, written agreements with organizations, and donation schedules.

Methodology

ReFED aims to create the most accurate benchmarks possible through technical assistance to reporting Pact signatories and quality assurance of all data that impacts the retail or foodservice benchmarks. With a growing signatory base, this one-to-one model becomes harder to scale, and the limitations led to the development of this framework that answers the core questions businesses are asking:

- What is needed to report food waste to the Pact?
- What value is received in return?
- How does reporting to the Pact streamline reporting to other frameworks?

The Good, Better, Best tiers are grounded in the data collection process used for Pact reporting and in the methodology underpinning ReFED's Insights Engine. This methodology builds upon the common language and

requirements in the Food Loss and Waste Accounting and Reporting Standard. The sector calculators that operationalize this framework have been tested and validated against companies that represent the majority of the U.S. retail and foodservice market share, ensuring the guidance reflects the data realities businesses encounter in practice.

Primary engagement with reporting businesses informed the final framework and recommendations presented in the report. Interviews were conducted with reporting signatories of the Pact to better understand internal measurement practices and identify the challenges and opportunities businesses face. Once a draft framework was developed, an in-person workshop and virtual feedback period were held for contributing businesses to provide recommendations and insights into challenges and gaps within the framework. The final framework incorporates these industry perspectives.

Looking Ahead

Future editions of this report will extend the Good, Better, Best approach to additional sectors, beginning with manufacturing. ReFED will continue to refine this framework to reinforce its commitment to make food waste reporting easier for businesses while making the resulting data more consistent, comparable, and useful—for example, ways that ReFED can enable cross-sector data measurement, reporting, and analysis. Similarly, this methodology may be adapted for use outside the United States, provided that proxy data, defaults, and impact factors are calibrated to local conditions.

As regulatory and voluntary disclosure requirements for food waste and operational waste evolve, ReFED will update this report to keep its framework alignment current and reduce the need for businesses to translate the same data across multiple reporting systems. This work is also intended to contribute to the broader food loss and waste measurement landscape, including the Food Loss and Waste Accounting and Reporting Standard developed by the FLW Protocol, a [WRI](#)-led consortium, and the measurement and reporting guidance [WRAP](#) developed for the Courtauld Commitment and the global Food Pact Network. By translating lessons from company reporting into practical guidance, future efforts can help inform the revision of existing standards and the development of new measurement and reporting guidelines that clarify how food waste should be measured, reported, and ultimately prevented.

Appendices

Appendix 1: Scope Boundary Diagrams

The diagrams below show the scope boundaries of the Retail sector and Foodservice Business & Industry segment reporting for the U.S. Food Waste Pact. (Note: the scope boundaries for industry reporting can diverge from what is represented in ReFED’s [Food Waste Monitor](#)).

Figure 8: Retail Scope Boundary Diagram

Scope Boundary

Timeframe	Material Type	Department	Destination	Causes	Boundary
ANNUAL (Calendar Year)	FOOD ✓	BREADS & BAKERY ✓	FOOD DONATION ✓	COOKING ISSUES ✓	FOOD CATEGORY U.S. grocery retail food categories
	INEDIBLE PARTS ✓	DAIRY & EGGS ✓	ANIMAL FEED ✓	DATE LABEL CONCERNS ✓	
		DRY GOODS ✓	INDUSTRIAL USES ✓	EQUIPMENT ISSUES ✓	LIFE CYCLE STAGE Grocery retail (includes stores and retailer-owned distribution centers)
		FRESH MEAT & SEAFOOD ✓	ANAEROBIC DIGESTION ✓	FOOD SAFETY RECALL ✓	
		FROZEN ✓	COMPOST ✓	HANDLING ERRORS ✓	
		PREPARED FOODS ✓	INCINERATION ✓	OVER-PRODUCTION ✓	
		PRODUCE ✓	LAND APPLICATION ✓	SPOILED ✓	
		READY-TO-DRINK BEVERAGES ✓	LANDFILL ✓	THEFT ✓	
			NOT HARVESTED	TRIMMINGS & BYPRODUCTS ✓	
			DUMPING ✓	OTHER ✓	
			SEWER ✓		

Life cycle stage in context

Where the boundary sits within the food supply chain. The checked stages are in scope; dimmed stages fall outside it.



