

CASE STUDY

How Consumer Messaging Impacts Plate Waste



Executive Summary

The Pacific Coast Food Waste Commitment (PCFWC) ran a pilot with national foodservice companies Sodexo and Aramark to understand the impacts of food waste messaging on consumers. The messaging took the form of posters and table tents, and the resulting changes in consumer behavior and awareness were measured.

Pilot Sites

Ten foodservice sites across the West Coast at universities, corporate and government employee cafes, and a state park center.

Consumer Messaging Used

Sodexo's ContemPLATE Waste branded signage, and the World Wildlife Fund's (WWF) "[Planet Plenty](#)" consumer messaging toolkit.



Results

Plate waste data could not validate the effectiveness of the signage, and the amount of plate waste actually increased during the implementation period.

By contrast, responses to the consumer surveys, averaged across all sites, showed the following positive shifts in perceptions once the food waste messaging was implemented:

- 21% increase in those who reported feeling "Very Confident" that they knew how to reduce food waste through their dining choices.

- 12% increase in those who reported feeling "Very Motivated" to reduce their food waste.
- 46% said the signage impacted their dining choices at least "Somewhat."

The top two reasons that consumers reported for not eating all of the food that was taken were because of the taste and because the portion sizes were too large.

Planned Future Actions for Sodexo and Aramark

- Continue encouraging sites to use consumer-facing messaging about food waste as part of a comprehensive plate waste reduction approach.
- Improve waste data collection to get site-level insights.
- Prioritize staff engagement and incentivization to see progress toward food waste solutions.

"As a foodservice provider, we play a powerful role in working to prevent waste before and after it touches a consumer's plate. Participation in this pilot was an important next step in continuously improving our understanding of what drivers and actions resonate with consumers and our operational teams in our effort to reduce plate waste. We're excited to dig deeper and continue to explore and scale best practices."

– Katherine Walker, Director of Sustainability & CSR, Sodexo

Introduction

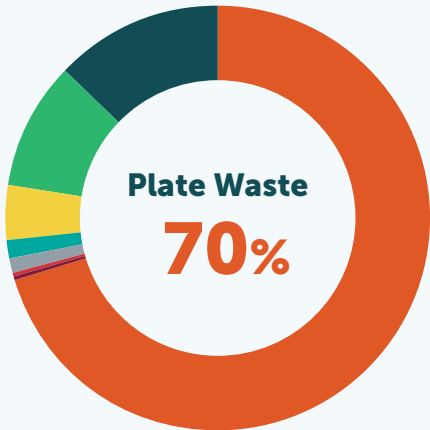
In the foodservice industry, the largest amount of food waste comes at the post-consumer stage — ReFED calculates that food left on plates contributes 70% of the sector's waste. Many back of house interventions can actually support the reduction of front of house waste: trayless dining, smaller portions, and moving away from “All You Care to Eat” models, to name a few. This pilot sought to test the effectiveness of displaying messaging about food waste to consumers in dining spaces and at the point of purchase, and it also measured the resulting impact on consumer behaviors and perceptions. The consumer messaging displays were intended to encourage consumers to modify their consumption while keeping food waste reduction in mind.

Two of the nation’s largest foodservice companies participated in the pilot: [Aramark](#) and [Sodexo](#). Both companies are signatories to the Pacific Coast Food Waste Commitment (PCFWC), a voluntary commitment to reduce food waste in the region by 50% by 2030. Aramark and Sodexo saw the value of participating in this pilot project collaboratively in order to exchange lessons learned and best practices along the way.

Sodexo is a leading provider of integrated food and facilities management, headquartered in France with U.S. operations employing 125,000 workers across 50 states. Sodexo champions sustainable resource usage through innovative programs, initiatives, and awareness and behavior campaigns that measure, manage, reduce, and prevent waste while applying the principles of a circular economy (See Sodexo’s [Waste: Not on My Watch campaign](#)).

Aramark has been a leader in service and hospitality, serving the world’s educational institutions, Fortune 500 companies, sports teams, healthcare providers, destinations and cultural attractions, and numerous municipalities in 15 countries around the world. Aramark’s [Be Well. Do Well.](#) ESG platform articulates Aramark’s purpose and directly connects to the company’s service-oriented mission.

