



Consumer Plastic Consumption and Recycling in Marquette, Michigan

Presentation at
2024 Innovate Michigan Summit

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Presentation Outline



Background



Problem Statement



Data Collection



Findings



Conclusions



Appreciation

Study Background

Upper Peninsula

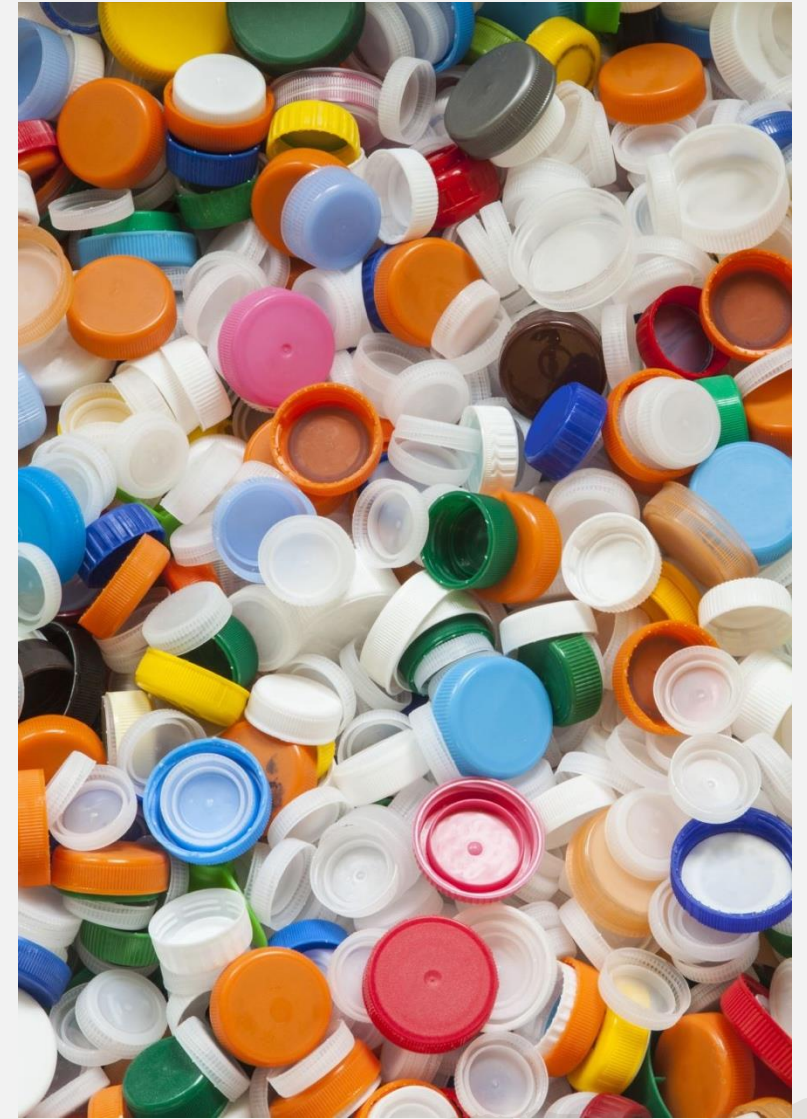
- Home to 3 Great Lakes - Lake Michigan, Huron, and Superior
- At risk, from:
 - About 22 million pounds of plastics enter Great Lakes yearly
 - **Lake Michigan:** 11.6 million pounds of plastics (100 Olympic-size swimming pools)
 - **Lake Huron:** 1.44 metric tons of microplastic
 - **Lake Superior:** 0.02 metric tons
 - Massive threat to aquatic organisms and wildlife in the lakes and millions rely on the lakes for drinking water

Background cont'd

- “Plastic pollution... is a consumption problem” - Volunteer Manager at Alliance for the Great Lakes



- Consumers plastic consumption behaviors to be examined
 - How consumers use plastics, whether they recycle plastics, and how they manage their plastic waste
 - Residents' awareness and knowledge of plastic sustainability issues



Problem Statement

- Explore plastic consumption and recycling habits of Marquette County residents
- Explore residents' thoughts on impediments to switching from excessive plastic consumption to more sustainable materials

Data Collection



- Using sequential mixed methods
- Qualtrics-administered survey (n=129, still ongoing)
 - Resident of Marquette County
 - Assess plastic consumption, reuse, and recycling habits of respondents and knowledge of plastic consumption sustainability issues

Data Collection cont'd

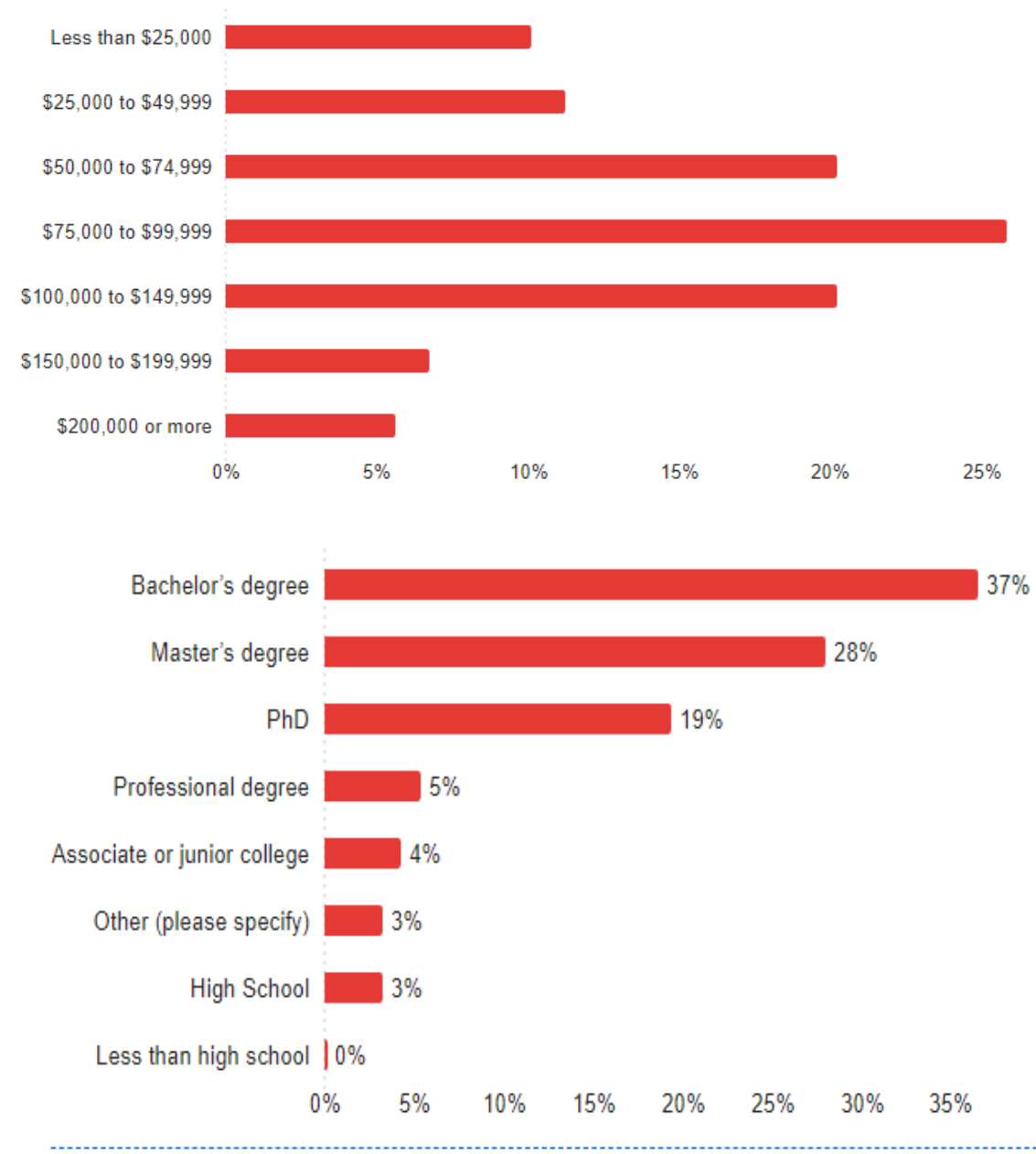
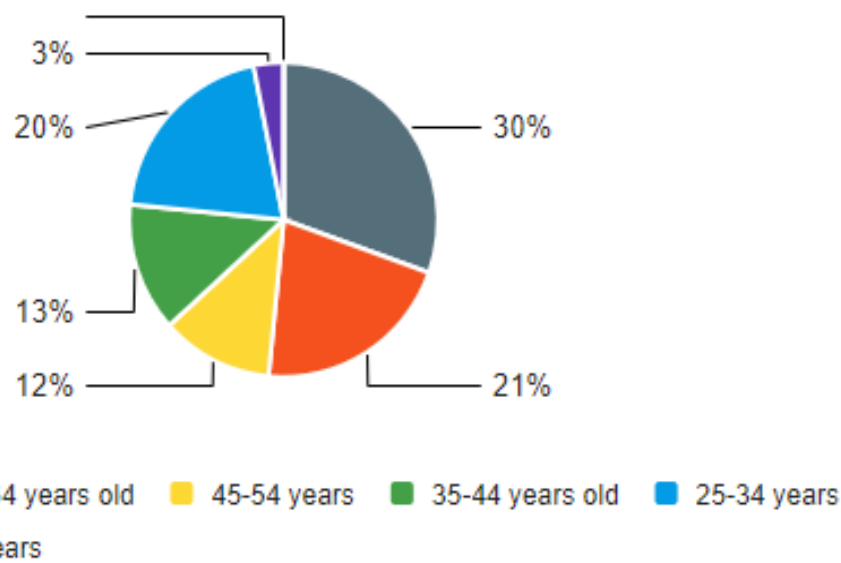


- Interviews (Upcoming): To explore:
 - Plastic consumption habits
 - Plastic recycling practices
 - Motivations to use less plastic and supporting residents to make the transition

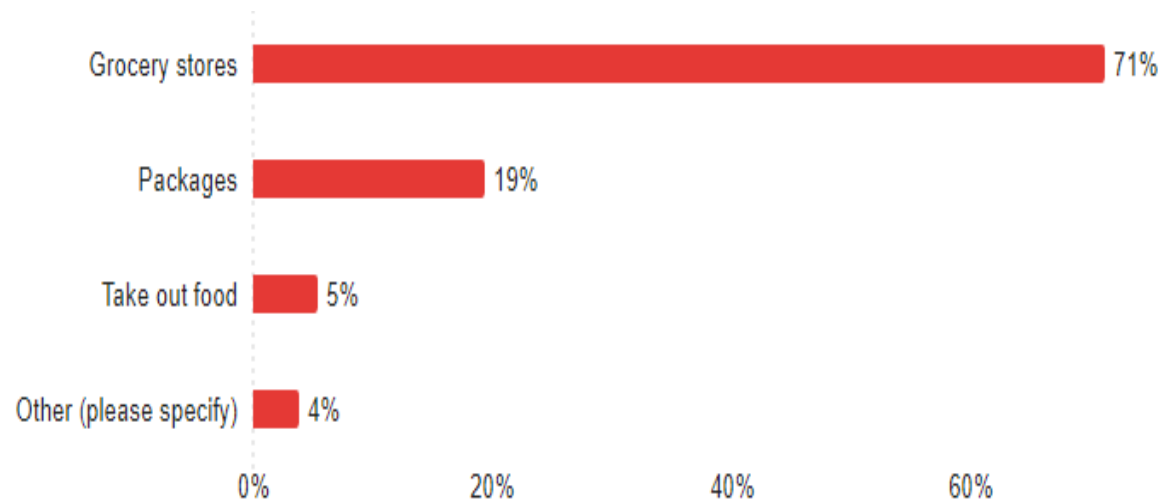
FINDINGS

Respondents' Demographics

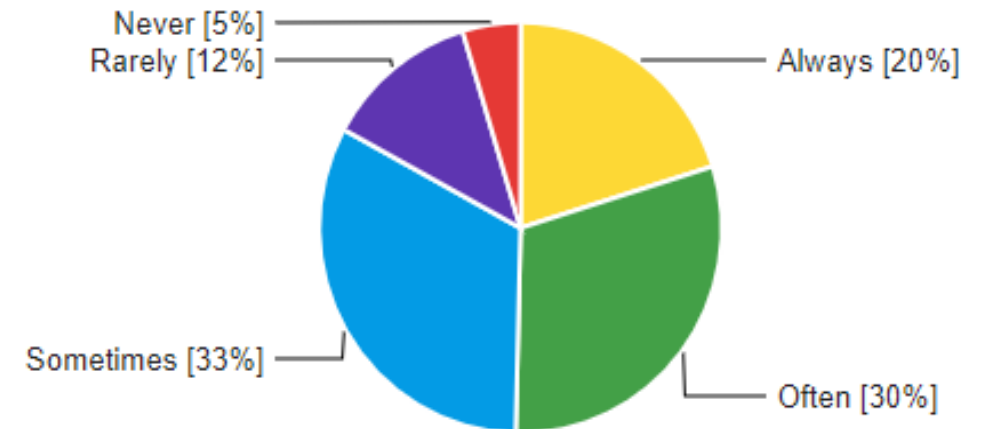
- Different ages, income levels, and education levels