Figure 9: Foodservice Scope Boundary Diagram

Scope Boundary

Timeframe	Material Type	Department	Destination	Causes	Boundary
ANNUAL (Calendar Year)	FOOD ✓	BREADS & BAKERY ✓	FOOD DONATION ✓	COOKING ISSUES ✓	FOOD CATEGORY U.S. foodservice
	INEDIBLE PARTS ✓	DAIRY & EGGS ✓	ANIMAL FEED ✓	DATE LABEL CONCERNS ✓	
		DRY GOODS ✓	INDUSTRIAL USES ✓	EQUIPMENT ISSUES ✓	LIFE CYCLE STAGE Foodservice (includes onsite dining & catering events)
		FRESH MEAT & SEAFOOD ✓	ANAEROBIC DIGESTION ✓	FOOD SAFETY RECALL	
		FROZEN	COMPOST ✓	HANDLING ERRORS ✓	
		PREPARED FOODS ✓	INCINERATION ✓	OVER-PRODUCTION ✓	
		PRODUCE ✓	LAND APPLICATION ✓	SPOILED ✓	
		READY-TO-DRINK BEVERAGES	LANDFILL ✓	THEFT	
			NOT HARVESTED	TRIMMINGS & BYPRODUCTS ✓	
			DUMPING ✓	OTHER ✓	
			SEWER ✓		

Life cycle stage in context

Where the boundary sits within the food cycle.
The checked foodservice stage is the one in scope.



Appendix 2: Key Terms Glossary

This glossary defines the terms used throughout this report, with particular attention to the data fields and data pipeline stages referenced in the [Framework Components](#) section. Terms are grouped by topic to reflect how they relate to one another within ReFED's measurement and reporting process. Where a term is defined by a formula, the formula is included.

Core Concepts:

- **Surplus Food:** ReFED's primary unit of accounting. All food that goes unsold or unused by a business (or uneaten, in the foodservice context), regardless of where it ultimately goes or why it was generated. ReFED uses a deliberately broad definition that spans all destinations and causes, including donations, animal feed, and inedible parts.
- **Food Waste:** The subset of surplus food going to waste destinations: composting, anaerobic digestion, land application, sewer, incineration, landfill, or dumping.
- **Measurement:** The process of calculating how much food becomes surplus, where it goes, and why it occurs.
- **Reporting:** Communicating measured data, internally or externally.
- **Prevention:** Food that is sold or consumed as intended, rather than becoming surplus.
- **Benchmarking:** Comparing a company's food waste performance against industry peers.

Framework Structure:

- **Good, Better, Best Framework:** ReFED's tiered model for describing the quality of the data a company reports. The tiers do not rank food waste performance; they describe data quality and improve as collected data becomes more specific and granular. A company may be Good in one data area, Better in another, and Best in a third.
 - **Good:** Establishes a benchmarkable baseline, generally relying on ReFED-provided default values.
 - **Better:** Replaces default values with company-specific records.
 - **Best:** Uses verified, granular data capable of supporting department-level prevention planning and external reporting.
- **Metric Group:** One of the three categories into which ReFED organizes reported data: Surplus, Destinations, and Causes.
 - **Surplus:** Measures how much food went unsold, unused, or uneaten.
 - **Destinations:** Measures where that surplus food went.
 - **Causes:** Measures why the surplus food was generated.
- **Data Field:** What a company reports within a metric group (the specific value submitted).
- **Data Pipeline:** How a reported value was produced, described across three stages: Collection, Calculation, and Validation.
 - **Collection:** How the underlying data is gathered (e.g., aggregated POS data, hauler records, food waste tracking systems, direct measurement).
 - **Calculation:** How collected data is converted into the reported value, including any formulas applied.
 - **Validation:** How the reported value is checked or corrected for accuracy (e.g., inventory audit adjustments, waste audits, reconciliation against invoices).
- **Actionability vs. Friction:** The central trade-off the framework is designed to balance. More granular, business-specific data improves a company's ability to prioritize reduction efforts (actionability) but takes more time, effort, or money to collect (friction). The framework prioritizes the metrics most likely to drive meaningful surplus reduction.
 - **Actionability:** The degree to which data helps a business prioritize and target effective surplus-reduction efforts.
 - **Friction:** The time, effort, cost, or operational difficulty involved in collecting a given piece of data.

■ **Site Representation (Coverage):** The share of a company's locations reflected in its reported data. Not a framework tier, but a driver of accuracy. Companies should distinguish between measured and extrapolated coverage, since reporting across all sites yields the most accurate data.

■ **Food Department Granularity:** Reporting surplus and cause data at the food department level using Nielsen categories (see Departments section below).

