
Redistribution of UC Dining Hall Food

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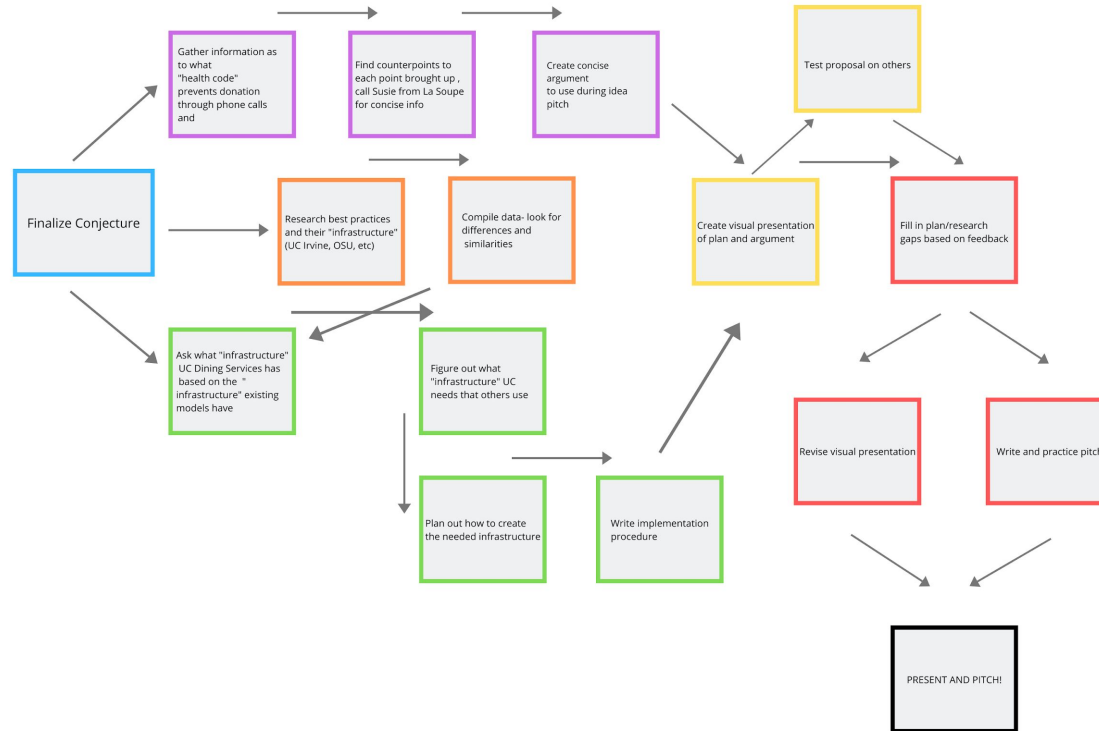
Conjecture

“If a system involving safely packaging food from dining halls and efficiently redistributing it to local nonprofit organizations is implemented at the University of Cincinnati, then the amount of food waste produced by dining halls would decrease and the issue of hunger in the community would be reduced.”