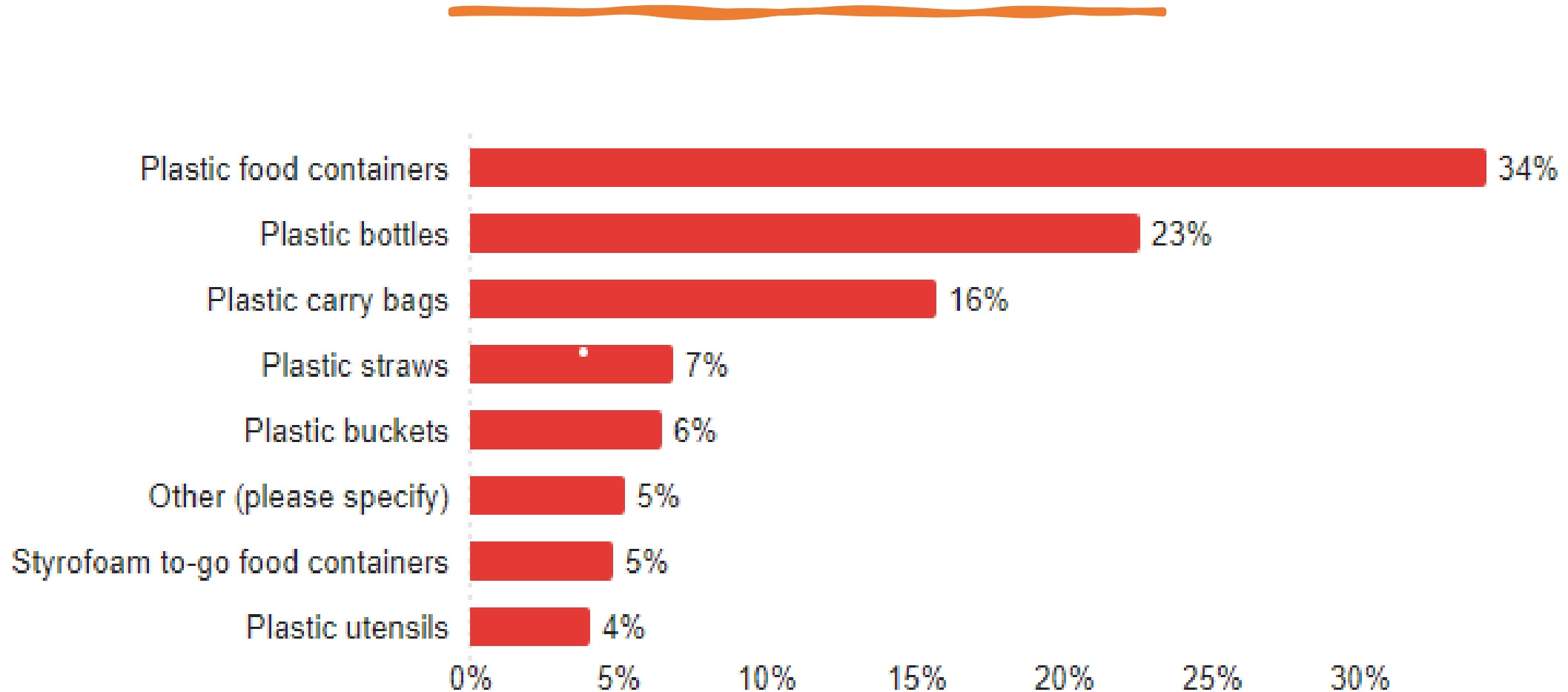
Respondents' Major Source of Plastic Consumed



Respondents' Attention to Quantity of Plastic in their items During Shopping

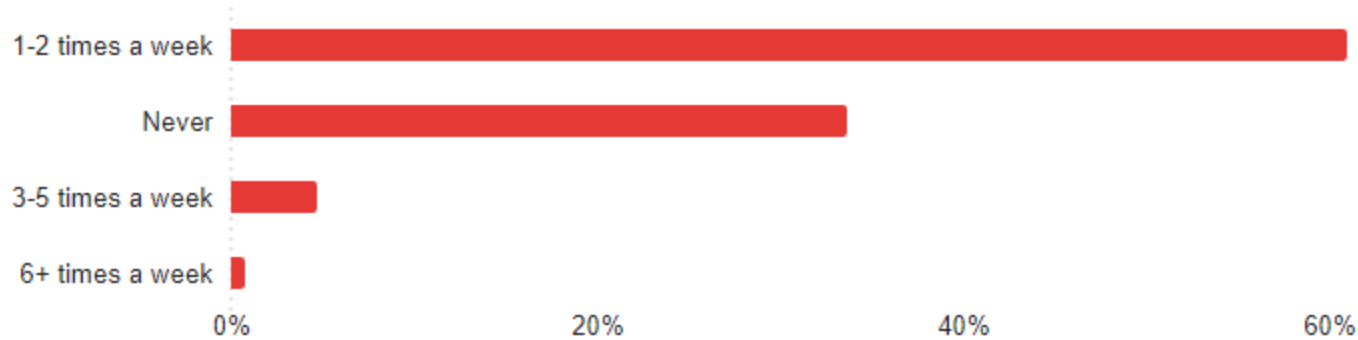


Plastic Products Often Consumed by Respondents

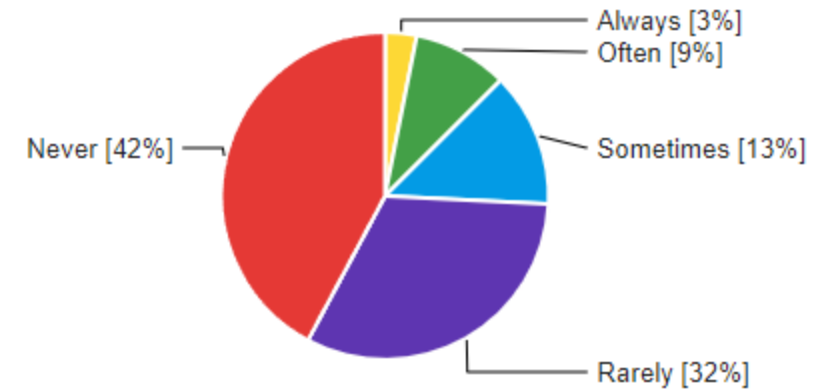


Consumption Frequency of Some Plastics by Respondents

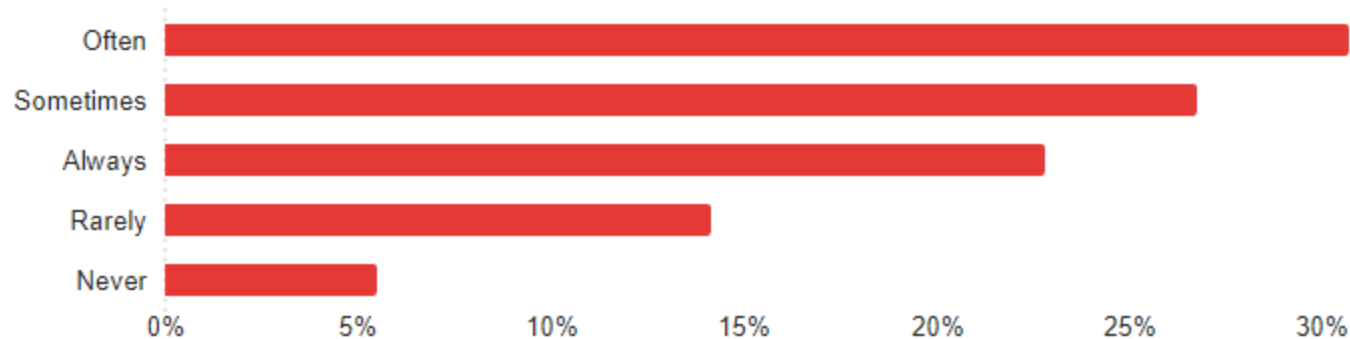
Consumption Frequency of Plastic Takeout Containers



Con. Frequency of Disposable Plastic Straws



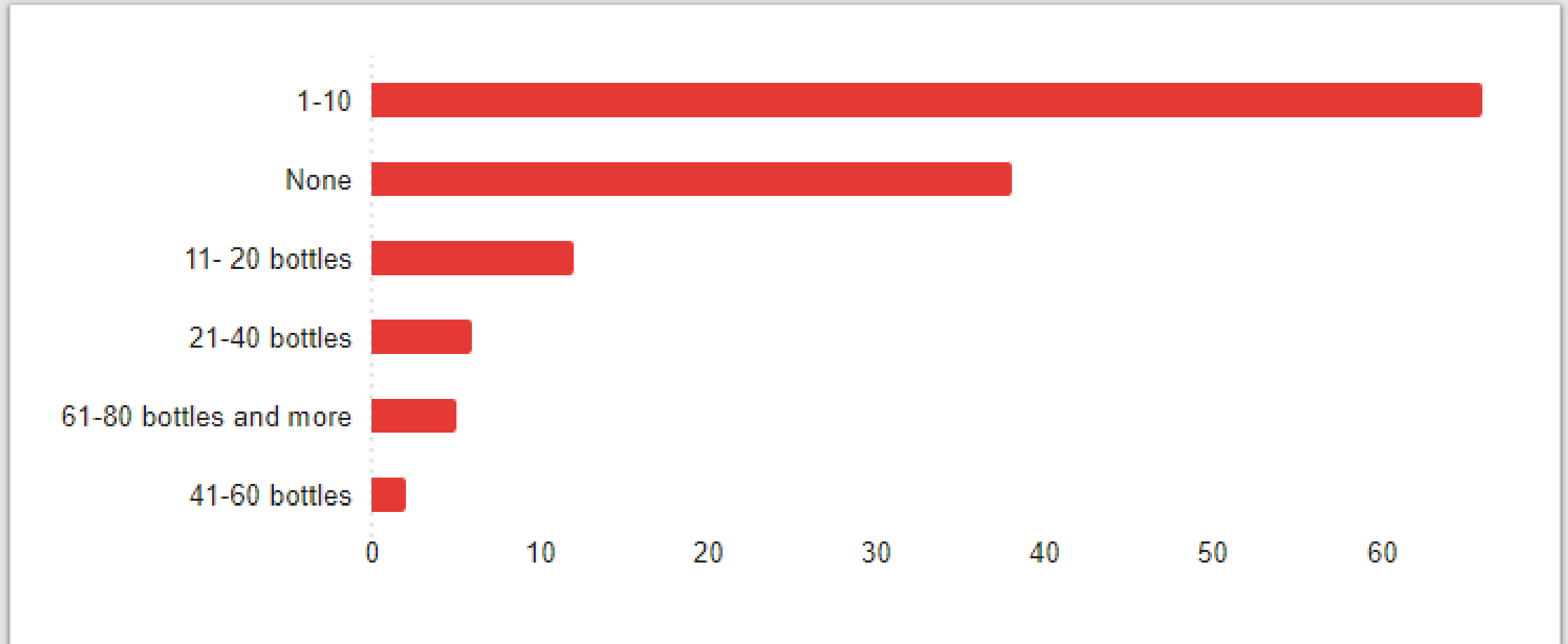
Consumption Frequency of Reusable Cup



Use Frequency of Plastics and Paper Bags For Shopping

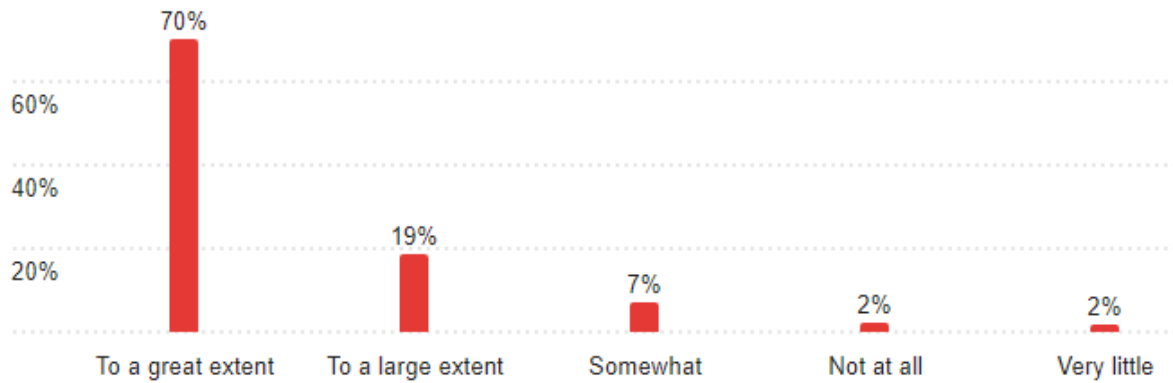


Quantity of Plastic Bottles of Water/Soda Drinks Bought & Consumed By Respondents Monthly