Retail Data Fields & Terms:

■ **Point-of-Sale (POS):** Internal systems used to manage sales and process transactions. Highly accurate for value, though weight accuracy can vary, particularly at the UPC level.

■ **Universal Product Code (UPC):** A product-level identifier; retailers confident in UPC-level weight data may report surplus tonnage directly.

■ **Stock Keeping Unit (SKU):** An item-level identifier used when collecting granular weight data (e.g., a representative proxy set of SKUs, or individual SKU weights).

■ **Retail \$ Sold:** Retail value of sales by food department, typically collected using POS data.

■ **% Unsold Food (Unsold Food Rate):** The share of food that went unsold in each department, including edible food and inedible scraps, across all destinations. The most important metric for tracking retail progress because it reflects actual reduction practices rather than market fluctuations. Required for benchmarking even when surplus weight is reported directly.

$$\% \text{ Unsold Food} = \text{Retail \$ Not Sold} / (\text{Retail \$ Sold} + \text{Retail \$ Not Sold})$$

$$\% \text{ Unsold Food} = \text{Retail Weight Not Sold} / (\text{Retail Weight Sold} + \text{Retail Weight Not Sold})$$

■ **Surplus Weight:** Direct tonnage of surplus food.

■ **Price-to-Weight Conversion (Retail \$ Per Lb):** Average food price (using POS data)

$$\text{Retail \$ Per Lb} = \text{Retail \$ Sold by Department} / \text{Weight of Retail Sold by Department}$$

■ **Refinement Factors:** A set of adjustments (% QA Rejection, % Packaging, % Inedible Parts) that improve accuracy. ReFED provides defaults, so they are optional for the “good” tier.

% Quality Assurance (QA) Rejection: Occasionally, suppliers will deliver product to retailers that does not meet the quality assurance specifications of the retailer (e.g., tomatoes that arrive too green, apples that are too small, damaged product due to a truck's refrigeration system breaking during transit, etc.). Although this food surplus is considered the responsibility of the supplier, it is helpful to quantify this surplus stream as it is one of the largest input streams for food banks, animal feeding operations, compost facilities, and others.

$$\% \text{ QA Rejection} = (\text{Weight ordered on PO} - \text{Weight received into inventory}) / \text{Weight ordered on PO}$$

% Packaging: The share of an item's total weight that is packaging.

$$\% \text{ Packaging} = \text{Weight of Packaging} / \text{Total Weight of Item}$$

% Inedible Parts: The share of an item's total weight that is inedible parts, or parts of food that people do not typically consume (e.g., peels, stems, cores, bones).

$$\% \text{ Inedible Parts} = \text{Weight of Inedible Parts} / \text{Total Weight of Item}$$

Foodservice Data Fields & Terms:

- **Ingredient Cost:** Cost paid to suppliers for food and beverage items (excluding alcohol). This data is reported by the department.
- **Food Inefficiency Rate (FIR):** A blended metric that accounts for unutilized ingredients and overproduction waste. A lower FIR means less food becomes surplus relative to purchases. Used as the basis for current Business & Industry benchmarks.⁸
 - FIR** = Cost of Surplus Food / Cost of Total Food
- **Ingredient Utilization Rate:** A surplus rate that tracks ingredient use separately from overproduction.
 - Ingredient Utilization Rate** = \$ or Lbs of Ingredients used to produce meals for clients / \$ or Lbs of Ingredients purchased from Suppliers
- **Overproduction Data:** Data on food prepared beyond what was needed.
 - Amount Sold** = Food and beverage revenue generated over the specified time period, excluding non-food and alcohol sales.
 - Percent sold to customer** = \$ or Lbs of Food Sold to Customers / \$ or Lbs of Food Prepared
- **Wholesale Ingredient \$ Per Lb:** Average cost per lb paid to suppliers for food and beverage items (excluding alcohol).
 - Wholesale Ingredient \$ Per Lb** = \$ of Ingredients Purchased / Lbs of Ingredients Purchased
- **Retail \$ Per Lb (foodservice):** Average retail price per lb paid by customers for food and beverage items.
 - Retail \$ Per Lb** = Retail \$ Paid by Customers / Lbs of Food Delivered to Customers
- **Sales by Channel:** The distribution of sales across Onsite Dining, Catering Dining, and Take Out Dining.
 - Sales by Channel** = \$ of Sales to Channel / \$ of Total Sales
- **Plate Waste Rate:** The share of served food left uneaten by customers.
 - Plate Waste Rate** = Lbs of Food Not Eaten / Lbs of Food Sold
- **Back-of-House (BOH):** Kitchen and storage operations where inventory counts and tracking-system reconciliation occur during validation.

