



MANUFACTURING FOOD WASTE

The food manufacturing industry is becoming more complex as demands grow for manufacturers to produce foods that are fresh and healthy, convenient, budget-friendly, and accommodate various dietary restrictions. Supply chain issues and labor shortages have further challenged overall profit by limiting food manufacturers' ability to distribute fresh food in a timely manner. Waste is another result of this challenging environment. According to ReFED, food manufacturing accounts for an estimated 14% of food waste in the U.S., and causes further impacts to the bottom line.

There are many reasons why food waste is generated during the manufacturing process:

- Ingredient storage or inventory challenges
- Cuts or trimmings — byproducts of the process
- Product changes like obsolete product lines, new product promotions, product line changes, seasonality, and more
- Transportation challenges
- Product defects

DID YOU KNOW? An estimated 11 million tons of food is wasted through manufacturing processes in the U.S. This accounts for an estimated 14% of all food waste generated.



REDUCE AND DONATE

The first step to addressing food waste is to reduce the amount that's generated. *If you don't have the waste, you don't have to manage it.* Unfortunately, food waste will always exist in food preparation due to product preparation and trimmings. The opportunities to decrease waste are found in operational control. In addition to making processes more efficient, another method to reduce food waste is to create "new" products from items that would have otherwise been considered waste.

A great example is bagged salads that contain perfectly fine and edible kale or other salad cuts that in the past would have been wasted. After reducing the amount of waste generated, the next priority is donating to people in need. In food manufacturing, many donated items will not make it to retail sale but are still good to eat if distributed quickly.

RECYCLE

Unsold and damaged (inedible) food results in loss of revenue for businesses and causes significant environmental and social impacts. Recycling is a great option for food that cannot be sold or donated.

Landfill space is becoming more limited in the U.S., and capturing food in a landfill prevents it from being converted into valuable products.

The food waste recycling infrastructure has grown over the last several decades in the U.S., allowing for the creation of more commercial (and some residential) food waste recycling programs.

The following are different recycling methods for source-separated food waste:

- **Convert to animal feed.** A valuable livestock food that is nutritious and environmentally beneficial, reducing the amounts of other crops that need to be grown to feed animals.
- **Convert to compost or fertilizer.** A rich soil amendment that can enhance soil health and provide plants nutrients that may reduce or eliminate the need for synthetic fertilizers.
- **Convert to energy or fuel.** A contained anaerobic process that generates and captures methane for energy production.

DID YOU KNOW? Denali services over 600,000 tons of food waste annually, including from 750+ industrial locations.

Several factors come into play when choosing which recycling method works best for a manufacturing facility.

- The **type of food waste generated** at food manufacturing facilities can vary, but they are usually consistent waste streams, which makes them easier to recycle.
- **Depackaging** food waste manually can be labor intensive. There are growing options that allow for depackaging *after* food leaves the facility. These processes eliminate the need for dedicated labor to remove packaging from food items and prepare them for recycling.
- **Meat items** — especially raw meat, bones, and trimmings — often cannot be mixed with other food waste. There are options for meats to be mixed in or segregated from other food waste.
- Availability of **recycling outlet options**, which can determine the most efficient and feasible route for recycling food from certain locations.
- **Operational procedures and corporate commitments** that prioritize food waste diversion can help maximize food waste programs and related costs.

- **Product volume and full loads.** The ability to generate a full truckload is very feasible at a food manufacturing facility. This maximizes transportation efficiency and cost. Alternatively, for smaller food waste volumes or space constraints, a service provider can pick up food waste on “milk-runs,” which is going location to location to pick up smaller amounts of food waste, usually from outdoor bins.

Denali can help customers determine which options work best for recycling their food waste and can offer various options to fit each customer’s needs.

DID YOU KNOW? Food waste recycling does not need to cost more than traditional trash disposal. It is important to consider all related costs when comparing waste management options and overall value.

The depacker processes **15 tons** per hour.





KEY BENEFITS TO RECYCLING FOOD WASTE

There are many benefits to recycling food waste at manufacturing facilities:

- 1 Food waste can be hard on trash compactors. Diverting food waste minimizes compactor maintenance while reducing what goes to the landfill — which may be a mandate in your city or state.
- 2 Food waste causes foul odors. Luckily, odor issues are easily resolved with frequent service (swap out) of trailers or smaller covered recycling bins. Not placing food waste in the compactor reduces odor issues inside and around the facility, and extends the life of the compactor.
- 3 Data can provide operational insights. Data related to service, weights collected, and recycling methods can be shared to help provide insights on better ways to implement more efficient processes, reduce inventory loss, and meet ESG/sustainability goals.

The food system must concentrate its efforts in these six areas — not only to rescue and recycle food that is at risk of going to waste, but also to prevent food waste in the long term.



Optimize the Harvest



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