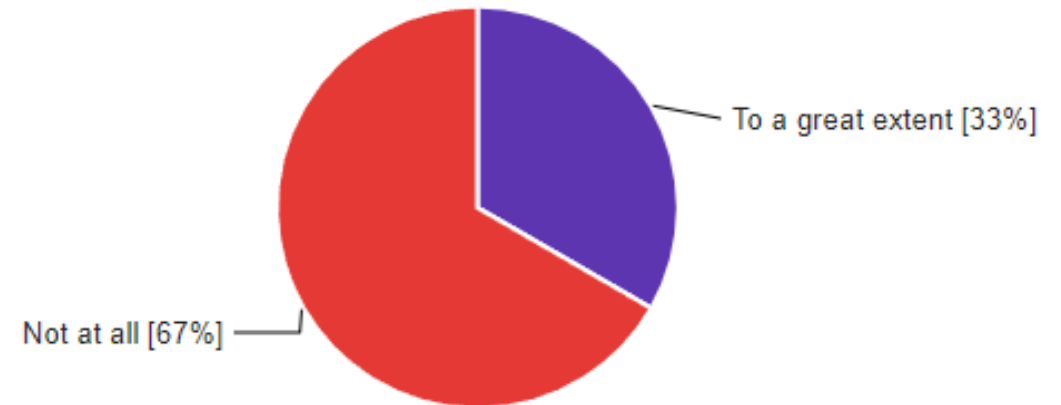


Participation in Recycling and Recycling of Plastics

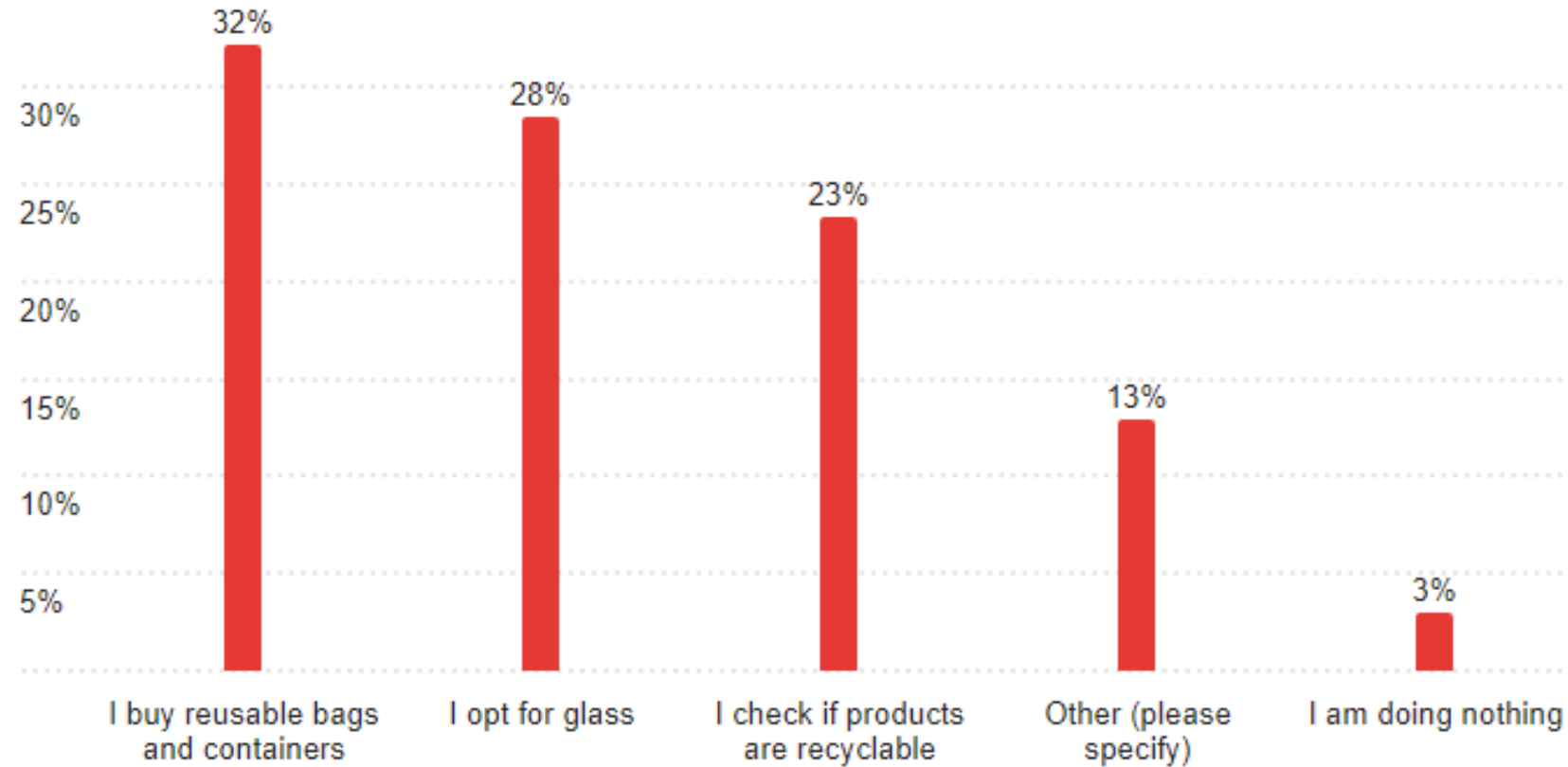
Participation in Recycling Programs



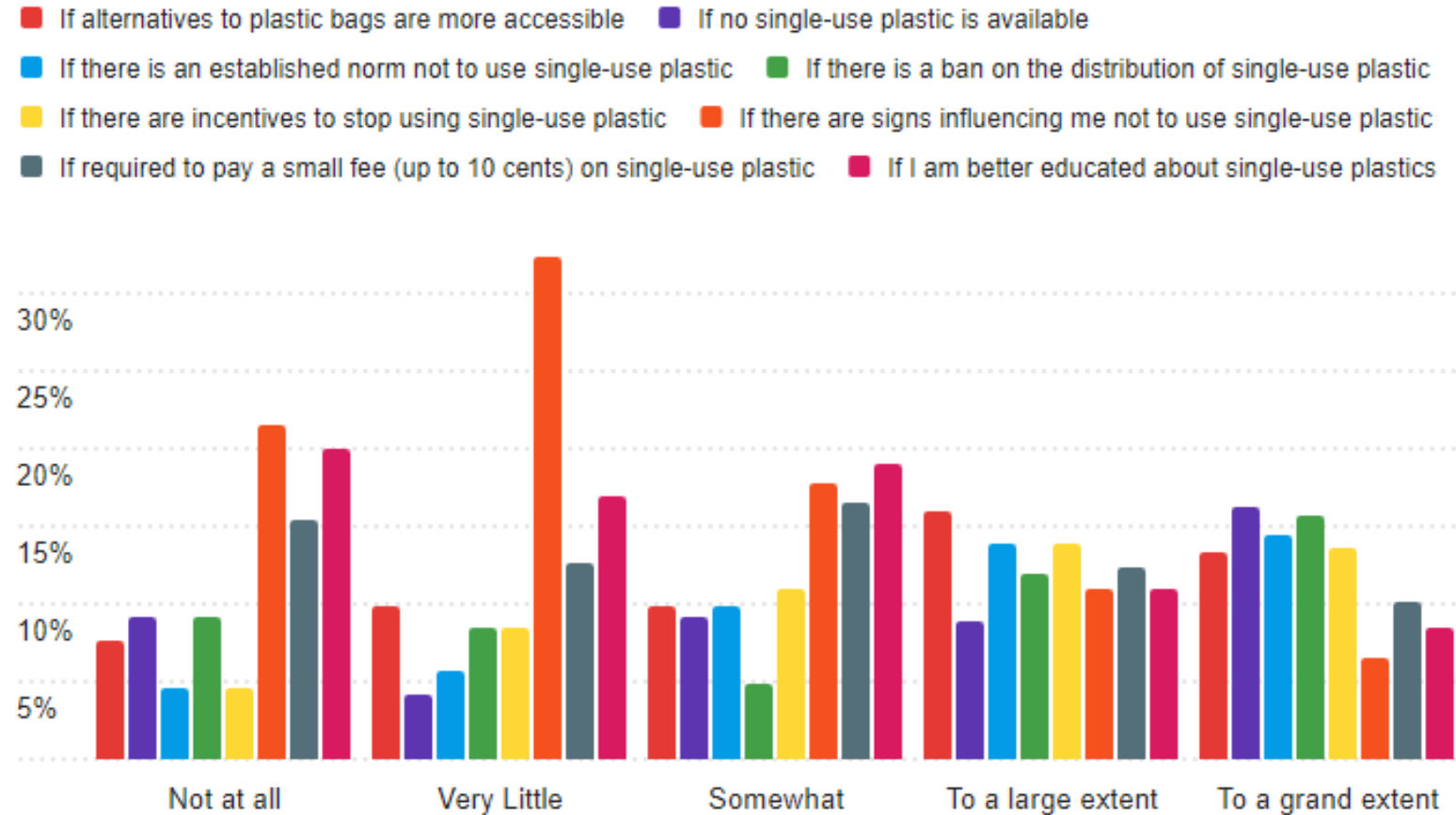
Recycling of Plastics



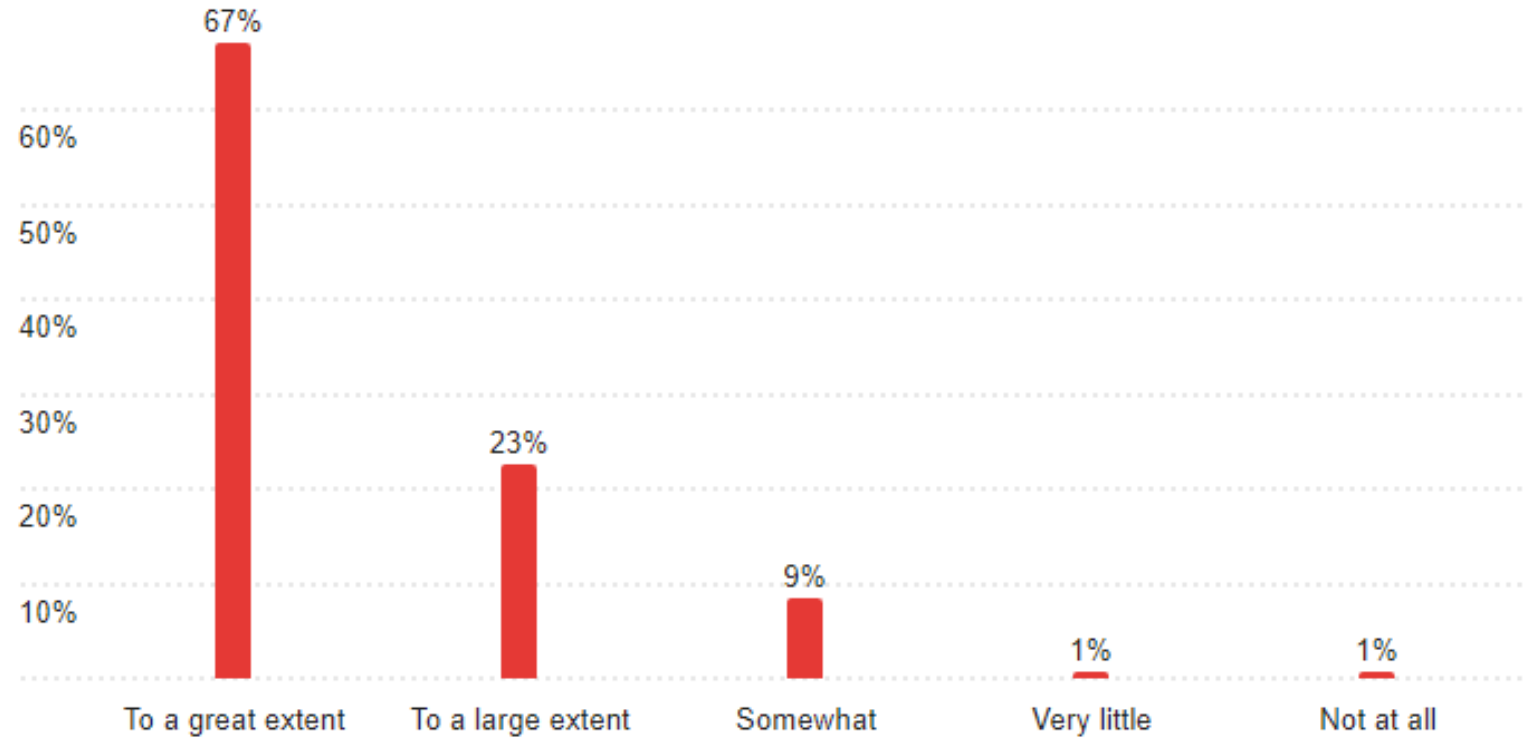
Respondents' Plastic Reduction Actions



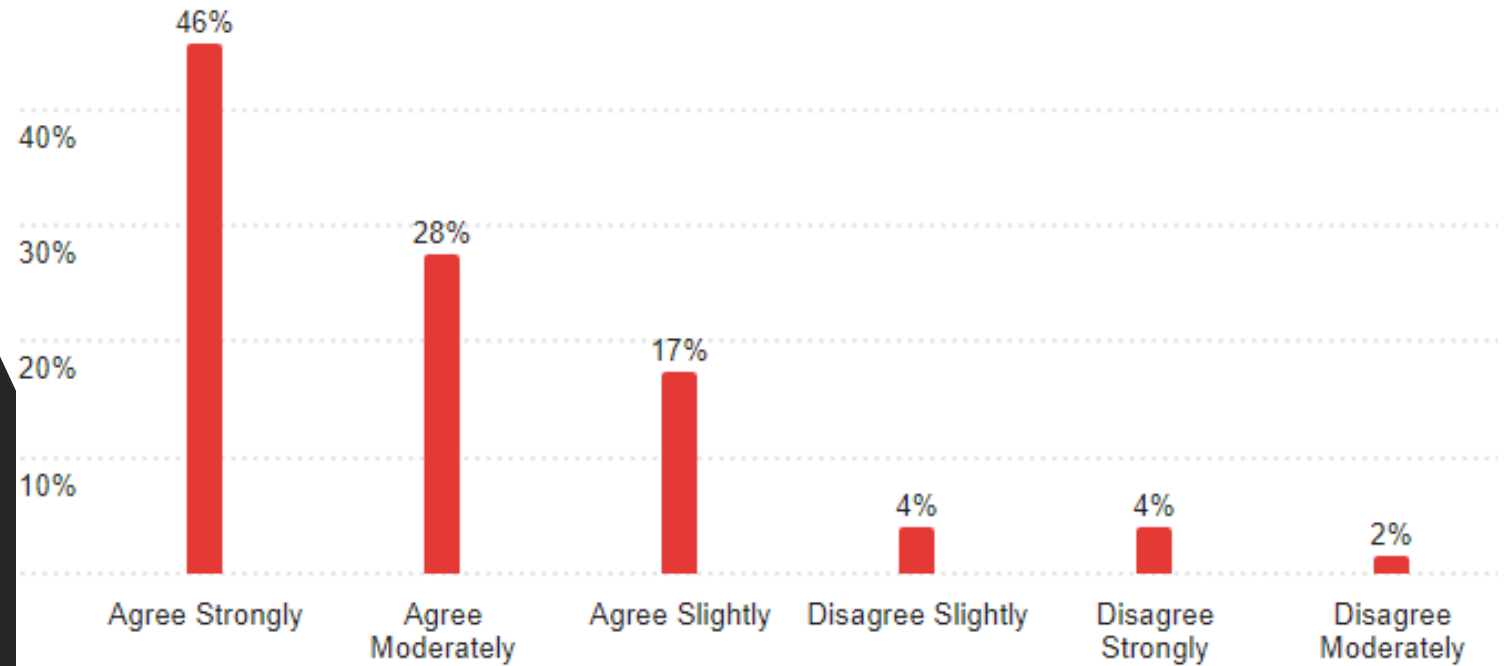
Encouraging Respondents to Reduce Plastic Consumption



Respondents Thoughts On Switching To More Sustainable Materials



Respondents on Lack of Awareness Or Enough Education About Switching To More Sustainable Materials



Conclusions



- Incentivize plastic use reduction and gifting by grocery stores
- Consumer education on the need to pay attention to the amount of plastics in their grocery items
- Education programs and publicity aimed at making consumers reduce the amount of plastic food containers, bottles, and bags that they are consuming

Conclusions cont'd



Educate consumers and create increased awareness about more sustainable materials they can switch to, to reduce and stop their plastic consumption



Encourage and incentivize consumers to take actions that will help reduce their plastic consumption

Food Waste Reduction at Northern Michigan University

Co-constructing Circular Economic Opportunities through University Waste to Organics Diversion Program