Destinations:

- **Donations:** Food donated to people via food banks or pantries, food distribution services, etc.
- **Animal Feed:** Food and inedible parts fed to livestock or insects (before or after processing).
- **Industrial Uses:** Food or byproducts repurposed to produce other non-edible products.
- **Composting:** Food decomposition process in which material is broken down via bacteria in oxygen-rich environments, producing an organic material that can be used as a soil amendment.
- **Anaerobic Digestion:** Onsite or centralized offsite anaerobic digesters and co-digestion facilities at wastewater treatment plants that break down material via bacteria in the absence of oxygen, generating biogas and nutrient rich matter.
- **Land Application:** Spreading, spraying, injecting, or incorporating food waste onto land to enhance soil quality.
- **Sewer:** Disposed down the drain to the sewer (with or without pretreatment or grinding).
- **Incineration:** Sending material to a facility that is specifically designed for combustion, which may include some form of energy recovery.
- **Landfill:** Sending material to an area of land or an excavated site designed and built to receive wastes.
- **Dumping:** Burning or abandoning material on land or disposing of it in the sea (e.g., open dumps, open burns).
- **Unknown:** Any difference between the total reported in the Destinations metric group and the total calculated in the Surplus metric group.

⁸ Note: This metric was previously referred to as the Food Efficiency Rate (FER) in prior reports. ReFED has renamed it Food Inefficiency Rate because it more accurately represents what the metric measures.

Causes:

- **Cooking Issues:** Food pulled due to the assumption that it does not meet customer expectations even though it is still fit for human consumption.
- **Date Label Concerns:** Product that is not consumed by people because it is nearing or past the labeled date (e.g., Sell-By, Best if Used By/Before, or Use-By date).
- **Equipment Issues:** Food that has diminished in quality due to equipment malfunctions or power outages (e.g., offline refrigerators or heaters).
- **Food Safety Recall (Retail only):** Food that has diminished in quality due to equipment malfunctions or power outages (e.g., offline refrigerators or heaters).
- **Handling Errors:** Food that has diminished in quality due to mishandling during production (e.g., crushed pallets, shattered jars, burned or dropped food).
- **Overproduction:** Excess prepared foods that are discarded due to lack of customer demand or storage constraints.
- **Spoiled:** Product that was pulled because it was determined unfit for human consumption due to decay or deterioration.
- **Theft (Retail only):** Employee, customer, or vendor theft.
- **Trimmings & Byproducts:** Trimmings from food preparation (e.g., meat trimmings, produce trimmings for prepared foods).
- **Other:** Anything else not listed.

Departments:

- **Breads & Bakery:** Includes bread, bakery, and dessert items sold in the bakery department (e.g., fresh muffins, sweet breads, doughnuts, fresh-made cookies, cupcakes, cakes, cheesecakes, puddings). Also includes loaf bread, artisan bread, buns, rolls, tortillas, and flatbreads. Does NOT include long shelf-life cookies, crackers, brownies, or snack cakes that are typically sold in the Dry Goods department.
- **Dairy & Eggs:** Includes refrigerated, non-frozen, fresh dairy products (e.g., milk, yogurt, creamers, sour cream, butter and margarine, buttermilk) as well as eggs (6-count, 12-count, egg nog, liquid eggs). Also includes plant-based dairy alternatives (e.g., almond milk, soy milk) and refrigerated doughs (e.g., cookie dough, biscuit dough). Does NOT include frozen dairy desserts. Includes cheese sold in the dairy department but does NOT include cheese sold in the deli department.
- **Dry Goods:** Any shelf-stable items not listed in other departments.
- **Fresh Meat & Seafood:** Includes meat, seafood, and meat alternatives displayed as fresh to the customer (not in the frozen aisle). Also includes sausage, hot dogs, bacon, and packaged lunchmeat sold near the bacon and sausage aisle. Does NOT include, however, lunchmeat sold in the service deli department. Also does NOT include frozen or canned meats.
- **Frozen (Retail only):** Anything in the frozen aisle.
- **Prepared Foods:** In retail, includes items sold in the deli department (e.g., specialty meats and cheeses, pasta salads, sushi, hummus, dips and spreads, rotisserie chicken, pre-made meals, fresh sandwiches and soups, meal kits). Note that specialty meats and cheese sold in the deli department ARE included here, rather than in Fresh Meat & Seafood or Dairy & Eggs departments. In foodservice, includes pre-prepared foods and foods with ingredients from multiple food departments.
- **Produce:** Includes fresh fruits and vegetables, packaged salads, cut fruit, value added fruits and vegetables, fruit or veggie trays, dipped fruit, pumpkins and gourds, herbs. Does NOT include floral, which is not considered food and therefore out of scope.
- **Ready-to-Drink Beverages (Retail only):** Includes fruit and vegetable juices, ready-to-drink tea and coffee drinks, shakes and smoothies, and sparkling juice. Does NOT include dry tea or coffee (these are Dry Goods). Also does NOT include cow's milk or plant-based dairy alternatives (these are Dairy & Eggs). Also does NOT include bottled water, soft drinks, or alcoholic beverages as these items are not considered "food" and are therefore out of scope.

