

Left on the Line

Maximizing Profitability in Frozen Food Processing – A Practical Guide to Reducing Food Waste

A Quick Reference Guide



About This Document

This document summarizes the tips and resources shared in *Left on the Line: Maximizing Profitability in Frozen Food Processing – A Practical Guide to Reducing Food Waste*. The guide was developed by AFFI to:

- Expand the industry's understanding of why and how to prevent food from being discarded to improve operational efficiency and reduce product giveaway, generating greater economic growth, and resiliency alongside environmental and community benefits.
- Elevate existing efforts in the frozen food sector by offering practical tools and examples that companies can adapt to their own operations and business priorities.

Foreword

Frozen foods play a critical role in today's food system. Freezing helps preserve nutrition, extend shelf life, and provide reliable access to safe, high quality food. Yet even as frozen foods already help reduce waste across households, foodservice, and retail, opportunities remain to better utilize more of the food the industry grows, processes, stores, and distributes.

Cutting waste improves margins, strengthens supply security, and builds resilience in an operating environment where shocks are the new normal. Food that is unnecessarily discarded represents lost value for businesses, avoidable environmental impacts, and missed opportunities to nourish communities.

Members of the American Frozen Food Institute (AFFI) are already taking action. They are rethinking specifications, improving processing efficiency, strengthening temperature monitoring, engaging employees, rescuing safe food, and finding new value for side streams. A key success factor in unlocking this financial opportunity is viewing wasted food not as an inevitable expense but instead as an untapped asset.

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Executive Summary

Why Make the Most of Food?

Nearly 30% of food grown, produced, or prepared in the United States is never sold or eaten. The U.S. food manufacturing sector accounted in 2024 for nearly 19% of this total, generating 13.1 million tons of surplus food. This shows up as raw materials or products that are given away, overpacked, or discarded.

Making better use of food begins with recognizing the operational, financial, and environmental benefits of minimizing it. In addition to meeting customer requests about how food waste is being managed, companies in the frozen food supply chain addressing wasted food have found:

- **Financial value:** Significant return on investment through operational improvements, higher sell through, reduced disposal costs, and better utilization of raw materials already purchased and processed.
- **Environmental value:** Lower greenhouse gas emissions, reduced landfill dependence, and more efficient use of energy, water, and agricultural inputs embedded in frozen foods.
- **Community value:** Increased opportunities to donate safe, nutritious food and support food insecure communities, supported by liability protections and tax incentives in the U.S.

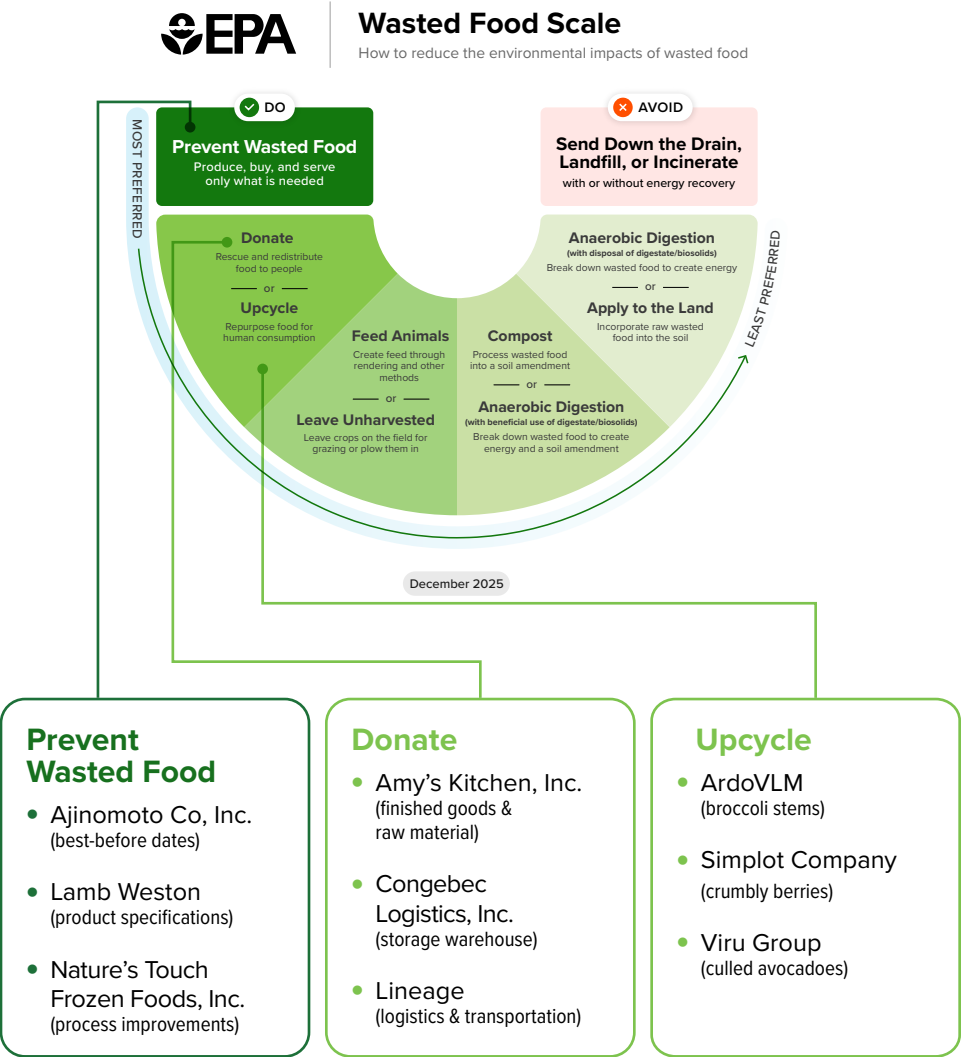
Why Is Food Discarded in Frozen Operations? What Action Is Being Taken?