Presentation at

• 2024 Innovate Michigan Summit

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Presentation Outline



Introduction



Methods



Results



Implications



Conclusions

Introduction

- U.S. college students generate ~110 pounds of edible food waste per student per year
- Presents:
 - Circular opportunity for organic waste diversion for composting
 - Food waste reduction
- Food wasted at Northern Michigan University
 - Knowledge gap – Reason for waste and waste reduction
- Qualitatively and quantitatively explored causes of food waste at NMU restaurants to determine how to reduce it



Data Collection

Focus Groups:

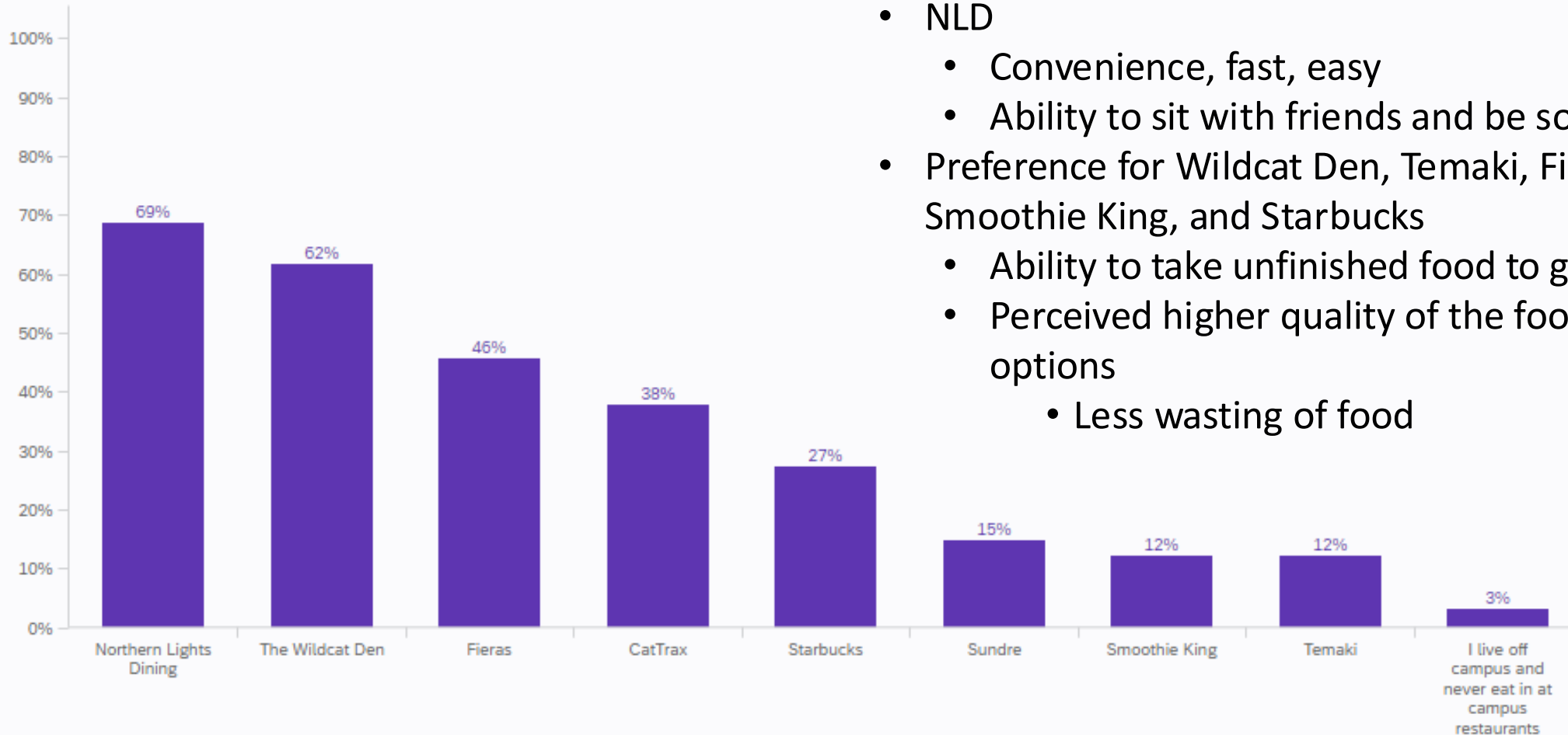
- 4-8 people each
- Students who lived on campus and commuting students
- Reasons for food waste, waste reduction, etc.
- Data-informed survey design

Survey:

- Qualtrics administered
- Reasons for food waste
- Food waste reduction
- Ongoing, but 286 responses so far

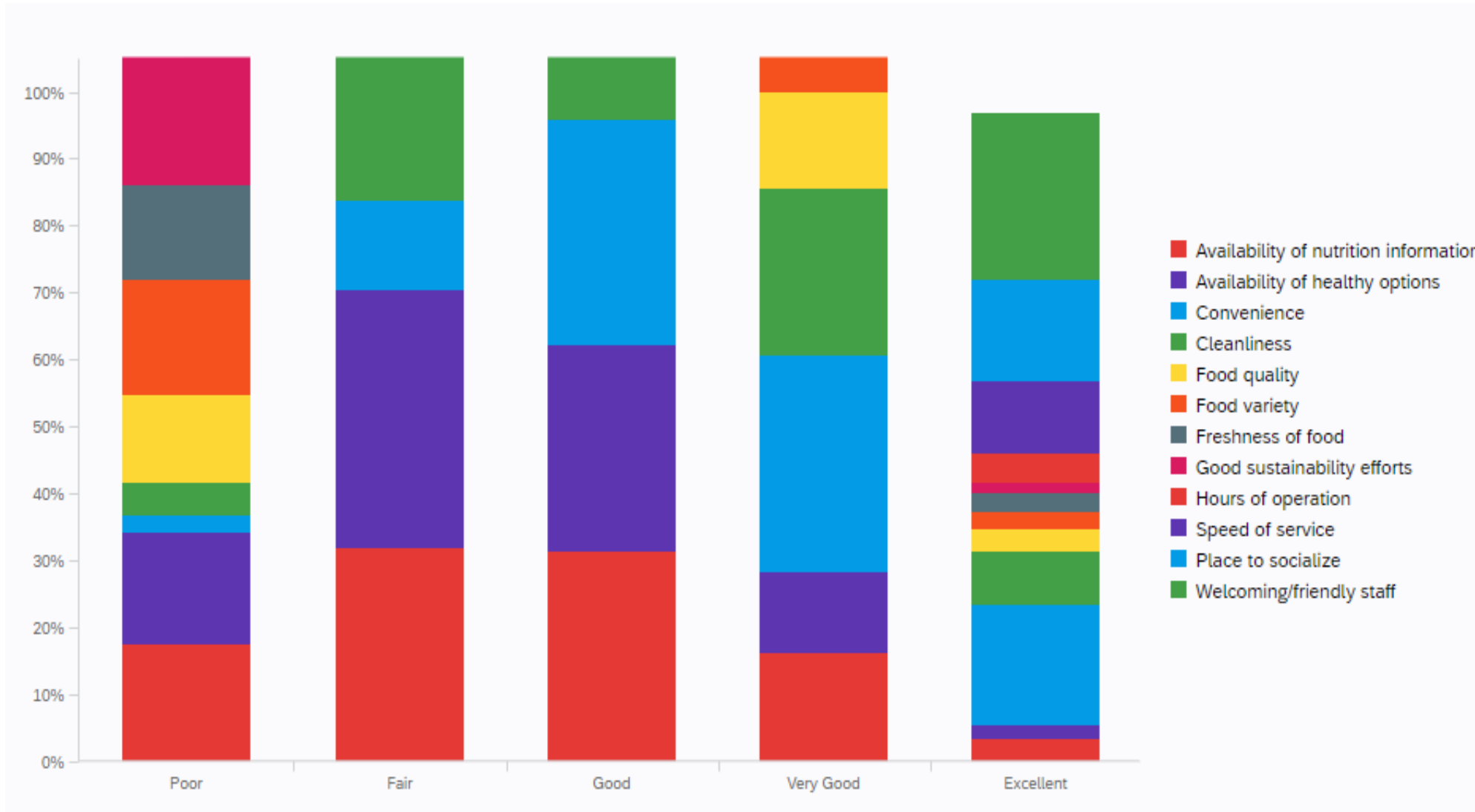
FINDINGS

Favorite Restaurant at NMU Campus



- NLD
 - Convenience, fast, easy
 - Ability to sit with friends and be social
- Preference for Wildcat Den, Temaki, Fieras, Smoothie King, and Starbucks
 - Ability to take unfinished food to go
 - Perceived higher quality of the food options
 - Less wasting of food

