



University of Kansas Dining Lawrence, Kansas Food Recovery Partnership

Company background

The University of Kansas Dining Services has 250 employees at 20 locations on campus ranging from large cafeterias and food courts, to small coffee shops with to-go sacks and meals. Hours vary widely, but at least one dining operation is open every day of the year including holidays. KU is a public research university with an enrollment of 28,447 students as of 2018, with its main campus located in Lawrence, Kansas.

Project background

Every year, \$218 billion are spent nationally growing, transporting and disposing food that is never eaten, amounting to 52 million tons of food sent to the landfill. Food waste makes up 21 percent of waste in landfills, yet one in seven Americans experience food insecurity¹. When food is sent to the landfill, it emits greenhouse gases that can cause heat to be trapped in our atmosphere. Higher temperatures can affect crop yields and create extreme weather events, increasing the risk of hunger from lack of food and increased prices on certain foods, thus increased demand and lack of supply². Reducing food waste not only saves money, but can also help save our environment from harmful greenhouse gas emissions.

In effort to address these issues, the Lawrence-Douglas County Health Department partnered with the Kansas State University Pollution Prevention Institute to host an intern to identify food recovery opportunities. The goal of the project was to reduce pre-consumer food waste and divert excess food to hungry populations. The intern was to perform on-site visits to include observation, interviews, and measurement for potential food recovery at agreed-upon locations and provide technical assistance in development of strategies for implementing recommendations. The EPA's food recovery hierarchy was followed when researching food recovery opportunities. Recommendations include triple-bottom-line data (social, economic and environmental outcomes).

Currently all pre-consumer trimmings from food prep and the large majority of food waste leftover on the lines at the end of each day at all locations on campus are composted through Missouri Organics for a price based on weight. KU is planning on participating in new initiatives to provide meal options to students in need created by the new food insecurity committee this fall. KU Dining has donated to local organizations for 15+ years including Just Food totaling \$7,000 - \$10,000 of food annually.

Incentives to change

In Douglas County, 16.5 percent of the overall population is food insecure and 18 percent of the child population is food insecure³. The sustainability board of the city of Lawrence has the goals of

expanding waste reduction and reducing greenhouse gas emissions by 30 percent by 2020, and 80 percent by 2050⁴. According to Lawrence's Climate Protection Plan, the greatest problem the city faces relating to waste is volume, so source reduction is recommended as the best action. Reducing the amount of food waste going to the landfill and increasing the amount going to people addresses all of these concerns. KU takes pride in being a sustainable and forward-thinking campus. The university has the opportunity to be a role model for not only other universities, but for K-12 schools and large businesses as well.

Projects reviewed for food recovery opportunities

1. Mrs. E's

Mrs. E's is an "all-you-care-to-eat" dining hall on the first floor of Lewis Hall located on Daisy Hill on the campus of the University of Kansas. The dining hall's main customers are college students on meal plans living in the residence halls, but it is open to all students and the public who choose to pay a flat fee upon entry for unlimited access to food while inside the facility. Mrs. E's serves up to 3,500 people a day. The dining hall is open from 7 a.m. to 8 p.m. Monday – Thursday and closes at 7:30 p.m. on Fridays. Weekend hours are 11 a.m. to 7:30 p.m. Service is continuous until the lines are pulled at closing. At this time, the majority of pre-consumer and excess edible food off the line is placed in bins, and sent to Missouri Organics to be composted. Missouri Organics picks up the food three times a week. Some food is saved and repurposed according to staff.

2. South Dining Commons

South Dining Commons is located between Oliver and Cora Downs residence halls and is a "all-you-care-to-eat" dining hall. The majority of consumers are university students living in the residence halls, but is also open to all students and the public for a flat access fee. South Dining Commons serves between 1,700 and 2,000 people a day. Monday through Thursday, the hall is open from 7 a.m. to 7:30 p.m. and closes at 7 p.m. on Fridays. Weekend hours are shortened to 11 a.m. to 7 p.m. Service is continuous, and the majority of food is pulled at closing by staff and placed into bins, and sent to Missouri Organics to be composted three times a week. Some food is saved and repurposed according to staff.

3. The Commissary

The Commissary opened in August of 2017 serving as a central kitchen to the dining services on the university's campus. It is located in the same building as South Dining Commons and prepares large quantities of foods such as salsa and tartar sauce, as well as many fruits and vegetables, along with cheeses and to-go meals such as sandwiches and salads for KU's 20 dining locations. At the time of the visit, the Commissary was conducting a yield study of its own, measuring case weight, waste and final

¹ <http://www.refed.com/?sort=economic-value-per-ton>

² <https://www.wfp.org/climate-change/climate-impacts>

³ <http://map.feedingamerica.org/county/2016/overall/kansas/county/douglas>

⁴ https://assets.lawrenceks.org/assets/agendas/cc/2009/03-31-09/03-31-09h/cptf_final_draft_report.pdf

product weight.