Wasted food often arises from interconnected decisions across product design, processing, storage, and distribution. Three drivers that lead to food being rejected, side streams such as byproducts and offcuts, and unsold inventory that is written off are:

- 1 **Specifications and product design decisions**, including narrow quality tolerances and customer requirements that result in edible food and residual organic material being graded out.
- 2 **Limitations and inefficiencies in operational processes**, such as raw material storage conditions, equipment design, line transfers, sanitation practices, temperature control, and inconsistent execution of food safety procedures.
- 3 **Frozen products deemed not suitable for commerce**, including short dated inventory, labeling or packaging errors, forecasting mismatches, and overly rigid interpretations of quality or regulatory requirements.

Figure 1 highlights how these drivers are being addressed among a sampling of companies in the frozen food value chain to prioritize the most preferred pathways recommended by the U.S. EPA’s Wasted Food Scale. It includes companies finding financial benefit from preventing waste, identifying opportunities to donate safe products to people in need, and innovating to create new products (e.g., upcycling into new revenue material streams currently sent to animal feed or composted).

Figure 1. A Sampling of Action in the Frozen Food Value Chain¹



How to Better Understand Wasted Food Streams?



Apply a Strategic Approach

AFFI members and others in the frozen food sector are already taking action to prevent food from being wasted and to reduce the environmental impact of discarded organic material. Moreover, some have adopted a structured “Target, Measure, Act” approach. This approach aligns with steps retail and foodservice customers are also taking to embed food waste reduction actions in their operations as a business priority. The “Target” that has been adopted by many companies typically reflects the global ambition included in the United Nations’ Sustainable Development Goals (SDG) Target 12.3 to cut food waste in half by 2030.

Define Food Waste

Applying a strategic approach to understand the potential volume and value from currently wasted food requires defining food waste clearly. A shared language is also an important foundation if tracking progress to meet any reduction goals. Around the world, food waste reduction programs use a common definition, which is described below. It is based on two elements – the type of material and destinations (i.e., where discarded food goes):

1 **Material type** – food-related flows including residual organic material considered “inedible parts”

The decision about what material types to include as food waste differs based on the type of products a company sells along with its ability to track various food flows. Figure 2 illustrates how organic material streams generated in the typical food processing operation could be categorized and tracked. The example uses IQF Sliced Peppers categorizing how food flows during processing activities and where it leaves the food chain. The production activities will vary among processors (for example, companies that assemble multiple ingredients may also generate food waste as a result of batching irregularities or planned surplus production).

This illustrative example shows the potential sources of food waste as:

- **Food (originally intended for sale)** – Food that meets supply chain specifications but falls out of the production chain (for example, due to inefficiencies or spill points)
- **Food (not intended for sale)** – Food that does not meet supply chain specifications but could be edible (such as wrong color, wrong size)
- **Residual Organic Material Considered Inedible** – Parts of incoming raw materials removed at the facility (such as seeds, stems, calyx, and leaves)

It is most common for food processors involved in reducing food waste and tracking progress to define it as including all three material streams.