Perception of Locations Where Students Eat Most On Campus



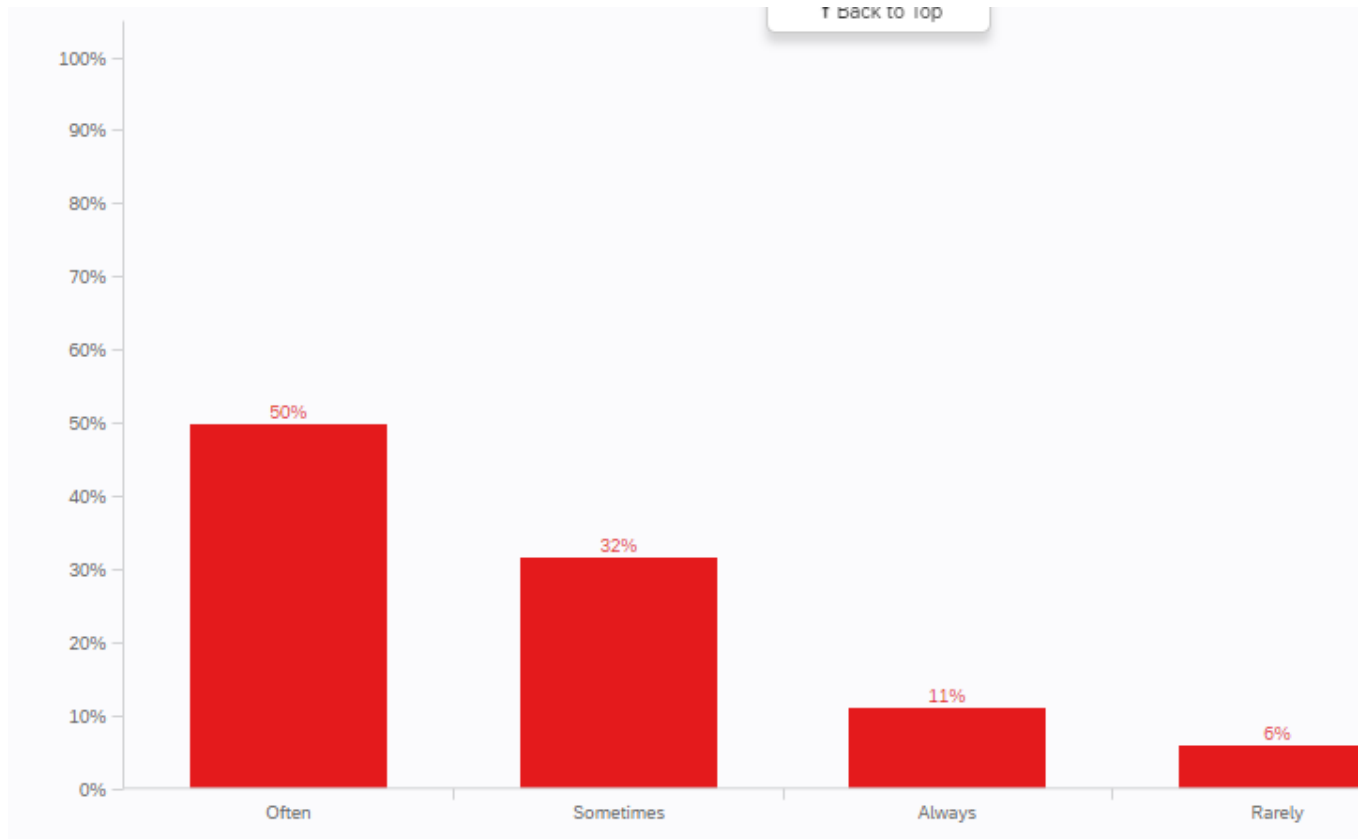
Perception of Locations Where Students Eat Most On Campus

- Food Quality (NLD)
 - Related to pre-plated food
 - Quality of the food rated low, inconsistent, and repetitive
 - Food options not very healthy

"By the time you finish one plate, the next one is cold, and it doesn't taste as good."

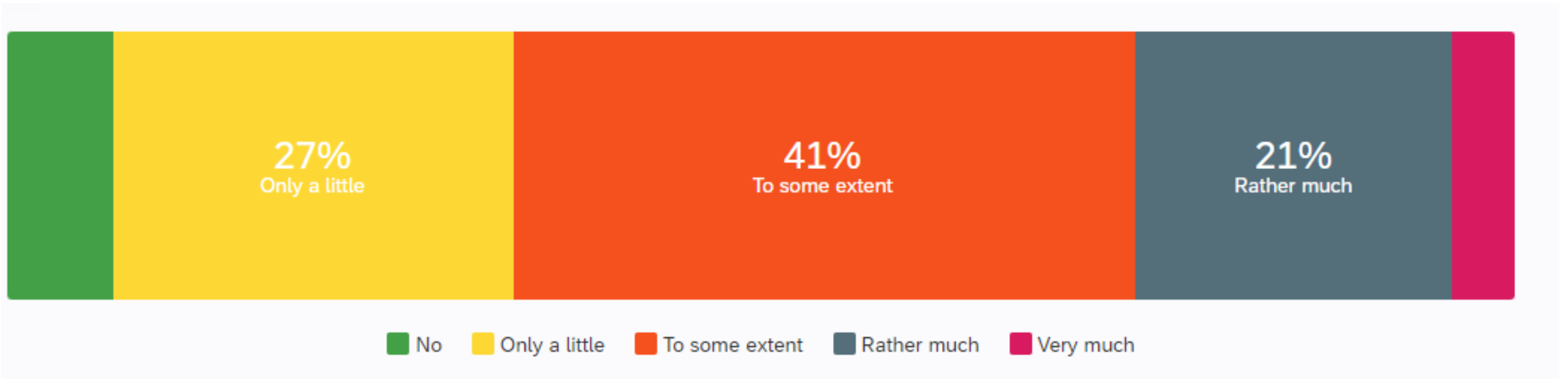
"Whenever I used to walk in the dining hall, it was all burgers, fries, pizza – the most unhealthy food choices you could choose from except for one station–the vegan station–and I just feel like there are so many other healthy options that you can have that are so good. And we can incorporate that into our food system."

Eating Habits At NMU Facilities Other Than Northern Lights Dining

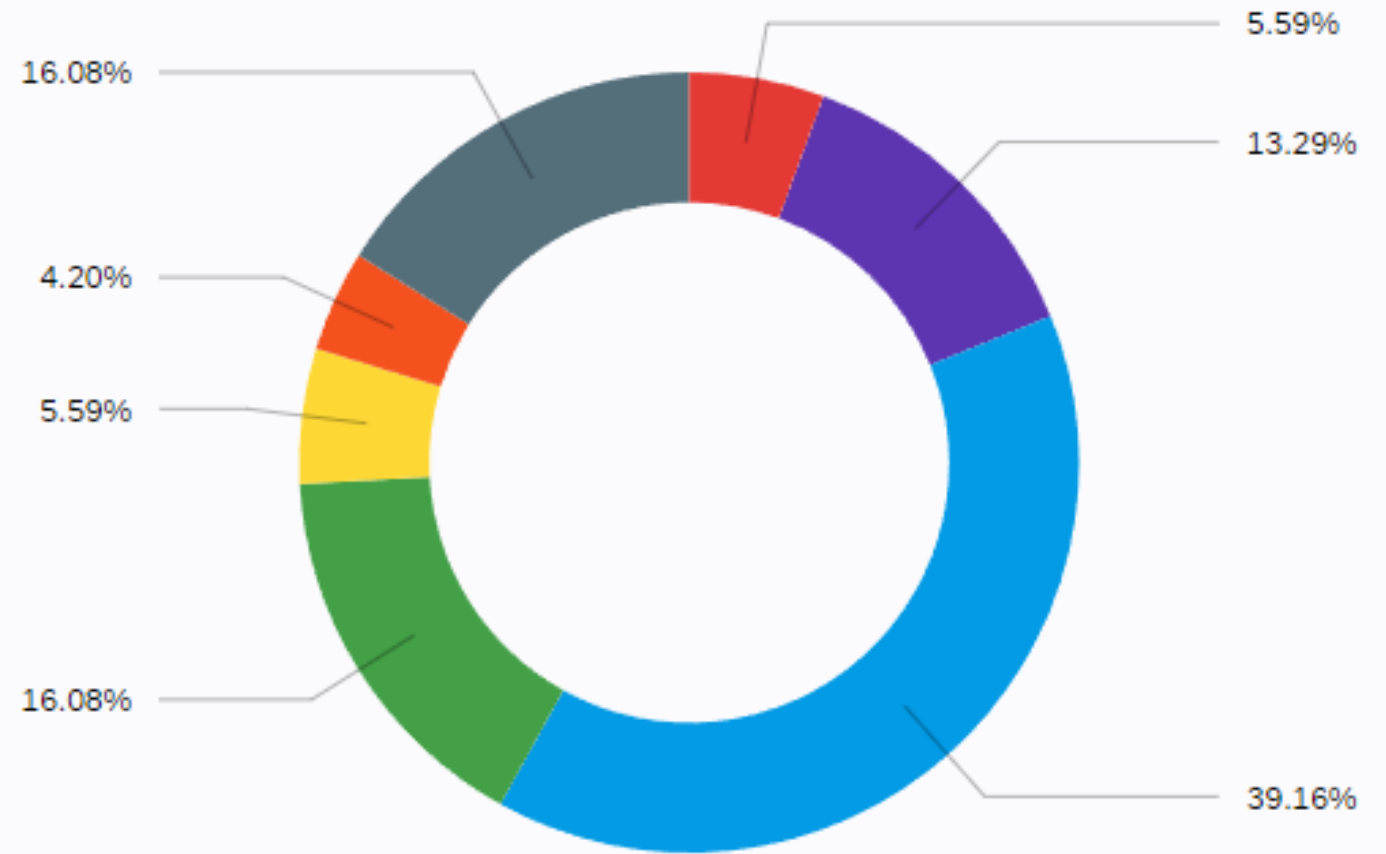


- Take enough food
 - Majority take enough food (61%)
 - 32% sometimes

Student Perception on Whether They Waste A Lot Of Food At Any NMU Dining Facility

