

Groovy Breakdown: Composting for WPI

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Abstract

The goal of this project is to design a composting system for WPI, which can be implemented in two steps.

First, WPI will send organic material to a composting company and later start a campus composting system.

The university can sell excess fertilizer to generate profit, reduce costs of garbage disposal, and meet the standards of the Massachusetts solid waste mandate.

Background

On average, Municipal Solid Waste (MSW) in the US consists of 13.5% yard trimmings and 14.5% food waste. This “waste” is rich in nutrients and minerals but is deposited into landfills. If the material is composted, rich soil is produced that can fertilize crops.

A commercial solid waste ban for Massachusetts beginning in July 2014 requires that companies producing more than one ton of food waste per week must sort their MSW and compost the organic material.

WPI produces approximately 400 lbs. of food waste per day in the cafeteria, and while the uneaten food is sent to a pig farm, WPI must start to compost other buildings’ organic material in the future.

Project Objectives

- Research need for WPI composting on campus
- Identify composting solutions for urban and campus settings
- Design composting system for campus
- Research available grants for school composting system
- Contact sustainability managers for advice

Methods/Process

Researched and identified problems with the disposal of organic materials on campus and current composting systems

Examined disposal methods of food on campus

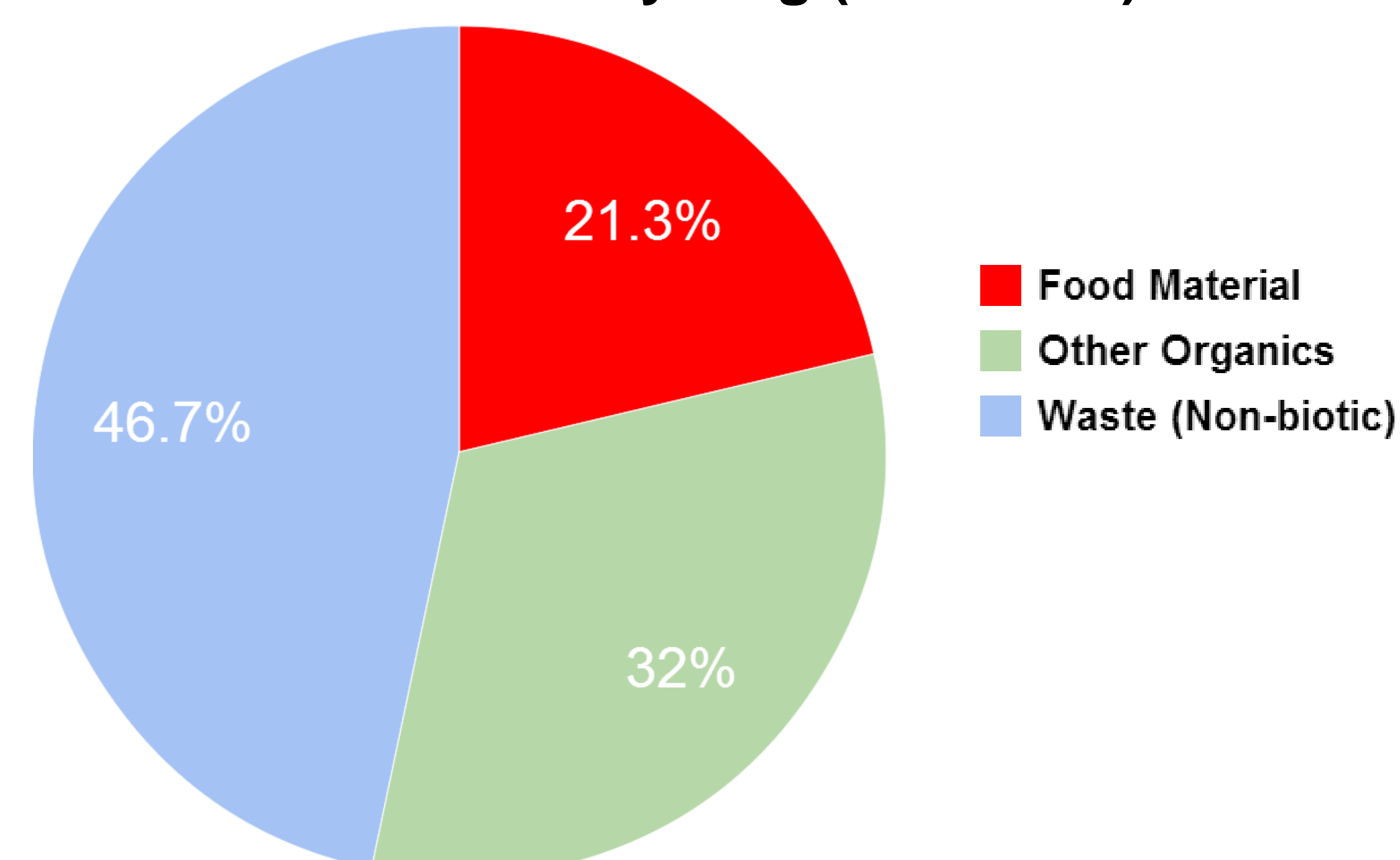
Acquired WPI Green Team waste audit results