Overview

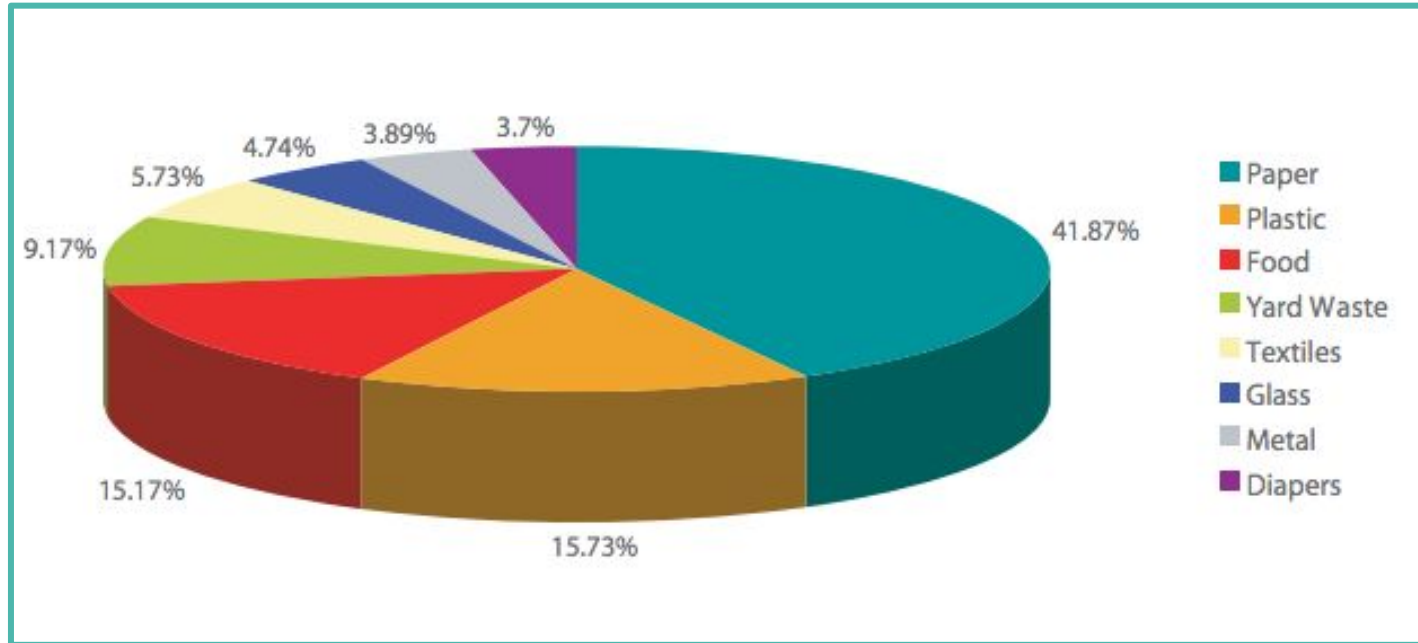
1. Design Process
2. The Problem
3. Case Studies
4. Proposed Solution
5. Implementation
6. Future Steps

Design Process



1. The Problem

Hamilton County Rumpke- Waste in 2018



Hamilton County Hunger

Who are we feeding?

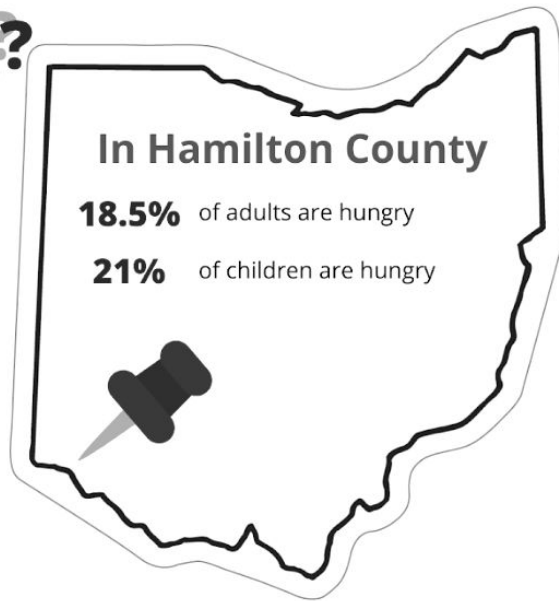
Of adults in Greater Cincinnati...



In Hamilton County

18.5% of adults are hungry

21% of children are hungry

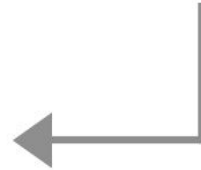


Environmental Impact of Food Waste



In the United States alone, discarded food, when expressed in terms of energy, is the equivalent to almost **350 million barrels of oil** per year.*

* Source: Wasted Food, Wasted Energy: The Embedded Energy in Food Waste in the United States, published 2010 in the Environmental Science and Technology journal

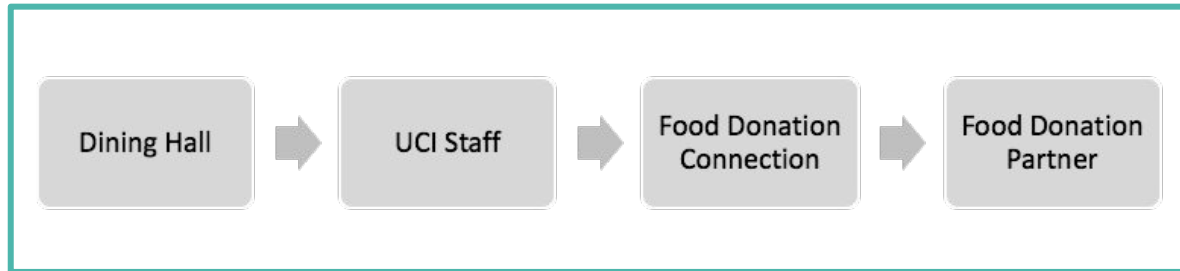


Research Questions

- Where is food waste generated on campus?
- What can be done with the food waste?
- How can students at the University of Cincinnati get involved?
- What other models exist?