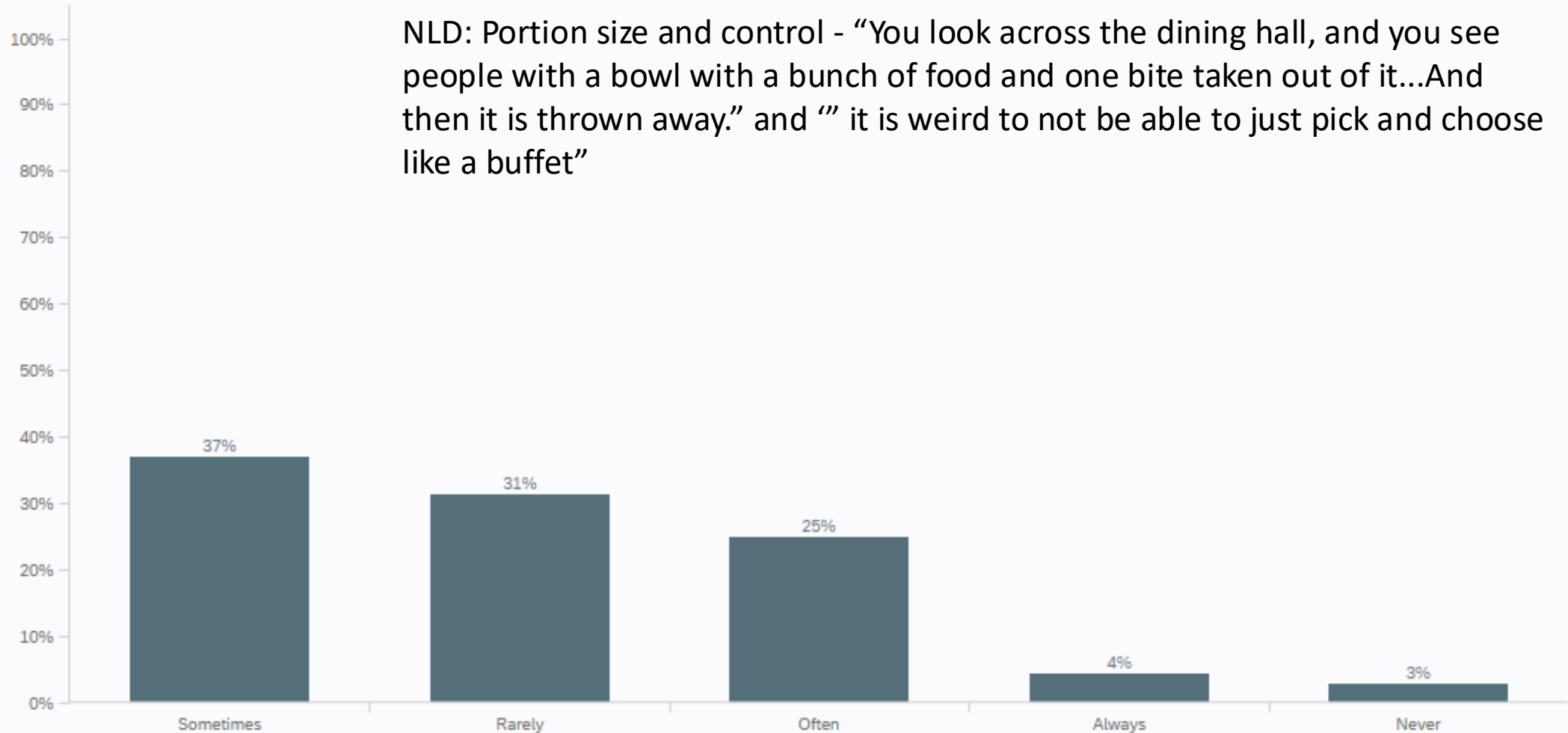


How Often Students Thrash Unfinished Food At NMU Dining Facilities

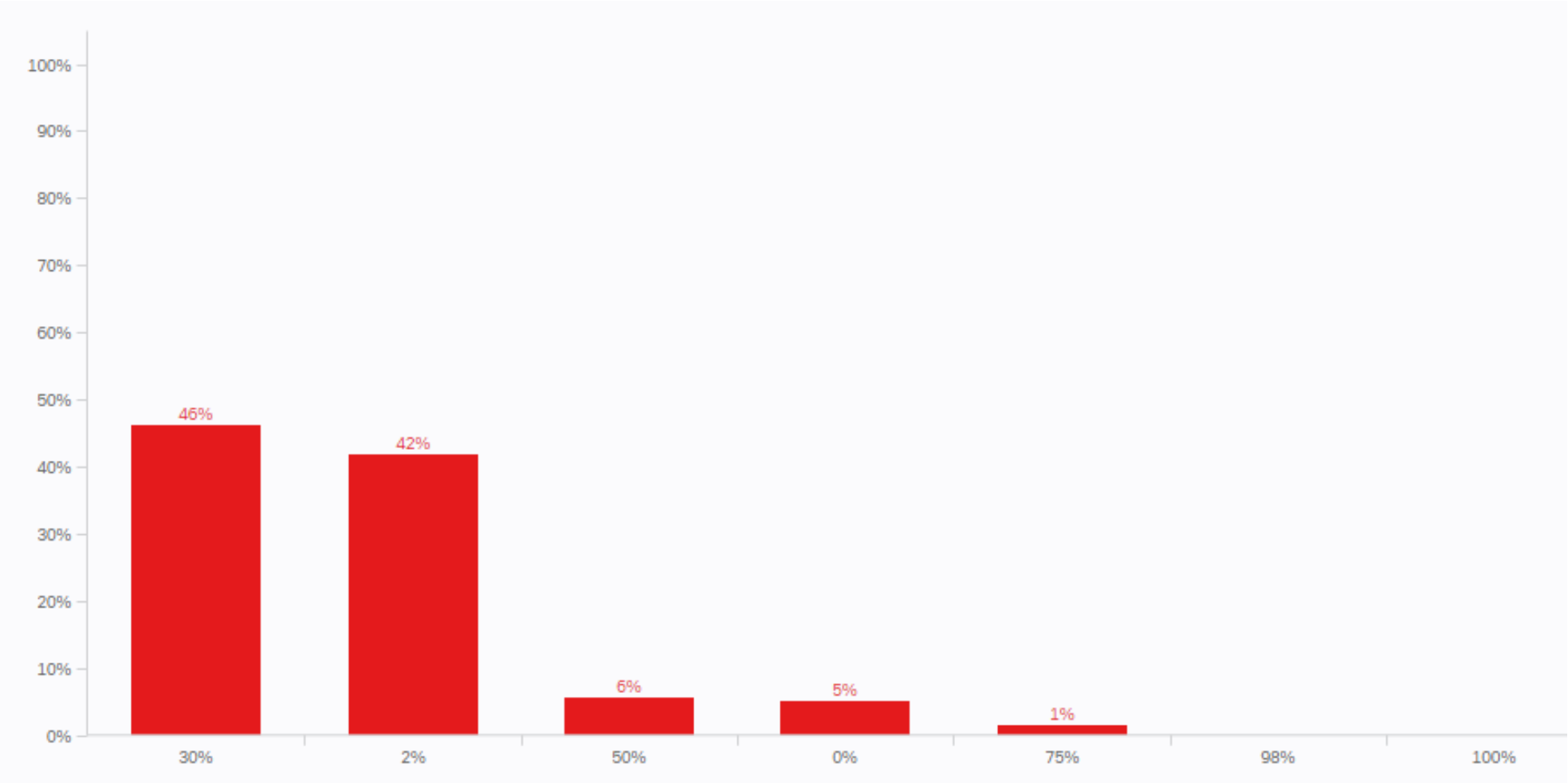


Never 1 time 2-3 times 4-5 times 6-7 times 8+ times Every time

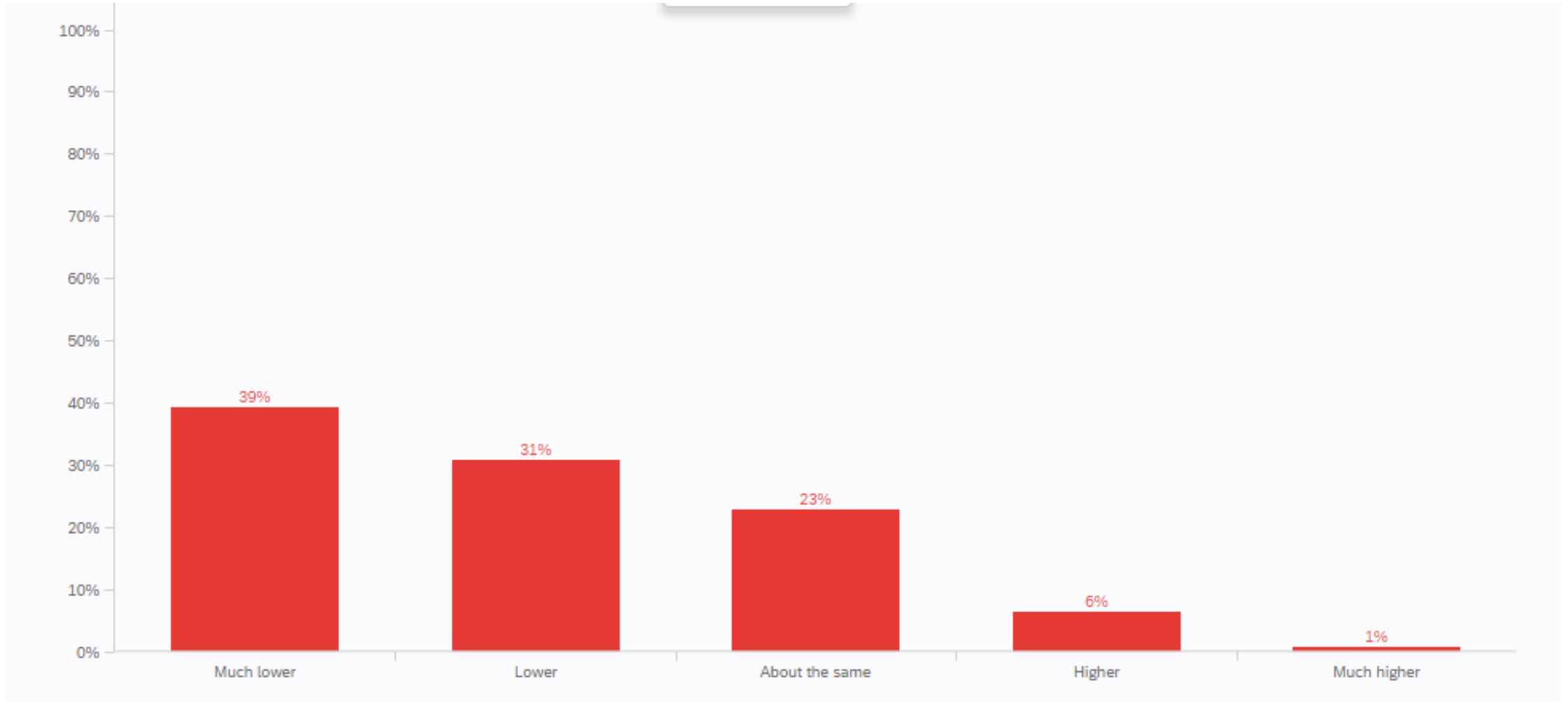
How Often Students Leave Uneaten Food When They Eat Alone At NMU Dining Facilities



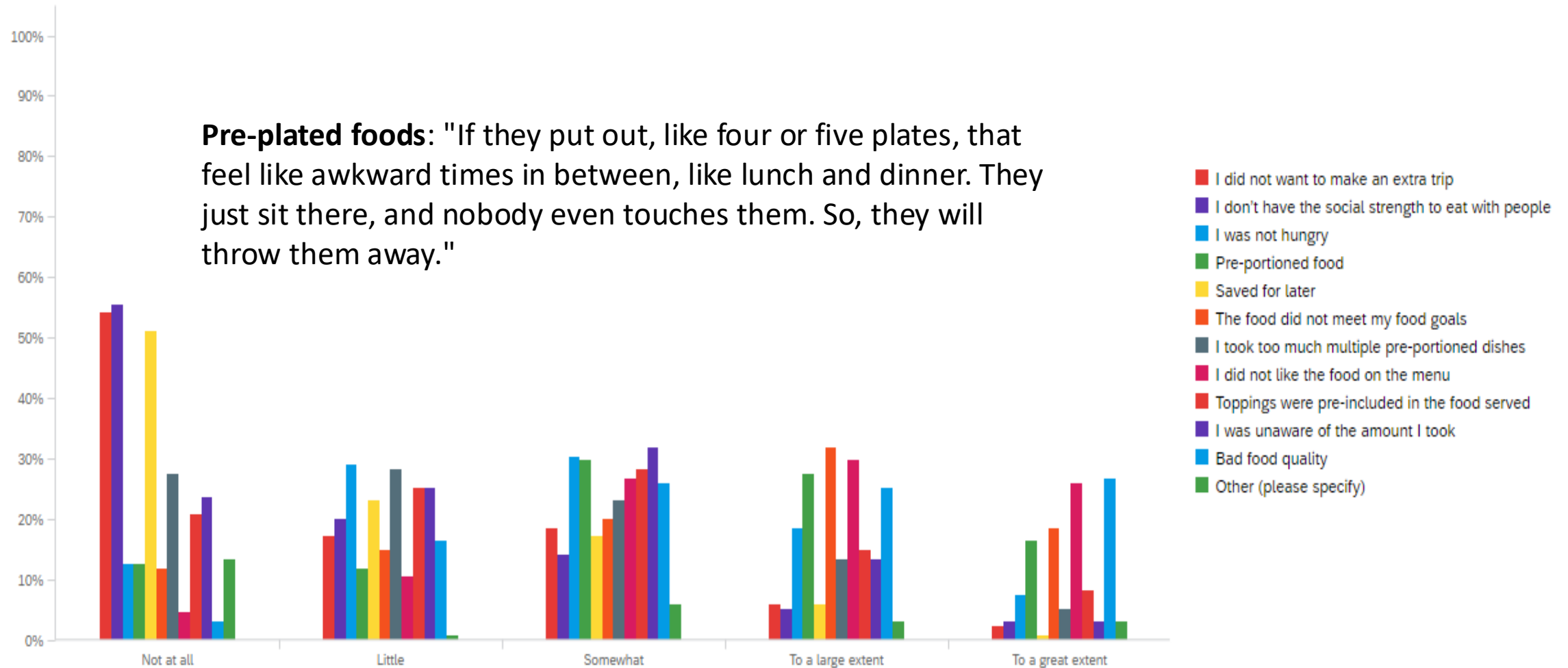
How Much Of Initial Food Usually Throw Into Trash



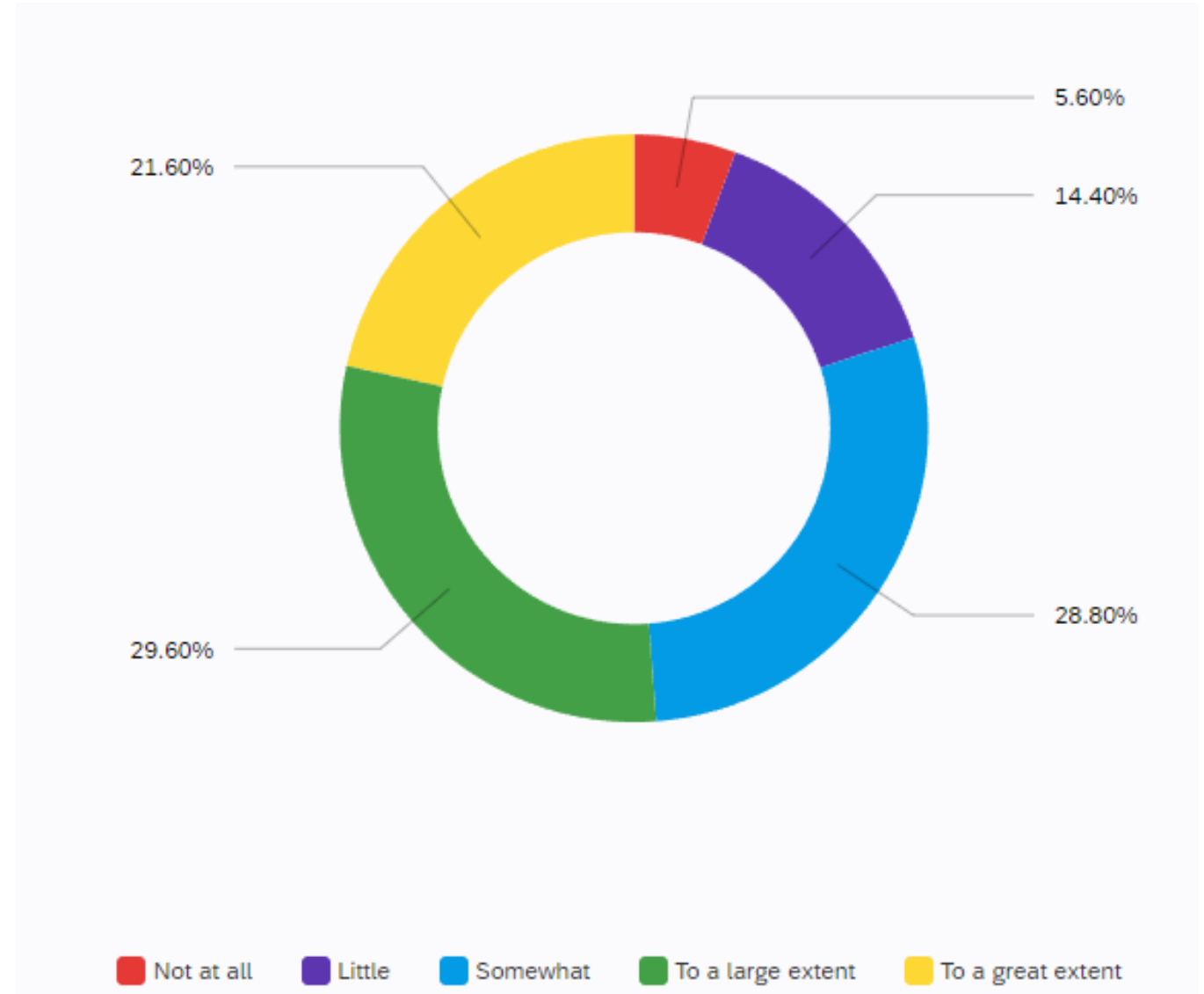
How Much Food Students Waste At Home Versus At NMU Dining Facility



