2022 SAR Food Recovery Team: Reducing Food Waste and Promoting Student Communication at UCLA Dining

Sustainability Action Research: Abridged Final Report

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Stakeholder: Charles Wilcots, Associate Director of UCLA Dining

Introduction

UCLA Dining is one of the most recognized university food services in America, consistently ranking #1 in the nation. In the 2021-2022 academic year, 3 anchor restaurants (which are all-you-can-eat) and 5 boutique restaurants (which are take-out only) served as the main food source for thousands of students that live at the UCLA dormitories. Food from the dining halls are easily accessible to students with meal plans, so it is no surprise that 45% of UCLA's waste stream is food. UCLA has expressed that the campus is set on complying with Senate Bill 1383 as a tier 2 facility, which has motivated UCLA to reduce disposal of organic waste by 75% and recover at least 20% of edible food waste by 2025 in order to minimize the release of methane by decomposing organic waste in landfills. Previous SAR projects have tackled different aspects of food waste and sustainability over the past 13 years, including efforts in student education, partnerships with local and organic food distributors, and food waste audits. This year, our team's stakeholder was Charles Wilcots, an associate dining director at UCLA Housing and Hospitality. He expressed that the biggest challenge UCLA Dining faces in terms of food waste was the lack of education and knowledge of food waste impacts amongst residents on the Hill. With this in mind, our team focused our project on understanding what food residents wasted, why they were wasting, and how best we could improve current food waste infrastructure and educational material in order to minimize food waste during preparation and consumption. Our project consisted of 3 main initiatives: a mass survey, a longitudinal diary study, and food waste audit data collection and refinement.

Methods

In order to better understand food waste habits on the Hill, our team aimed to collect data on both the demand and supply sides. The mass survey and longitudinal diary study provided

deeper insight into students' perception of their waste habits, while the food waste audits visually and numerically demonstrated which foods were getting wasted the most.

The mass survey was designed to be more general and to be taken by a large number of students. The survey was created on Google Forms, and posters with a QR code linking the survey were hung in numerous dining spots frequented by students. Additionally, RAs sent the survey link on their floor GroupMe, which, when coupled with the QR code posters, helped our team secure an adequate amount of survey responses. We were able to secure TGIF funding for free Hydroflasks and UCLA sweatshirts, which we raffled to incentivize students to take the survey. The mass survey data collection period started on April 4th at 6:00 am, and ended on April 22nd at 11:59 PM. Survey respondents were asked a range of questions from demographics to food waste specifics at both anchor and boutique dining halls. The demographic-based questions asked about students' year, major, dietary restrictions, meal plan type, and household income. By including demographic-based questions, we were able to take into account any biases that students may have had regarding food waste prior to taking the survey. Respondents were then asked to pick which anchor and boutique location they frequented the most, which then led them to a line of questioning specific to the location they chose. The mass survey also included a marketing materials section to help promote better food waste education among students. Our team created six example educational posters that respondents were asked to rank based on appeal. The marketing materials section enabled us to find out what posters would be best received by students, which is key information to pass along to UCLA Dining.

The longitudinal diary study was designed to be taken by a smaller number of people, so as to collect more in depth data on student food waste. An interest indicator question was included on the mass survey, and our team picked 30 students from the interested group. We

aimed to have equal amounts of students for each meal plan to limit potential biases as much as possible. The selected students logged their meals and subsequent food waste at boutique locations for a week long period. Students who logged at least four meals eaten at boutique dining halls from April 16 through April 22 received a $25 Bruin Card deposit from TGIF. Prior to the longitudinal diary study, there had never been any food waste data collected at boutique dining halls, which made the diary study a significant further insight on student waste habits for Dining.

There were three food waste audits conducted at the B-Plate, Epicuria, and De Neve dining halls. The audits were run during the dinner dining period from 5:00 to 9:00 PM. Our team split into two groups with one taking the shift for the first two hours and the other taking the shift for the last two hours. We set up in front of the dishroom and diners were directed by a UCLA Dining employee towards our waste collection station. We utilized four bins for waste separation into edible food waste, inedible food waste, liquid, and napkins. Once the food waste was separated, it was weighed and recorded.

Limitations & Future Steps

Despite the general trends we are able to gather about take-out locations from the two surveys, there may be potential error and limitations regarding data collection. For the mass survey, students interested in sustainability might be more inclined to participate or students may feel obligated to underestimate the amount of food waste they produce from take-out locations when hungry and waiting for food and when prompted with the concept that the survey is relevant to sustainability. Additionally, the diary study required students to complete at least five entries to receive compensation and thus, students may be inclined to fill out the survey fairly quickly rather than leave written responses or photographs showcasing their leftovers, given that

these sections were not required. Due to our limited budget for compensation, only 30 students were selected for the diary study, creating a small sample size. Though this helps with general trends, it does not suffice to prove statistical significance. Overall, there remain gaps in food waste data for take-out locations due to the inability to measure it quantitatively such as through a waste audit; take-out food waste is scattered across compost, landfill, and recycling bins throughout the Hill and on campus, making it unrealistic to sort through bins in general locations. Even if bins near the take-out locations were sorted, this would lead to skewed, unrepresentative data since students throwing away their dish near the location are more likely to have finished. Thus, the take-out waste data is expected to remain purely self reported and qualitative, but can be strengthened by requiring short response explanations and/or pictures of waste.

Waste audit data gathered from anchor locations were limited to sorting by the following groups: edible, inedible (peels, bones, etc.), liquid, and napkins. The only data gathered about specific food groups or specific parts of a dish wasted were qualitative through photos or memory by volunteers and our team. Given that the sorting process was located in front of the dishroom and required students to wait in a line and help sort their waste, sorting by food groups using this method is not feasible and would likely lengthen the wait time and increase sorting error and messes. Though audits in front of the dish room are beneficial for educational purposes and baseline data, future waste audits can be expanded upon by conducting them within the dishroom, which will allow for data regarding favored versus most wasted groups and dishes. Further, our data gives insight into percentage of waste that is still edible, but does not show the percentage of overall food wasted, i.e. a ratio of the mass of edible food wasted to the initial mass produced or # of dishes produced. We also are limited to our waste audit database and did

not gain access to the FoodPro system. Therefore, we were unable to quantify total waste including pre-consumer and post-consumer.

The mass survey, diary study, and waste audits lack a temporal scale given the limitations of SAR's schedule. The three studies were planned during winter quarter and executed during spring. Additionally, the waste audits were only conducted once per dining hall as they are labor intensive and have to be set up prior to dining. The audits were also only conducted through dinner hours (5-9PM). Further studies should conduct at least one audit per quarter per dining hall to understand seasonality of food waste. We predict that the trends likely differ during Fall due to new students wanting to try new things without finishing their food.

In the long term, as recommended in the food plate waste audit guide, the student sustainability coordinator position should be reinstated to ensure that there is a student in charge of food waste audits at all times. This would facilitate the consistency of data collection across the quarters and across the years. Moreover, the student sustainability coordinator could consider revamping the data collection spreadsheet. Currently, the summary sheet only has summary information by individual audit. Adding a data view for summary information by dining hall and by year, as well as allowing viewers to have the capability to sort audits by increasing or decreasing total and per person waste weights would be immensely helpful for comparison purposes. In addition, once these sheet amendments are made, it would improve efficiency to write formulas in the template sheet so that data standardized cells automatically transfer within and across sheets.