2 **Destination** – what counts as waste is based on where food goes when it exits the human supply chain

The global *Food Loss and Waste Accounting and Reporting Standard* has identified the relevant destinations where food may be sent when removed from the human supply chain. The common industry practice among food processors is consistent with global reporting norms and, as seen in Figure 3, defines “waste” as material sent to be *anaerobically digested, composted, spread on land, flushed down a drain, sent to a landfill, or incinerated*. Excluded from the definition of “waste” for reaching the SDG 12.3 50% reduction target is the volume sent to *animal feed and biomaterial processing* (to make industrial products). However, companies still track these streams in order to uncover additional value opportunities.

Figure 2. Illustrative Example Showing How Food Flows During Processing Activities and Where It Leaves the Food Chain (IQF Sliced Peppers)

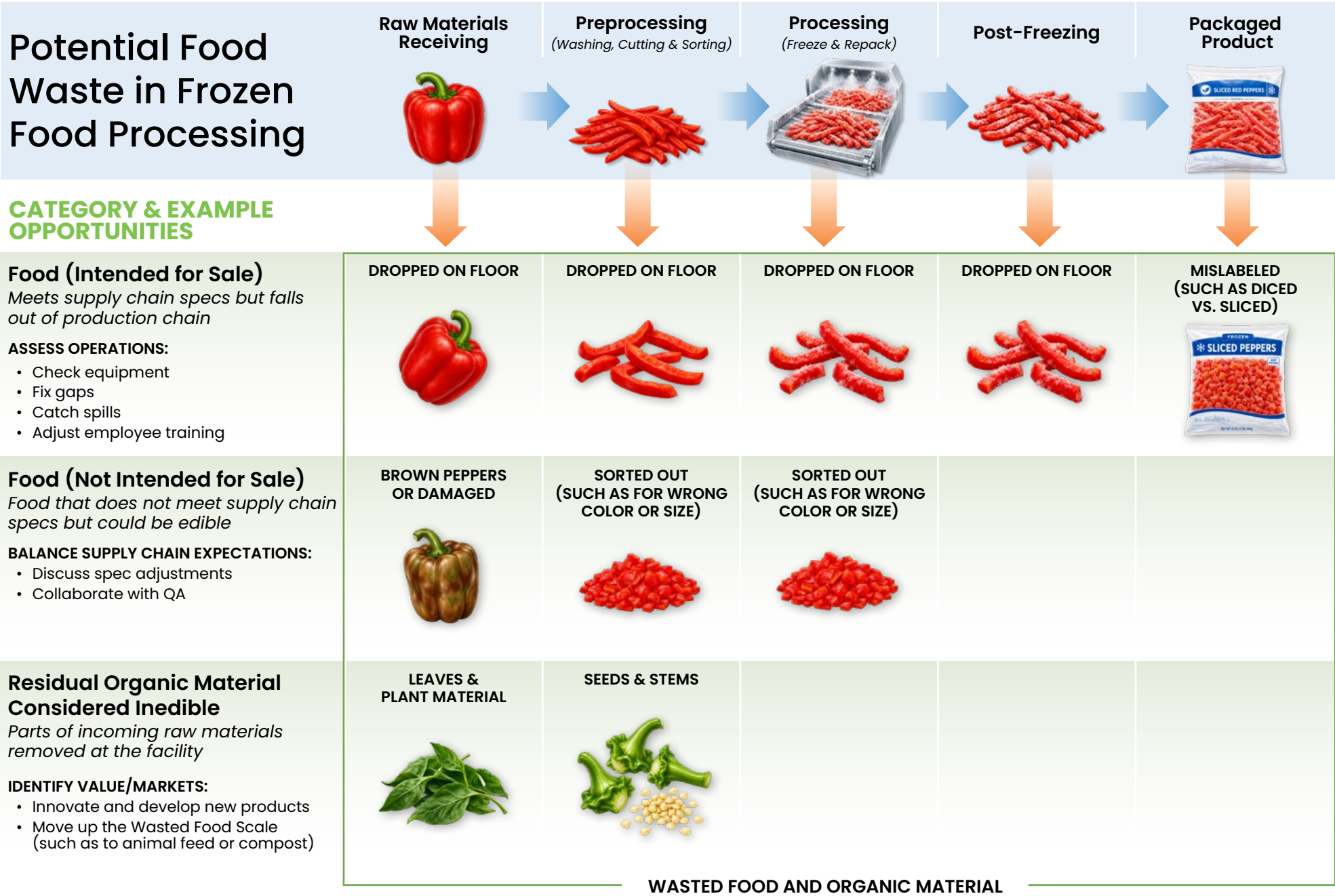
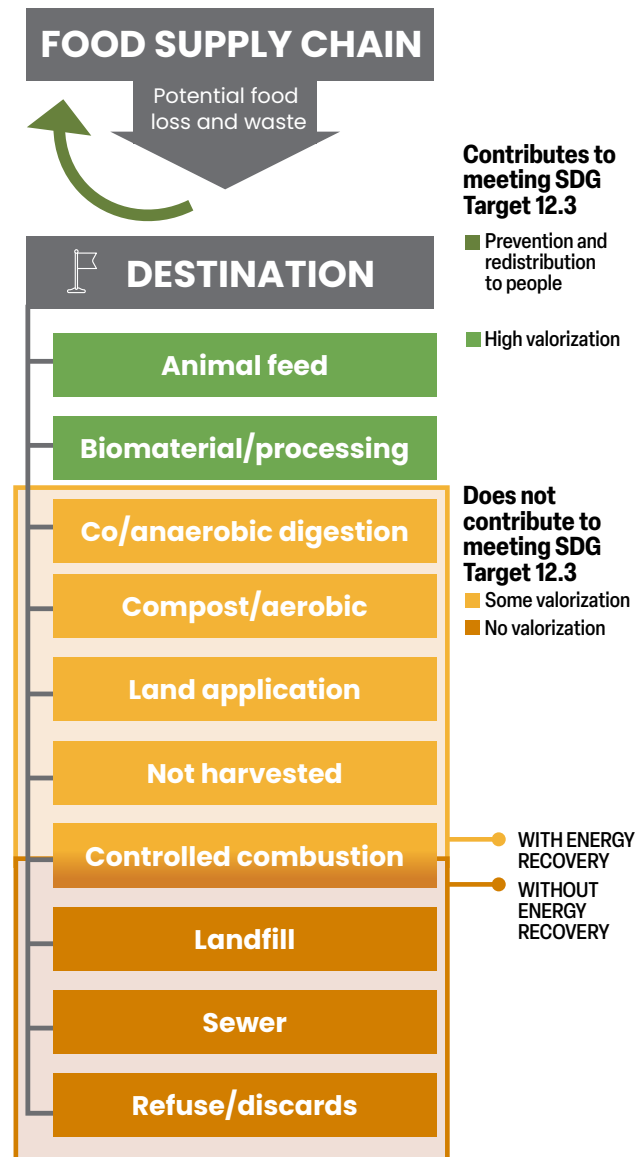