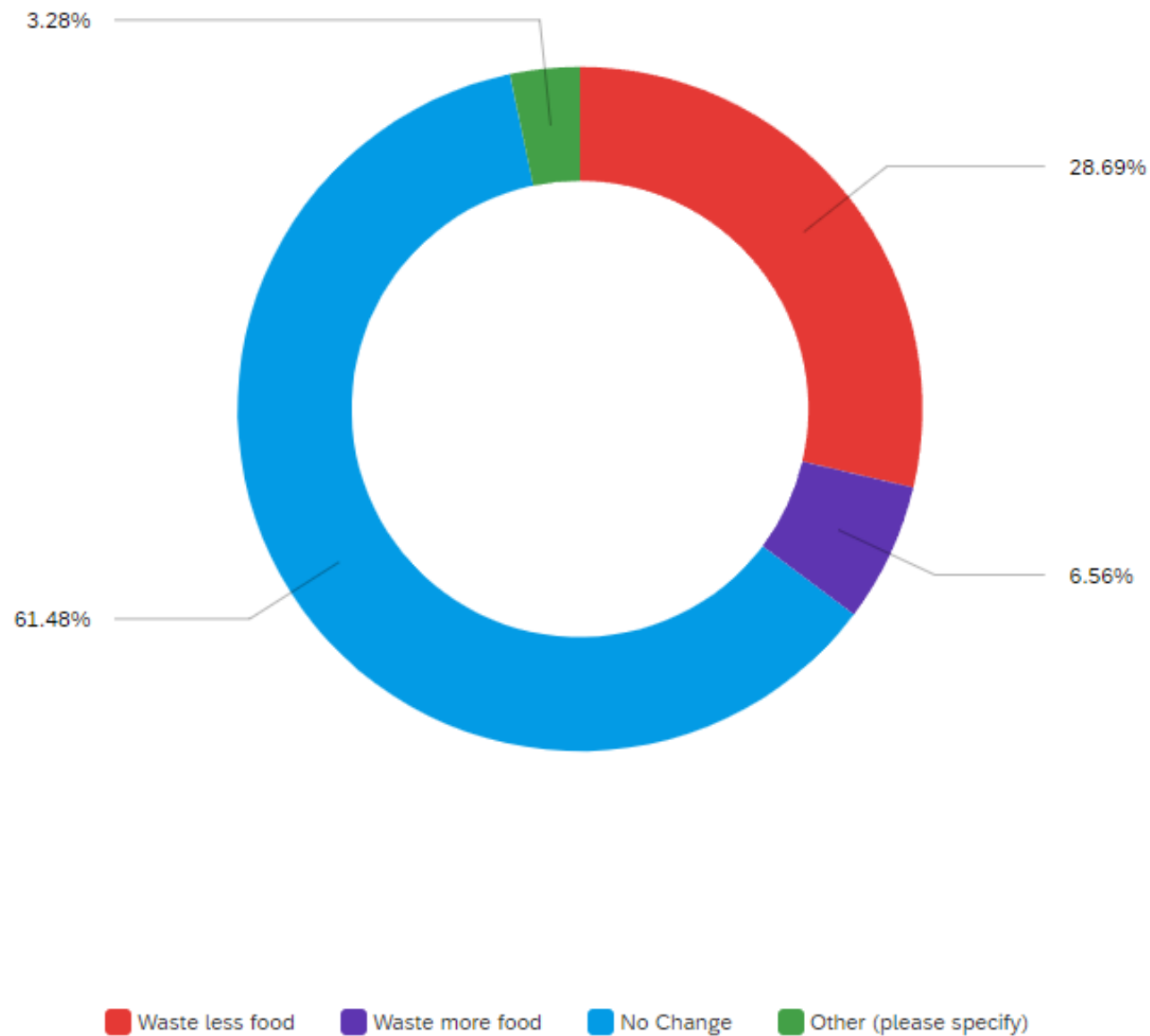
Reasons Students Do Not Finish Their Food At NMU Dining Facilities



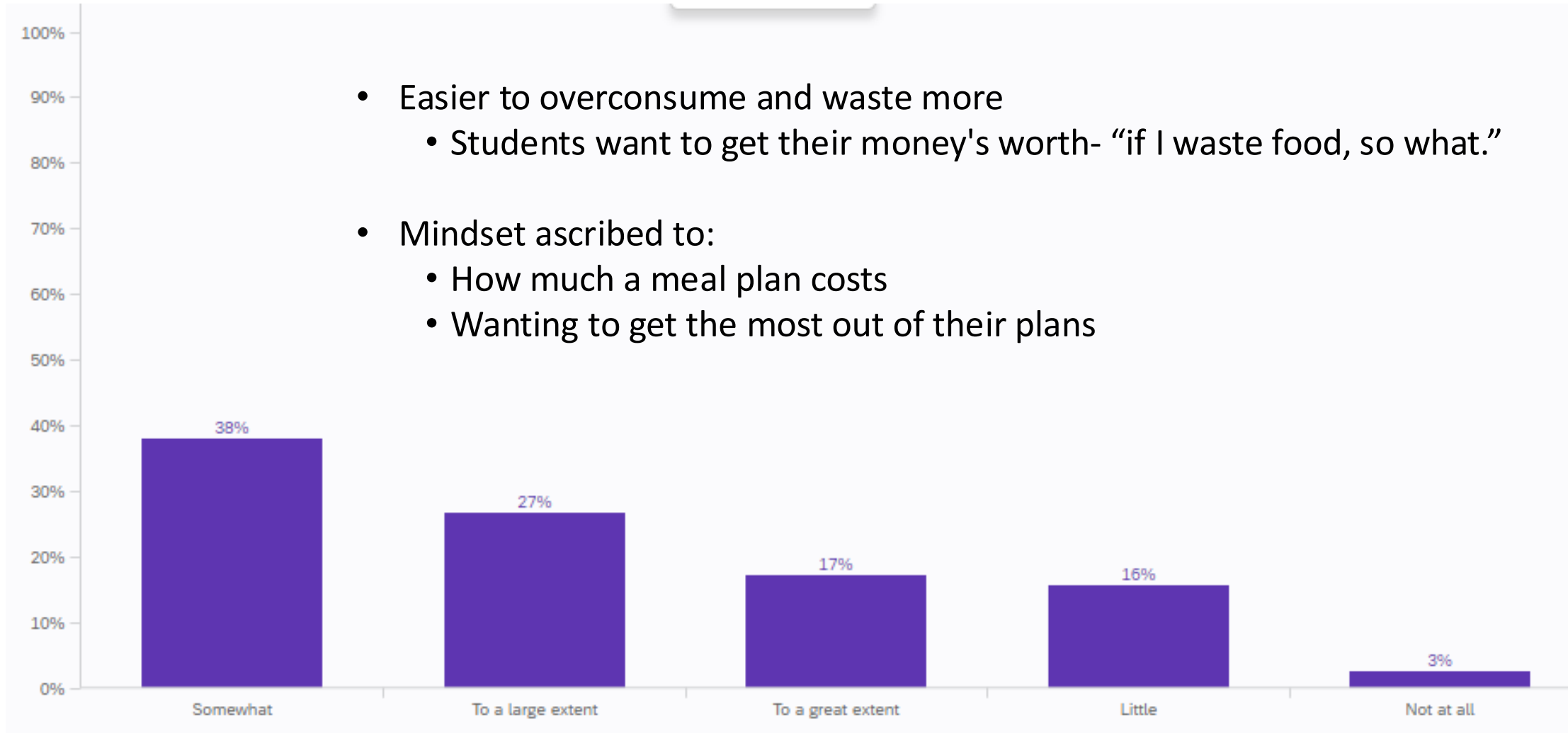
Awareness of NMU Dining Food Waste Diversion For Composting



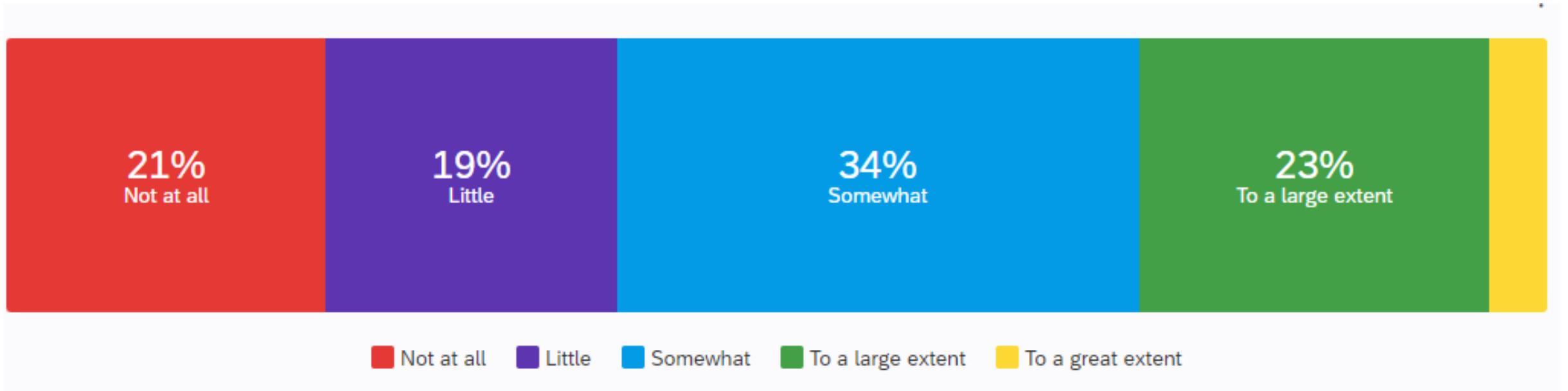
Whether Lack of Food Waste Diversion For Composting Affects Food-wasting Behavior