Case Study- UC Irvine

- The University of California Irvine established a system to divert around 80 percent of its food waste from landfills. Whenever dining halls have excess leftover food, it directly goes to people in need in the community. The UCI staff follows Aramark's food donation guidelines to package the food and then works with The Food Donation Connection (FDC) who manage the network of local food relief agencies and redistribute the food.



Case Study- Rush Medical Center

- Started the Surplus Project where volunteers package leftover food and donate it to charities and homeless shelters around the area. They package the food into meal size containers and label each container with an allergen label. The packaged food is kept in a freezer until it is picked up the next day by volunteers who will deliver the food to local charities and homeless shelters.



Best Practices

- Have volunteers package and redistribute food
- Be certified in handling food
- Source volunteers from a variety of different student organizations
- Place allergen labels on all items
- Use of freezer if blast chiller is unavailable

Laws & Regulations

➔ The Bill Emerson Good Samaritan Food Donation Act

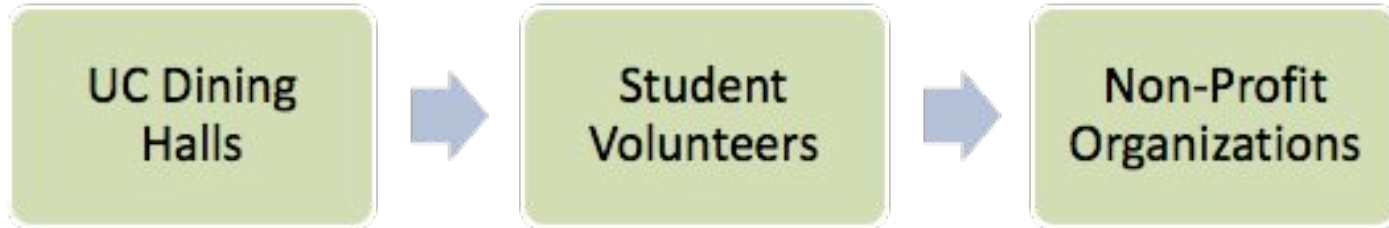
- ◆ On October 1, 1996, President Clinton signed this act to encourage donation of food and grocery products to non-profit organizations for distribution to individuals in need. This law:
- ◆ Protects you from liability when you donate to a non-profit organization

➔ Ohio Code 2305.37

- ◆ “Person donating perishable food for distribution to needy individuals not liable for injuries”

➔ There has not been a single lawsuit regarding food donation in history

Solution Overview



2. Dining Halls

Amount of Food Wasted at UC

*Food Waste 2007-2009

| University | Tons of waste/year | Tons composted | Percentage composted |
|--------------------------|--------------------|----------------|----------------------|
| University of Cincinnati | 600** | 0 | 0% |
| Tufts University | 2,500 | 170 | 7% |
| Ohio University | 4,800 | 900 | 19% |
| University of Michigan | 3,400 | 34 | 1% |
| Berkeley | 2,850 | 500 | 18% |