Recommendations

It is recommended production be reduced overall in each food category and production records be taken at the end of each service to increase awareness of wasted food. Tracking food waste exposes areas of opportunities and can show progress. Implementing simple signage as reminders could also help decrease food waste⁵. Conservative production, erring on the side of underproduction, could reduce wasted food. More food could be prepared on an as-needed basis. South Dining Commons has the most opportunity based on data from the day of the visit. More than 70 pounds of rice were discarded in compost bins at South Dining. This was mainly due to the special event put on at the time and

inability to accurately forecast servings. It is recommended the dining service offer fewer extensive choices for events such as this to avoid over-production. Since both large dining facilities are “all-you-care-to-eat” it can be difficult to predict how much food to prepare to minimize food waste. It is recommended the dining services review the Kansas Good Samaritan Act, which protects donors from liabilities that may be concerning to organizations and hold them back from donating. Establishing a Food Recovery Network Chapter would assist KU with donating food to those in need locally. Partnering with Swipe Out Hunger could turn excess student meal swipes into food to be donated or meal credits for students in need.

It is also recommended to continue to compost inedible foods through Missouri Organics and donating excess food that is still edible for humans to local pantries.

Summary of 2018 food recovery opportunities for KU Dining Services

Individual location data

| Project | Annual estimated food waste ⁶ | Annual estimated environmental impact – reduction ⁶ | Annual estimated GHG savings – donations ⁷ | Annual estimated GHG savings – composting ⁸ |
|----------------|--|--|---|--|
| South Dining | 38.6 tons | 21.0 metric tons CO ₂ e | 16.9 metric tons CO ₂ e | 6.8 metric tons CO ₂ e |
| Mrs. E's | 19.1 tons | 10.3 metric tons CO ₂ e | 9.4 metric tons CO ₂ e | 3.4 metric tons CO ₂ e |
| The Commissary | 10.4 tons | 5.6 metric tons CO ₂ e | 4.6 metric tons CO ₂ e | 1.8 metric tons CO ₂ e |
| Status | | Recommended | Recommended | Implemented |

Combined data from all three locations

| Food type | Annual estimated environmental impact – reduction ⁷ | Annual estimated GHG savings – donations ⁸ | Annual estimated GHG savings – composting ⁹ | Annual cost savings ¹⁰ |
|-----------------------------|--|---|--|-----------------------------------|
| Food waste (non-meat) | 2.0 metric tons CO ₂ e | 1.6 metric tons CO ₂ e | 0.6 metric tons CO ₂ e | \$ 2,692.11 |
| Food waste (meat only) | 0.1 metric tons CO ₂ e | 0.1 metric tons CO ₂ e | < 0.1 metric tons CO ₂ e | \$ 197.67 |
| Beef | 1.3 metric tons CO ₂ e | 1.1 metric tons CO ₂ e | 0.4 metric tons CO ₂ e | \$ 1,814.23 |
| Poultry | 2.9 metric tons CO ₂ e | 2.4 metric tons CO ₂ e | 0.9 metric tons CO ₂ e | \$ 3,903.90 |
| Grains | 8.2 metric tons CO ₂ e | 6.4 metric tons CO ₂ e | 2.7 metric tons CO ₂ e | \$ 11,235.61 |
| Bread | 0.9 metric tons CO ₂ e | 0.8 metric tons CO ₂ e | 0.3 metric tons CO ₂ e | \$ 1,269.26 |
| Produce | 20.1 metric tons CO ₂ e | 16.4 metric tons CO ₂ e | 6.5 metric tons CO ₂ e | \$ 27,350.17 |
| Dairy | 1.1 metric tons CO ₂ e | 0.8 metric tons CO ₂ e | 0.3 metric tons CO ₂ e | \$ 1,459.51 |
| Total annual weight | 67.4 tons | | | |
| Total annual savings | 36.6 metric tons CO ₂ e | 29.7 metric tons CO ₂ e | 11.9 metric tons CO ₂ e | \$ 49,922.46 |
| Status | Recommended | Recommended | Implemented | |

⁵ <https://www.reuters.com/article/us-awareness-college-food-waste-idUSBRE90A0YY20130111>

⁶ Estimated total food waste over a 283-day academic year, including fall spring and summer semesters, with an assumption of a 30% decrease in production in the summer. Based on data collected the days of the visits.

⁷ Estimated potential GHG savings from reduction based on actual weights measured on the days of the visits. Reduction assumes overproduction elimination.

⁸ Estimated potential GHG savings if food was donated to food banks, pantries or animals based on actual weights on the days of the visits.

⁹ Estimated potential GHG savings from current composting practices based on actual weights from the days of the visits.

¹⁰ Estimated potential annual cost savings from reduction based on average wholesale prices from ReFED from the Bureau of Labor Statistics.