Waste in the Foodservice Industry



- Plate waste **70.3%**
- Overproduction **12.7%**
- Catering overproduction **9.6%**
- Date label concerns **4.2%**
- Trimmings & byproducts **1.5%**
- Handling errors **0.95%**
- Spoiled **0.32%**
- Cooking issues **0.25%**
- Equipment issues **0.078%**
- Other **0.054%**

Source: [Food Waste Monitor, ReFED, Inc.](#)



Methodology

Between May and October of 2023, Aramark and Sodexo engaged ten foodservice sites along the West Coast. Different sites launched the pilot at different times, but all followed the same process of a baseline and implementation period, and each collected the same data.



Timeline

An average baseline of a two-week data-gathering period to measure plate waste during business-as-usual conditions, and a follow-up average two-week implementation period when posters and table tents were introduced to the dining facility.

Site overview

Site locations included government and corporate cafes, universities, and a state park conference center.

Impact was assessed by:

- Measuring the average ounces of post-consumer waste per meal before and after consumer messaging implementation.
- Administering a consumer perceptions survey before and after consumer messaging implementation.
- Conducting staff interviews after the conclusion of the pilot.

Some sites used a scale and logged the waste manually while others used the food waste tracking tool [Leanpath](#). For many sites, tracking post-consumer waste was a new practice that the kitchen and service teams adopted for the pilot. For a few sites, tracking was already part of their normal operations.

Guest Messaging Tools

Aramark used the [Planet Plenty](#) consumer messaging toolkit, a free downloadable resource offered by WWF. The toolkit contains turnkey poster and table tent designs featuring the “friendly planet” persona, with messaging around why and how consumers can reduce their food waste. Aramark’s different sites also personalized the posters to add details that made it meaningful for each site, such as adding a university mascot.



Sodexo developed their own set of marketing materials — ContemPLATE Waste — and distributed them to their participating sites. The posters and table tents contained motivational and educational content around food waste to guests. Sodexo also created an [implementation guide](#) for site-level staff that was shared with Aramark and formed the basis of staff orientation to the pilot at all sites. The guide provided step-by-step instructions on how to focus on plate waste reduction, including training and role-playing scenarios so frontline staff felt comfortable discussing plate waste with consumers.

Outcomes and Observations

To see the full scope of data for this case study, please see Appendix A on page 12.

Post-Consumer Plate Waste Results

From the baseline to implementation period, participating foodservice sites saw a wide variety of outcomes, ranging from a 10.11% decrease in post-consumer plate waste per meal to a 27.51% increase in post-consumer plate waste per meal.

“The development and piloting of our ContemPLATE program helped confirm the important role education and awareness of staff and consumers plays in the reduction of plate waste. What we choose to put on our plate is very personal, so the approach to changing behaviors has to be as well.”

– Katherine Walker, Director of Sustainability & CSR, Sodexo



Due to several factors, including the wide-ranging post-consumer plate waste measurements, the project team did not think that conclusions could be made about the effectiveness or ineffectiveness of consumer messaging on food waste reduction. The other factors include:

- The trial period was too short to eliminate any normal fluctuations in post-consumer plate waste (e.g., menus were too varied over that short time period, and dislike for the meal or taste was a top reason that consumers reported leaving food on their plates).
- There might have been an increase during the implementation period because sites were improving their waste tracking process over time, resulting in more waste captured and therefore higher weights recorded than during the baseline period.
- There were ten sites included in the study overall, but waste weight data from only five sites were used due to issues with data reporting at the other five. This final complicating factor highlights: **waste data tracking and reporting is not baked into many foodservice site operations, making it difficult to measure progress.**

Additionally, all sites implemented the consumer-facing signage to a similar degree. There was no unifying factor behind the sites that can be linked to a decrease or an increase in the post-consumer plate waste. For example, some universities saw a decrease while some saw an increase, and sites that used Leanpath also did not share a common trend.