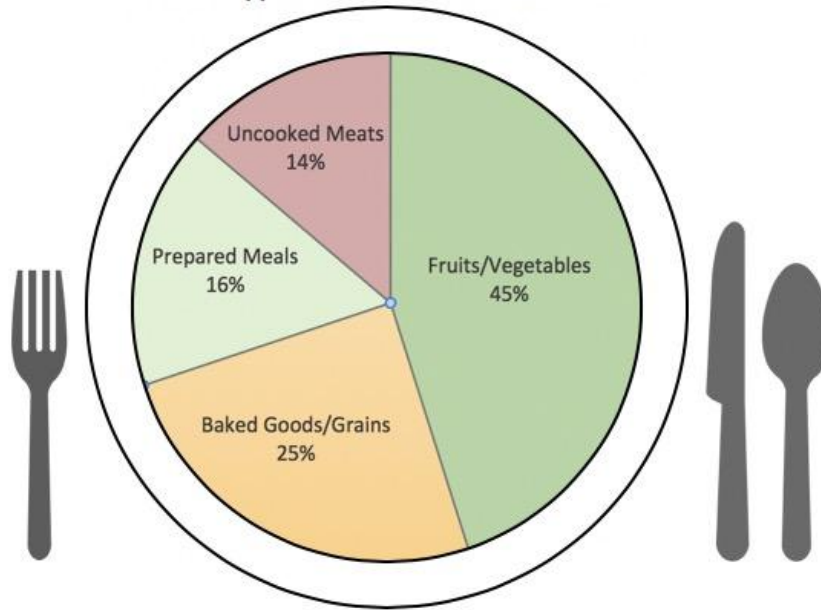
\$1,164,000 wasted each year

\$0.97 for each pound.... (2000 pounds *6*0.97)=\$1,164,000

Redistribution

Hunger + saving money ✓

Types of Food to Be Rescued



Packaging Guidelines

- Storing Leftovers
 - ◆ According to USDA Food Safety and Inspection Service, leftovers must be cooled down to 40 °F or below within 2 hours to prevent bacterial growth (staphylococcus aureus, salmonella, e coli)

- Danger Zone (40°F - 140°F)
 - ◆ Bacteria grows most rapidly in the range between 40°F - 140°F, doubling in number in as little as 20 minutes



United States Department of Agriculture
Food Safety and Inspection Service

Food Safety Information

Packaging Materials

- Blast Chiller/Freezer
- Temperature probe
- Polypropylene plastic bags for storage
 - ◆ each bag is \$0.04 cents
 - ◆ FDA approved
- Allergen label on every item



| ALLERGEN Alergénico - Allergène | |
|---------------------------------------|---------------------------------------|
| <input type="checkbox"/> No Tree Nuts | <input type="checkbox"/> No Shellfish |
| <input type="checkbox"/> No Peanuts | <input type="checkbox"/> No Fish |
| <input type="checkbox"/> No Dairy | <input type="checkbox"/> No Wheat |
| <input type="checkbox"/> No Eggs | <input type="checkbox"/> Gluten-Free |
| <input type="checkbox"/> No Soy | <input type="checkbox"/> Other: |



Estimated Budget

| | | |
|-------|----------------------------|--------------------------------|
| 01 | Blast Chiller | \$5,000 |
| 02 | Temperature Probes | \$10 |
| 03 | Plastic Bags | \$5 per week so \$260 per year |
| 04 | Backpack/ freezer blankets | \$60 |
| Total | | \$5,330 |

3. Volunteers

UC Food Forward

Mission Statement:

To make the UC campus and community more sustainable through diverting food leftovers to the hungry, installing composting/recycling bins in residence halls, and other programs that increase the awareness of environmental instability.

How it would help redistribution:

- Volunteers from our organization will be part of the packaging and transport process of leftover foods



Volunteer Sources



ServSafe Certification

- “We understand the importance of our program in teaching and certifying responsible food service measures”
- “Stay on top of the various and changing regulatory requirements for every state and ensure that our certification will meet any food handler training need”

* Some volunteers (Sahaja, Nithya & Emma) will certainly be ServSafe certified and they are able to train future volunteers



Storage Process

- Backpack designed by Seth's group:
 - ◆ Affordable, will be held at bike kitchen, waterproof, airtight, closed core foam insulation
- Freezer Blankets (Samco Company)
- Will keep cold food below 40 degrees
 - ◆ Insulation keeps food out of the “danger zone”



Different Modes of Transport



Volunteer Incentives

- Volunteer hours
 - ◆ 2 hours for each shift
- Meal voucher at UC dining halls
- Opportunity to volunteer at partner organizations
- Exercise
- Gratification by helping others