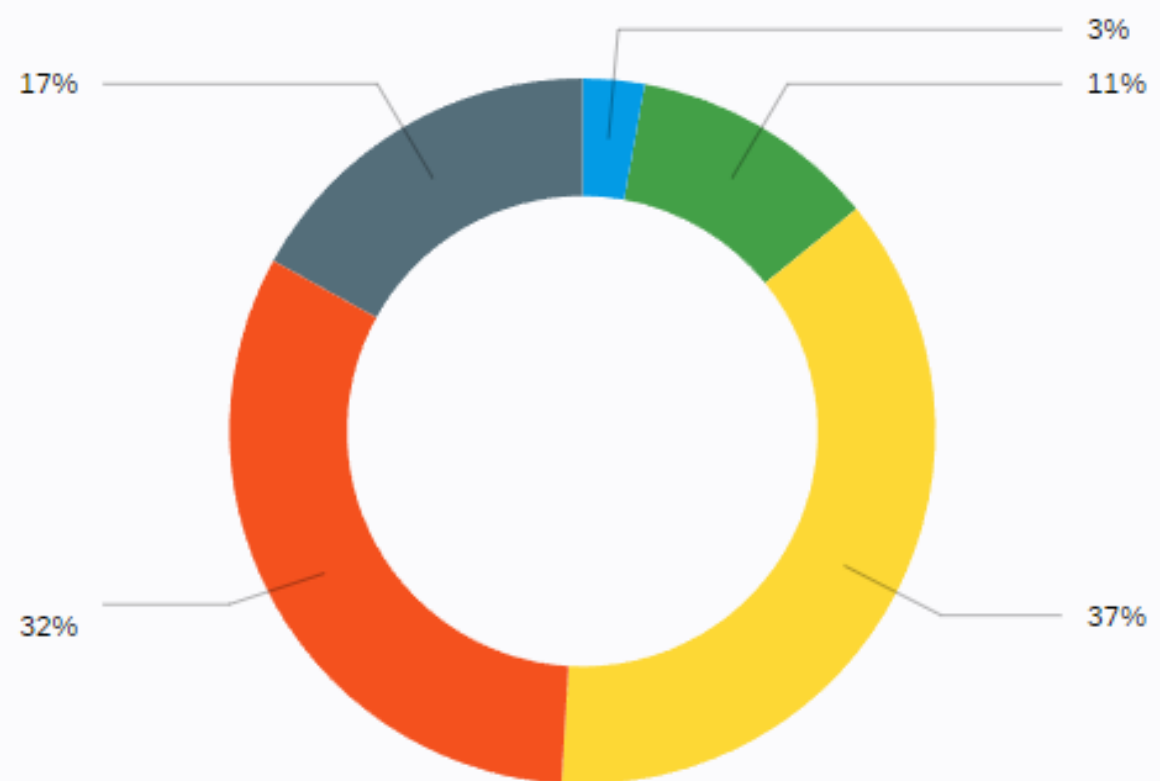


Whether Making Changes To Menu Planning Can Reduce Food Waste at NLD



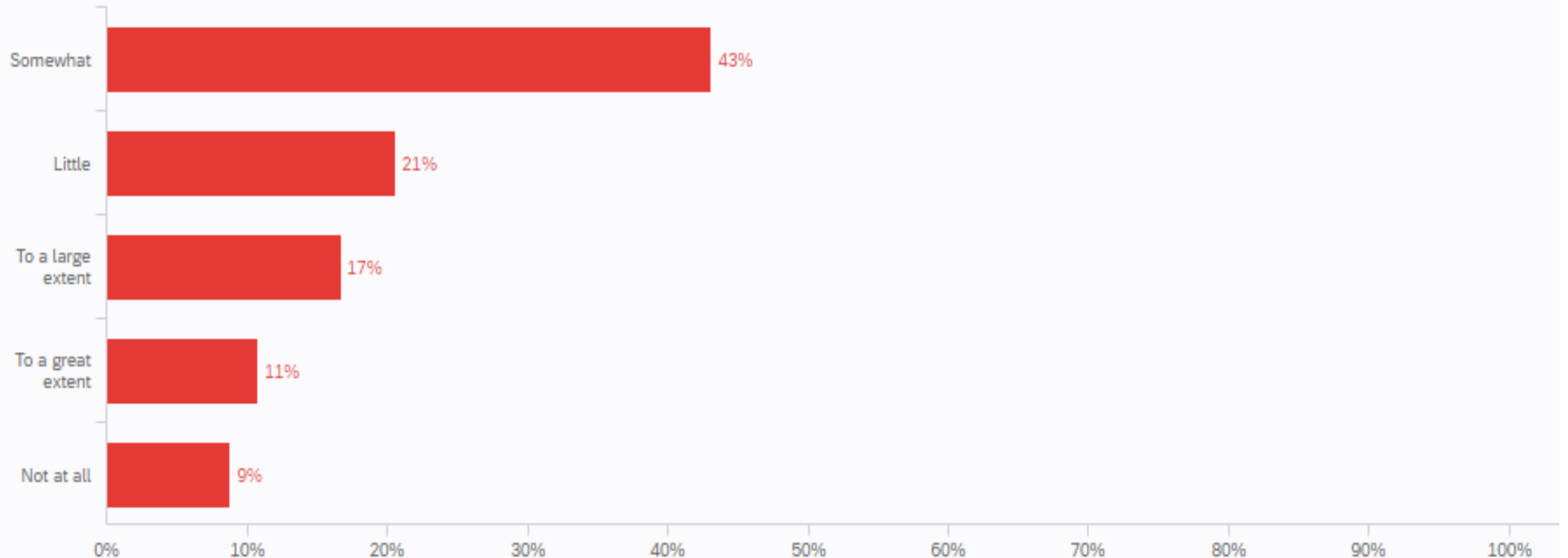
Whether Changing Service Methods Can Reduce Food Waste at NLD



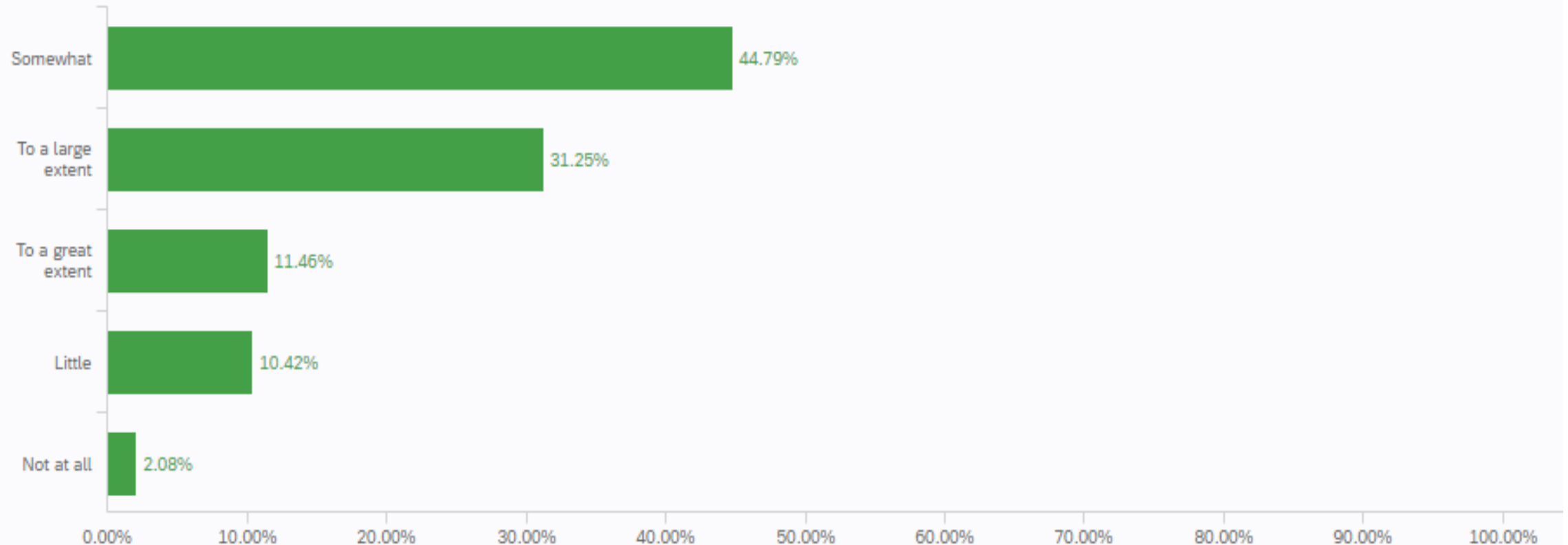


■ Not at all ■ Little ■ Somewhat ■ To a large extent ■ To a great extent

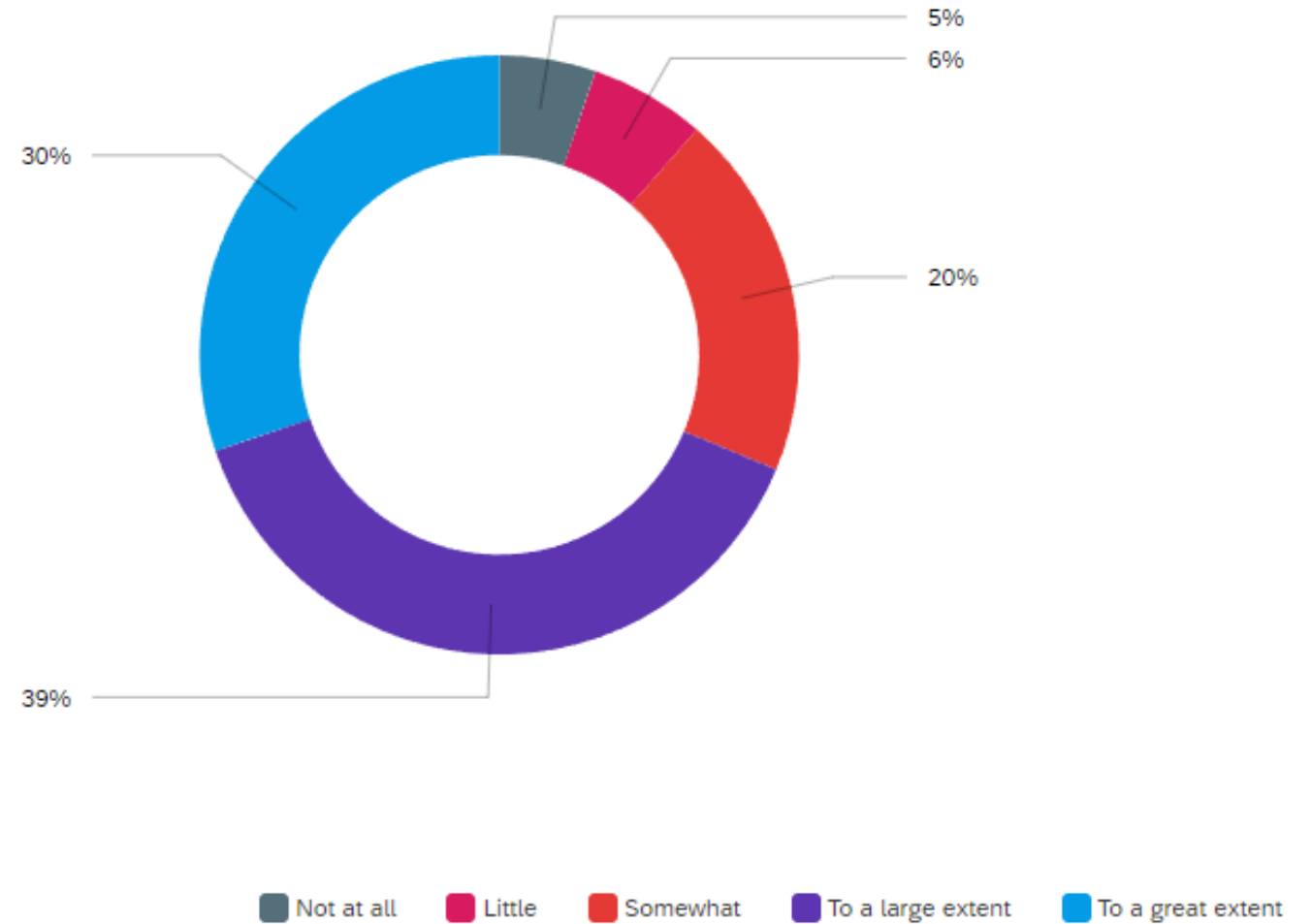
Not Pre-including Toppings to Reduce Food Waste



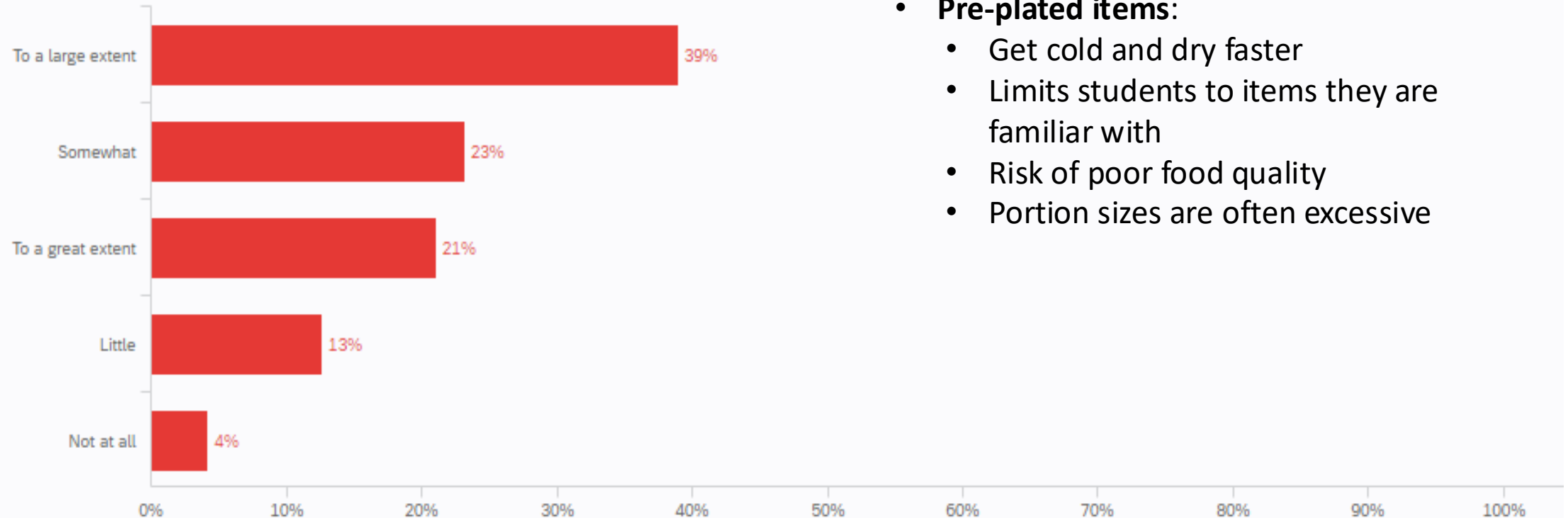
Changing To Prepare-As-Needed Topping Preparation to Reduce Food Waste



Implementing Reusable Containers to Reduce Food Waste



Implementing More Self-serve Stations to Reduce Food Waste



- **Pre-plated items:**
 - Get cold and dry faster
 - Limits students to items they are familiar with
 - Risk of poor food quality
 - Portion sizes are often excessive

Conclusions

- NMU to adopt several measures to address food waste
 - Food quality and variety improvements
 - Switch from pre-plated meals to buffet-style service
 - Introduce reusable container program for takeout
 - Integrate waste management education into the curriculum
 - Move away from no-carryout dining practices to more flexible and sustainable options
 - Food waste reduction education and integration into the curriculum

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