Consumer Awareness Survey Results

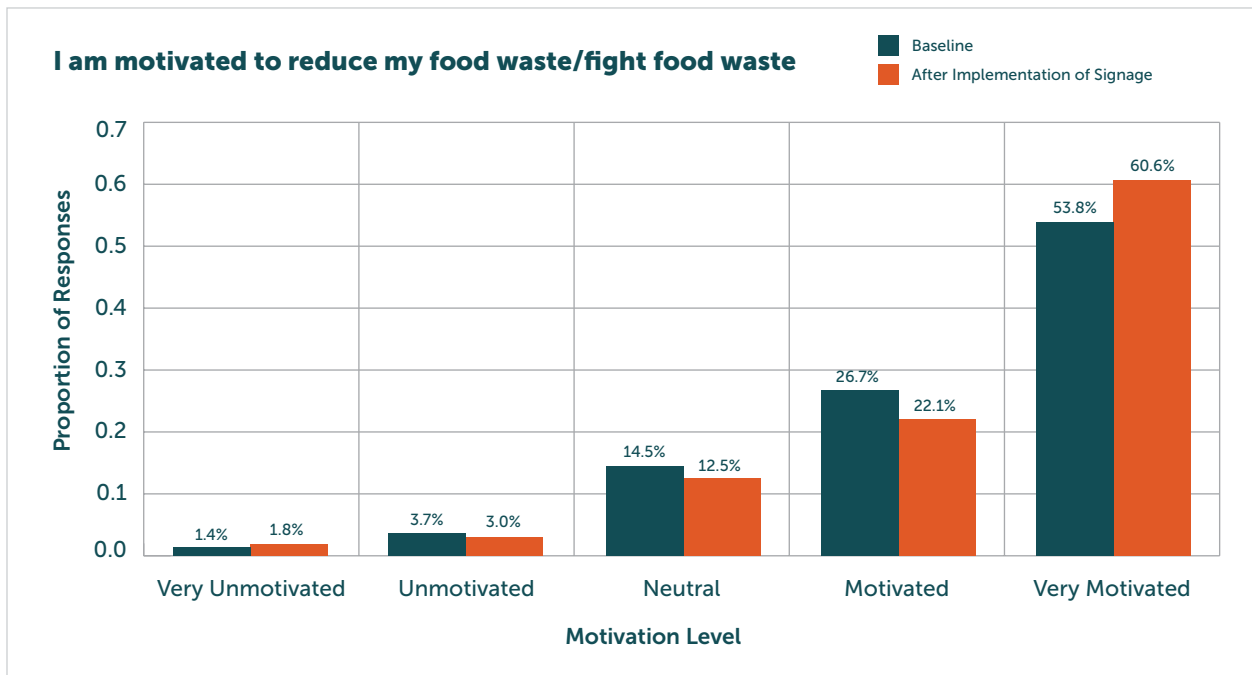
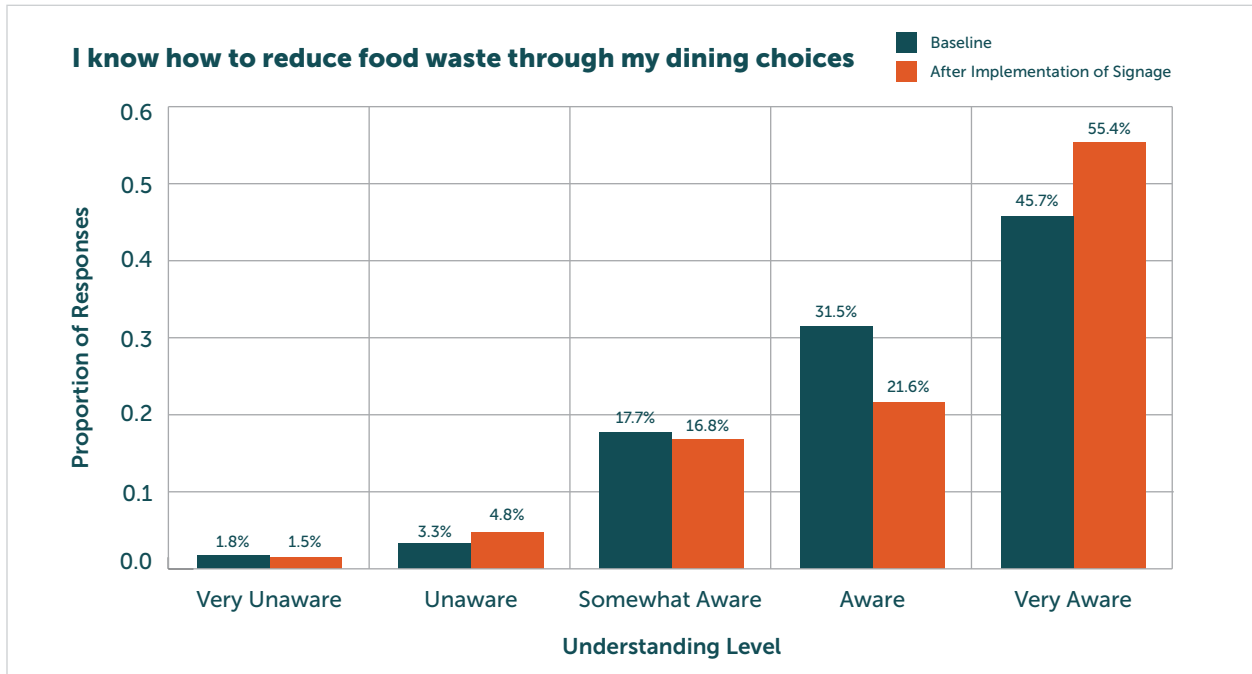
The consumer survey provides another perspective on the impact of the signage on consumers. Important findings and observations from the survey included:

- Between the baseline and implementation phase, there were small overall improvements in consumers' knowledge and awareness around food waste. The greatest improvement came from **a 21% increase in those who reported being "Very Confident" in knowing how to reduce food waste through their dining choices.**
- Motivation increased even more; **46% of consumers reported that the signage had an impact at least somewhat on their dining choices, and there was a 12% increase in those reporting being "Very Motivated" to reduce their food waste.** Though subjective, this consumer response was the greatest indication of the signage's potential for positive impact on reducing plate waste or educating consumers.
- **The top reasons for food being wasted were "Didn't like the meal/Taste" (#1) and "Portion sizes" (#2).** If not liking the meal had the biggest impact on why a consumer didn't clean their plate, then it could make sense that plate waste would fluctuate a great deal as the menu changes over the course of a month. This could also help explain why the pilot saw an average increase in post-consumer waste during the implementation period.



Universities had more positive responses to the survey than the non-academic sites, and they also had higher response rates. University site project leads used multiple methods to incentivize survey completion, including setting up a table with giveaway prizes and engaging students directly. Universities also frequently engage students in sustainability efforts on campus, so students may have been more attuned to signage and surveys than customers at non-academic sites.

Detailed response analysis for two consumer survey questions, baseline and after implementation:



While the “Very Aware” and “Very Motivated” responses increased between baseline and implementation phase, those who responded as being just “Aware” or “Motivated” (one level down) decreased. This could indicate that signage mostly has a strong effect on those who are eager to engage in signage or sustainability topics.

Other Key Outcomes

Though the pilot focused on utilizing consumer messaging as a tool, the project team learned that another tangible outcome of the pilot was the impact on kitchen and front of house staff awareness, behavior, and motivation. By giving chefs, dish-room staff, and others a hands-on role in observing and tracking food waste, the project generated interest and enthusiasm. Though the pilot focused on utilizing consumer messaging as a tool, it prompted staff to want to try other means of reducing waste in their operations.



For example, one site manager shared that when a chef noticed a lot of a particular chicken dish in the bags of waste they were now more closely weighing as a result of the pilot, it led the chef to change the menu and try a different recipe the following week. In fact, many sites observed that the visual assessment of the wasted food prompted more on-the-ground action than the weight data. The head chef of another site reported that they “hadn’t changed [their family-style] service model in over 100 years” since opening, but this pilot finally pushed them to try serving individually portioned meals on demand instead.

These are not lone examples. The reported “spin-off” actions that staff either took or planned to take as a result of engaging in this pilot included:

- Changing serving style at a dining facility from family-style to serve-on-demand.
- Offering “pick your portion” options, in which consumers can choose a half, single, or double serving.
- Implementing more signage that is interactive as well as educational (e.g., guests see a thermometer or other metric of food waste on display and staff update daily).
- Introducing compost programs and connecting the dots for consumers (e.g., “our composting program helped fertilize trees around campus!”).
- Improving signage around compost and trash bins to avoid contamination.
- Continuing to measure post-consumer waste and adopt technology such as Leanpath in cases where it is not already in use.

The importance of a site lead “champion” also became clear. When a kitchen or service team member was highly motivated, it led to excellent implementation of the pilot (e.g., more consumer survey responses and better waste data collected) and more spin-off ideas for reducing food waste. These champions came in many forms: head chefs, cashiers, dishwashers, site managers, and a designated site “sustainability/green lead.” Their motivation was often personal, many coming to the pilot with a pre-existing drive to address food waste and engage customers.

Challenges

Utilizing consumer messaging to combat food waste wasn’t a unanimously easy sell or exciting topic for foodservice teams to address. It also stimulated hard conversations within teams about the conflicting pressures in foodservice to sell more but also to operate sustainably, or, as one site project lead put it, “do the right thing.”

The greatest common challenge that was experienced by sites across both businesses was getting consistent, accurate measurements. This was true both for sites that had Leanpath and sites that used a scale and manual tracking method. The top reason sites reported for not gathering consistent data was being too busy and/or understaffed. Another reported challenge was the growing pain of reminding staff members to do a new task (weigh the waste) and communicating why it was important to do so.