Example of Volunteer Sign-Up Sheet

| | | | | | |
|---------------------------------|--------|---------|-----------|----------|--------|
| Packaging: | | | | | |
| | Monday | Tuesday | Wednesday | Thursday | Friday |
| 8 PM-9 PM | | | | | |
| 9 PM-10 PM | | | | | |
| 4:30 PM-5:30 PM(only Friday) | | | | | |
| | | | | | |
| Transport: | | | | | |
| Little Sisters of the Poor | | | | | |
| Timings figured out by survey | Monday | Tuesday | Wednesday | Thursday | Friday |
| | | | | | |
| | | | | | |
| Transport: | | | | | |
| Zion Baptist Church | | | | | |
| Timings figured out by survey | Monday | Tuesday | Wednesday | Thursday | Friday |
| | | | | | |
| | | | | | |
| Transport: | | | | | |
| Prince of Peace Lutheran Church | | | | | |
| Timings figured out by survey | Monday | Tuesday | Wednesday | Thursday | Friday |
| | | | | | |
| | | | | | |

4. Non-profit Organizations

Organizations That Will Accept Food Donations

- Factors that determined organizations
- ◆ 501-3c status
 - ◆ Proximity to UC Campus
 - ◆ Willingness to accept food donations
 - ◆ Uses all food donations > no waste
 - ◆ Has infrastructure to store leftovers

- Confirmed Organizations:
- ◆ Little Sisters of the Poor
 - ◆ St. George Food Pantry
 - ◆ Corryville Elementary School

Little Sisters of the Poor

- Roman Catholic women's group
- Strives to meet the physical and spiritual needs of the elderly poor
- Operates in over 30 countries
- Cincinnati location is St. Paul's Home, located in Clifton
- **Will accept produce and canned goods**



St. George Food Pantry

- “serve the needs of people in zip codes 45217, 45219, and 45220”
- “strive to improve the sustainability of our local community by diverting excess food production away from landfills to those most in need”
- **Will accept pre-prepared meals along with canned goods**



Corryville Elementary School

- Catholic school with a diverse student body coming from different backgrounds
- **Will accept canned fruits and vegetables, canned meats, juices, dried or canned beans, pasta, rice and other grains, cereal, and baby food.**



Impact of Specific Food Donations

LITTLE SISTERS
OF THE POOR

84 pounds/week
140.28 meals/week

ST. GEORGE
FOOD PANTRY

32 pounds/week
53.44 meals/week

CORRYVILLE
ELEMENTARY
SCHOOL

84 pounds/week
140.28 meals/week

Overall Impact

Approx. 1.67 pounds = 1 meals

1,670 pounds = 1,000 served per week by partner organizations

3 Cincinnati neighborhoods impacted

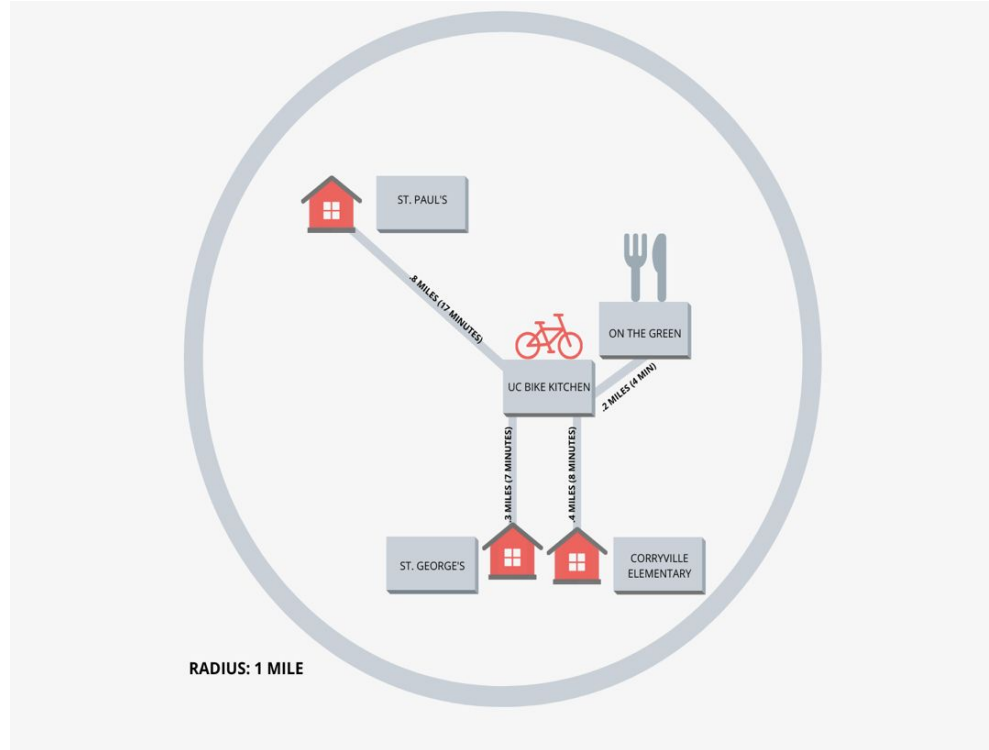
200 pounds rescued = 334 meals donated per week by UC