Figure 3. Destinations That Count as Food Waste
Based on the Interpretation of SDG Target 12.3 ²



How to Uncover Opportunities?

Two key recommendations identified by U.S. manufacturers and retailers that are successfully minimizing food waste are: (1) to gain internal buy-in and (2) to capture data on the volume of food currently underutilized.

Gain Internal Buy-in

Whether launching pilot projects to prevent food waste or strengthening existing programs, companies call out the importance of embedding food waste prevention into everyday operational decisions and building support across functions. Since preventing food waste is not typically centralized in any one person's job description, it is important to identify and support an individual or small team to be accountable for leading these efforts. This should include employees and managers involved with the range of decisions that impact how food is handled, such as procurement, production and packaging, operations and maintenance, quality and food safety compliance, product development, marketing, distribution and retail, finance, and senior management.

Quantify the Opportunity to Maximize Throughput

Unlocking value from food and other organic material streams that are currently discarded typically requires gathering some initial baseline data (at the enterprise or facility-level) since "what gets measured, gets managed." Low-cost approaches for collecting preliminary data and insights about the volume of food that could potentially be better utilized include:

- 1 Observe and record the points at which any food, side streams, or parts considered inedible are sorted out.
- 2 Arrange a food-waste prevention audit at one or more locations in the facility.
- 3 Review records from waste haulers or material flow analyses.
- 4 Speak with managers and employees at food processing facilities and logistics experts at warehouses and distribution centers for a first-hand understanding of where, and why, food is rejected and waste occurs.
- 5 Review what is known about customer requirements along with any statutory or regulatory requirements.

Conclusion

Companies of all sizes can integrate food waste prevention into everyday decision-making, not as a standalone initiative, but as part of how frozen food businesses operate. By continuing to make the most of the food entrusted to our care, the frozen food industry builds on existing best practices that strengthen efficiency, resilience, and credibility while also contributing to a more responsible and sustainable food system.

1 "Wasted Food Scale." *United States Environmental Protection Agency (EPA)*, Dec. 2025, <https://www.epa.gov/sustainable-management-food/wasted-food-scale>. Accessed 23 Feb 2026.

2 "Guidance on Interpreting Sustainable Development Goal Target 12.3". *Champions 12.3*, World Resources Institute, 2017. <https://champions123.org/sites/default/files/2020-09/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf>. Accessed 16 Feb 2026.