Sometimes the foodservice teams are not responsible for managing the trash; it is often the operational and financial responsibility of the building owner. This can lead to an extra challenge when it comes to weighing the waste, capturing waste data, and motivating staff.

Future Steps

While the data was not able to conclusively determine the effectiveness of the consumer messaging signage, the fact that 46% of survey respondents reported that it impacted their dining choices is notable. **Implementing signage is a low-cost, low-effort strategy, so this outcome alone could make the case for investing in it.**

Beyond the PCFWC pilot, in 2023, Sodexo did additional country-wide testing of their ContemPLATE Waste program and investigated other solutions for reducing consumer plate waste, along with consumer messaging. The results together have informed a complete plate waste program accessible to all Sodexo managers in the U.S. to use at their sites. The program will be elevated to the Sodexo global level where it will be available to other regions and countries to customize to best suit their needs.

Aramark plans to continue to promote consumer messaging as well as focus on elevating existing and new opportunities for staff training and engagement. Through partnership with their Hospitality Enablement team, who focus on empowering and training the front line, and ongoing engagement with functional leaders and account-level teams, Aramark seeks to continue to improve waste data collection and identify new opportunities to scale best practices to drive food waste awareness and reduction.

Based on the pilot, the PCFWC, Sodexo, and Aramark have identified the need to improve data collection at the site level to continue to build the business case for and measure progress against food waste reduction targets. The issue of staff engagement when it comes to tracking food waste could be addressed through the following strategies:

Recommendations

- 1 Create/strengthen incentivization systems (e.g., tie bonuses to waste performance).
- 2 Cultivate employee engagement and leadership around the problem of waste; communicate more strongly why waste is an issue and nurture more site “champions.”
- 3 Reinforce waste data gathering as part of critical staff responsibilities. Create systems and processes that build waste data collection into staff routines.



Appendix A

Full Data from the Consumer Survey and Waste Weights across all Sites

Due to challenges with collecting data, we were only able to include five sites in the assessment of waste weights during the baseline and implementation period.

The change in post-consumer waste at five foodservice sites between the baseline and implementation phase:

	Total Change in Ounces	% Change
Average	+0.19	+9.5%
Range	-0.37 to 0.21	-10.11% to 27.51%

One site was not able to collect post-survey data, so our total data pool for the consumer survey came from nine sites, with 492 respondents to the pre-surveys and 335 respondents to the post-surveys.

Consumer survey results across nine sites:

Consumer Perceptions Change between Baseline and Implementation of Signage

Survey Question	Overall Trend	Trend in highly positive responses
I am motivated to reduce food waste (1-5, 5=Very Motivated)	2% increase in response ratings toward more motivated	12% increase in those who reported 5 (Very Motivated)
I am aware of how throwing food in the trash has a negative impact on the environment (1-5, 5=Very Aware)	Less than 1% increase in response ratings toward more aware	5% increase in those who reported 5 (Very Aware)
I know how to reduce food waste through my dining choices (1-5, 5=Very Confident)	2% increase overall in response ratings toward more confident	21% increase in those who reported 5 (Very Confident)

Consumer behavior change as a result of the signage:

I ate all the food I took today (Yes, No)	3% decrease in those responding Yes
The signage about food waste changed what I decided to order and how much to consume (Yes, Somewhat, No)	46% said Yes or Somewhat

To provide more insight for kitchen teams, consumers were also surveyed on why they did not finish the meal that day. Rather than measuring change, the responses were added and then averaged across all pre- and post-implementation surveys. This was done because it was assumed that the consumer messaging would not strongly impact why the food was not eaten. Instead of measuring changes in perception of or amount of food waste, the purpose of this survey prompt was to discover the top reasons for wasting food in the first place.

Reasons for waste:

I did not eat all the food I took today because...	<p>Top two responses:</p> <p>“Did not like the meal”: 50%</p> <p>“Portion sizes were too big”: 30%</p>
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Acknowledgments

The PCFWC would like to thank Sodexo and Aramark for their leadership and participation in this project.

About the Pacific Coast Food Waste Commitment

The Pacific Coast Food Waste Commitment (PCFWC) arose out of the [Pacific Coast Collaborative](https://pacificcoastcollaborative.org) in 2016 and is an innovative public-private partnership made up of West Coast jurisdictions, U.S. food industry leaders, and nonprofit resource partners that together seek to eliminate food waste in the region by 50% by 2030. Learn more about the initiative and its members at pacificcoastcollaborative.org/food-waste.

Business Signatories

(As of Winter 2024)

Retailers



Hospitality and Foodservice



Distributors



Manufacturers



Growers



Resource Partners