12,024 meals donated per year by UC

1000 + 334 meals = 1,334 meals per week

48,024 meals combined served per year

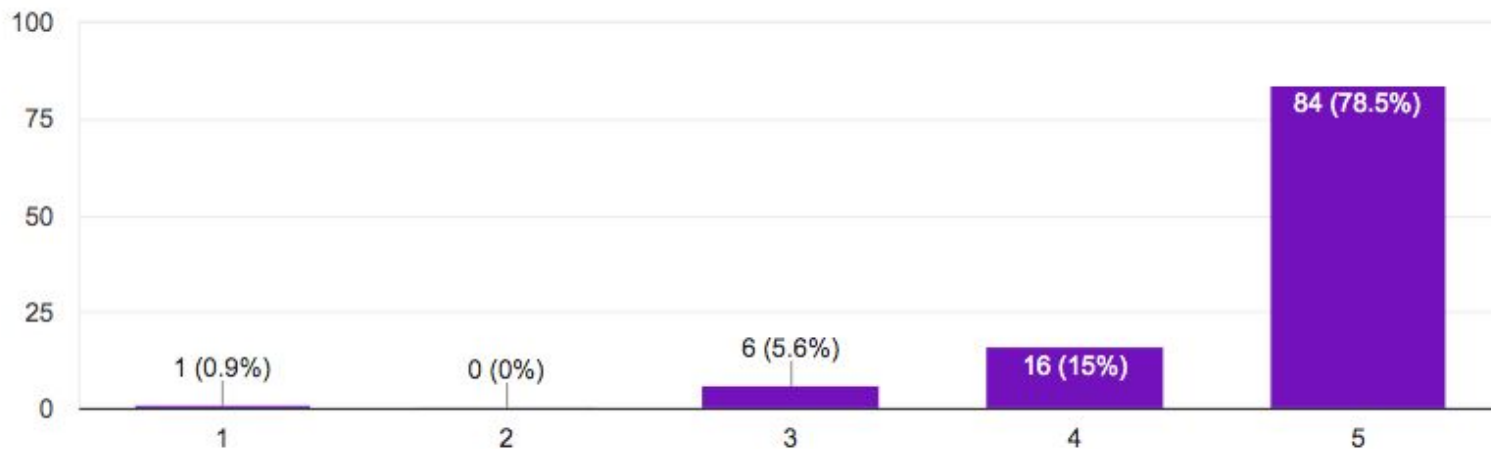
Possible Routes



Reactions from Students

How strongly do you care about the environment?