Appendix 3: Additional Framework Alignment

Table 8: Descriptive Comparison of Frameworks

Framework	Note
CGF Food Waste Coalition's Practical Guide to Corporate Reporting on Food Waste	The Consumer Goods Forum's guide shares this framework's goals — consistent measurement, transparent reporting, and progress toward SDG 12.3 — through the Target, Measure, Act approach. It includes reporting and quantification guidance for retailers and manufacturers. The Coalition is a complementary, industry-led effort. The voluntary guidance in this reporting guide provides an overview of key global resources, definitions and reporting principles so companies can improve the consistency of their food waste reporting. ReFED's surplus, destination, and cause data provide the granular measurement foundation that consistent reporting and peer benchmarking depend on.
UNEP Food Waste Index Report (2024)	A UN report that tracks household, foodservice, and retail food waste at the national level against SDG 12.3, not a company disclosure standard. Companies cannot report to the Index directly; well-measured corporate surplus data feeds it only where a country incorporates business reporting into its national estimate. Use it to frame reduction goals against SDG 12.3, not as a reporting obligation.
CSRD / ESRS E5	ESRS E5 covers resource use and the circular economy broadly, with food waste as only one input. If you report under CSRD, ReFED surplus and destination data can feed the waste and resource-outflow data points, but you will still need non-food resource flows to satisfy E5 in full. Do not treat ReFED reporting as meeting E5 on its own. For non-EU companies in CSRD scope, the non-EU ESRS is still under development; confirm final standards, timing, and applicability before claiming alignment.
GHG Protocol Scope 3 Category 5 and GHG-related disclosures	ReFED destination data sharpens Scope 3 Category 5 (waste generated in operations) estimates by showing where surplus actually goes. A defensible emissions figure still needs emission factors, organizational boundaries, and assurance decisions outside food waste measurement, so use ReFED data as activity-data input to your GHG inventory rather than the emissions calculation itself. Climate disclosure rules and assurance timelines are shifting across jurisdictions, but this does not change the role of ReFED data: it is activity data that improves waste-related emissions estimates, not a substitute for a complete GHG inventory.
CDP	CDP's climate, water, and forests questionnaires include no dedicated food waste disclosure that ReFED reporting satisfies on its own. Where a specific CDP question touches waste-related emissions, targets, or risks, ReFED data can support the response. Check your assigned questionnaire for relevant questions rather than assuming a food waste line exists.
EU Waste Framework Directive	The Directive, including its EU food waste reduction targets, is implemented through each Member State's national law, so the specific obligations and data requests vary by country. ReFED surplus and destination data can help you respond, but confirm requirements against the local transposition rather than treating the Directive as a single uniform standard.
Country-specific food waste regulations outside California	Many jurisdictions have their own organic-waste diversion, donation, or reporting rules, and requirements vary by location and sector. ReFED measurement gives you a consistent data foundation to draw from, but confirm what each applicable regulation requires through local legal review before claiming alignment.
ISO/FDIS 20001	This ISO standard on food loss and waste management is still at final-draft stage and not yet published. ReFED measurement data can support implementation once it is finalized, but do not claim certification or conformance until the final standard is released and assessed.

Figure 10 shows the alignment level from none to high between ReFED’s framework and other reporting disclosure frameworks.



Figure 11 illustrates how the inputs collected as part of ReFED’s data collection can be used in other reporting disclosure frameworks’ food waste requirements. The ISSB/SASB mapping reflects current Food Retailers and Restaurants disclosure requirements. Proposed SASB amendments for other food and agriculture industries should be assessed separately before using this figure for advocacy or public comment.