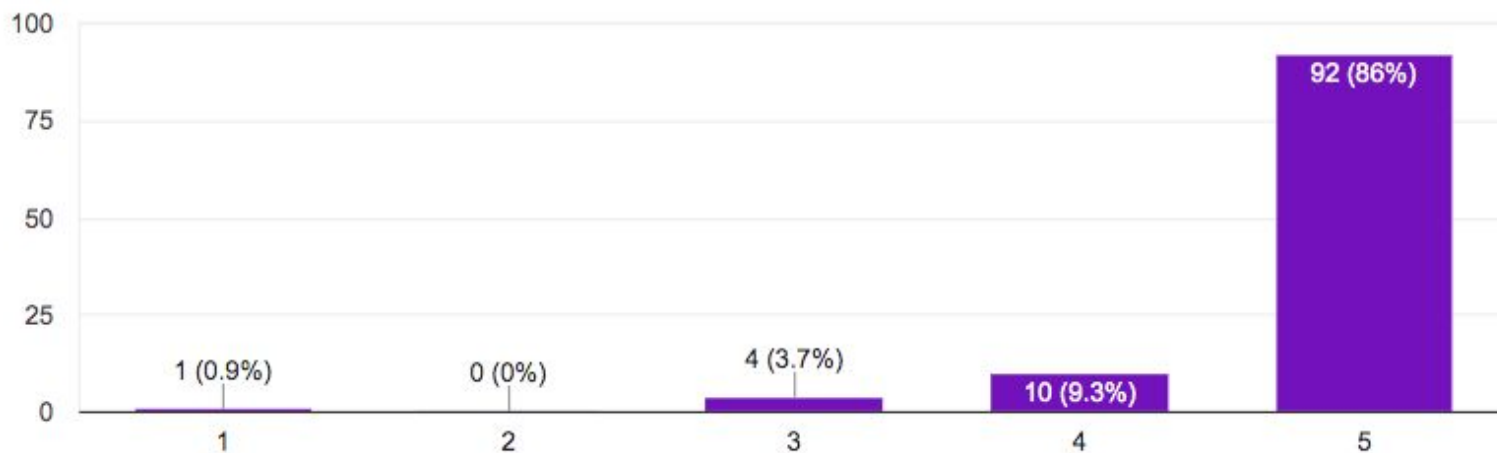
107 responses



Reactions from Students

How strongly do you care about the issue of hunger?

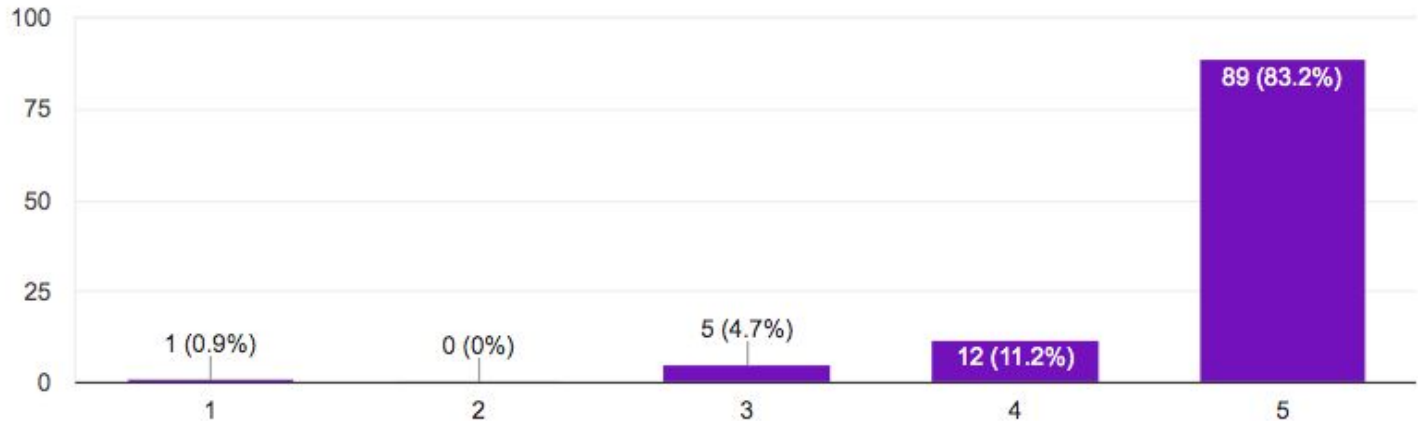
107 responses



Reactions from Students

How impactful do you think is our idea of donating leftovers from UC dining halls to local shelters/soup kitchens?

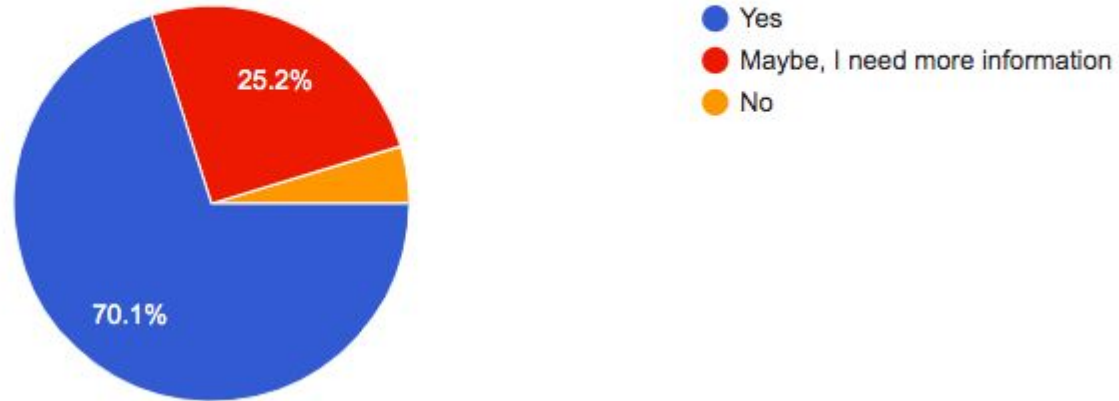
107 responses



Reactions from Students

Would you be interested in volunteering for the food packaging process?

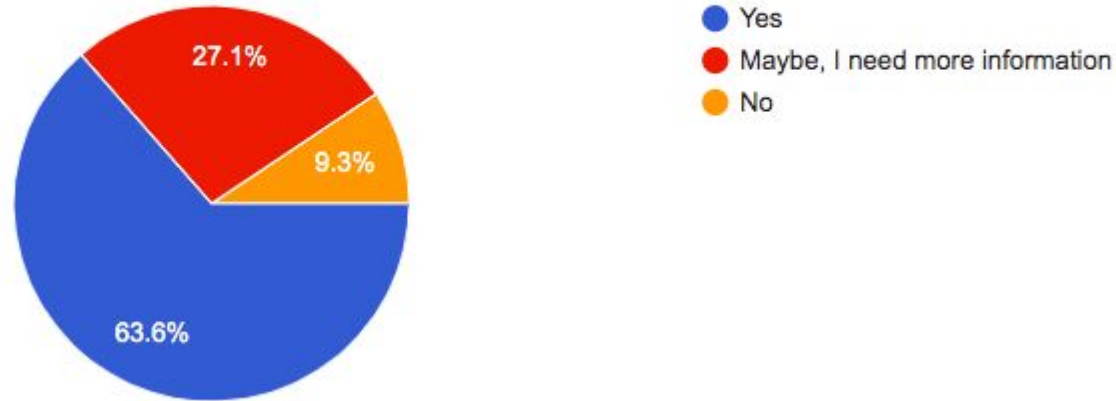
107 responses



Reactions from Students

Would you be interested in volunteering for the food transport process?

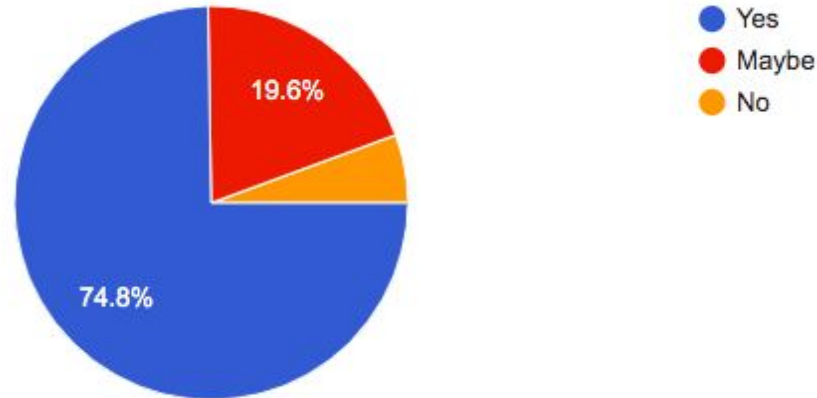
107 responses



Reactions from Students

Would you be interested in joining our organization (possibly named, UC Food Forward) and sharing its mission of reducing food waste, hunger and making the campus more sustainable?

107 responses



Reactions from UC and Aramark

Pre- Proposal

- Aramark representatives initially had negative responses because they believed that it may not be possible due to safety/health laws
- UC dining hall representatives were intrigued by the idea and willing to cooperate

Post-Proposal

- After we discussed our proposal, they were more willing to listen and willing to set up a meeting to discuss the possibilities of our plan

Review of Entire Process



Future Steps

- Obtain our own professional food license badge so that we can pick more/other organizations to donate to without going through Freestore Foodbank
 - ◆ Esther Marie Hatton Center
 - ◆ Cincinnati Restoration Church
- Redistribution food waste from Stadium View Cafe (serves smaller, to-go meals and snacks)
- Redistribution at all other food service providers at UC, including TUC food court, Catskeller, and both Starbucks locations.
- Composting at all other dining halls

Thanks!

Any questions?

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