Obtained advice from WPI and Worcester State University

Sustainability Managers

Investigated composting system for WPI

U.S. Discards after Recycling (EPA 2011)



Results

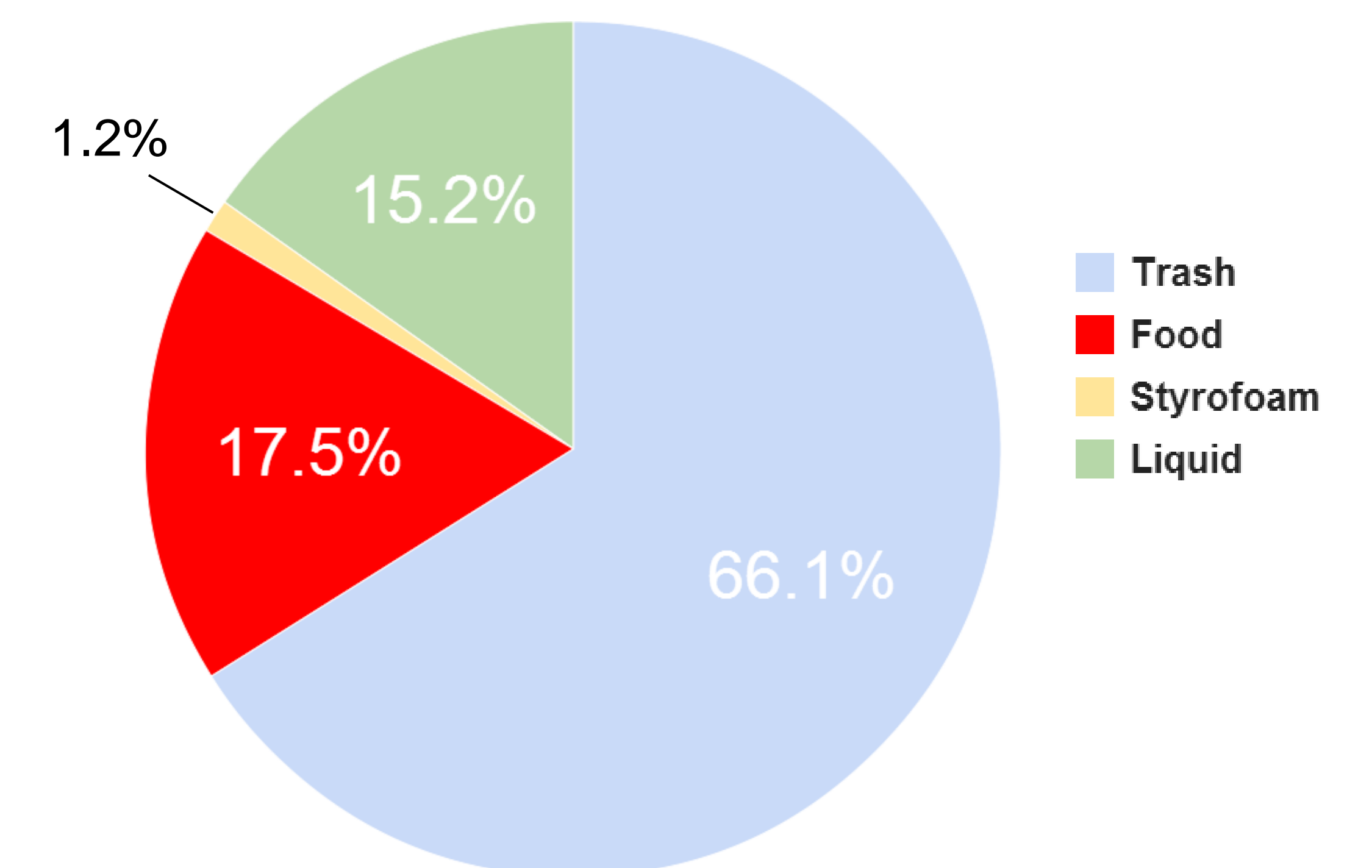
- Composting off campus has a net cost of around \$1,200, based on WSU’s system
- Determined the need for WPI to compost
- Examined current WPI waste management
- Researched compost systems on other campuses

References

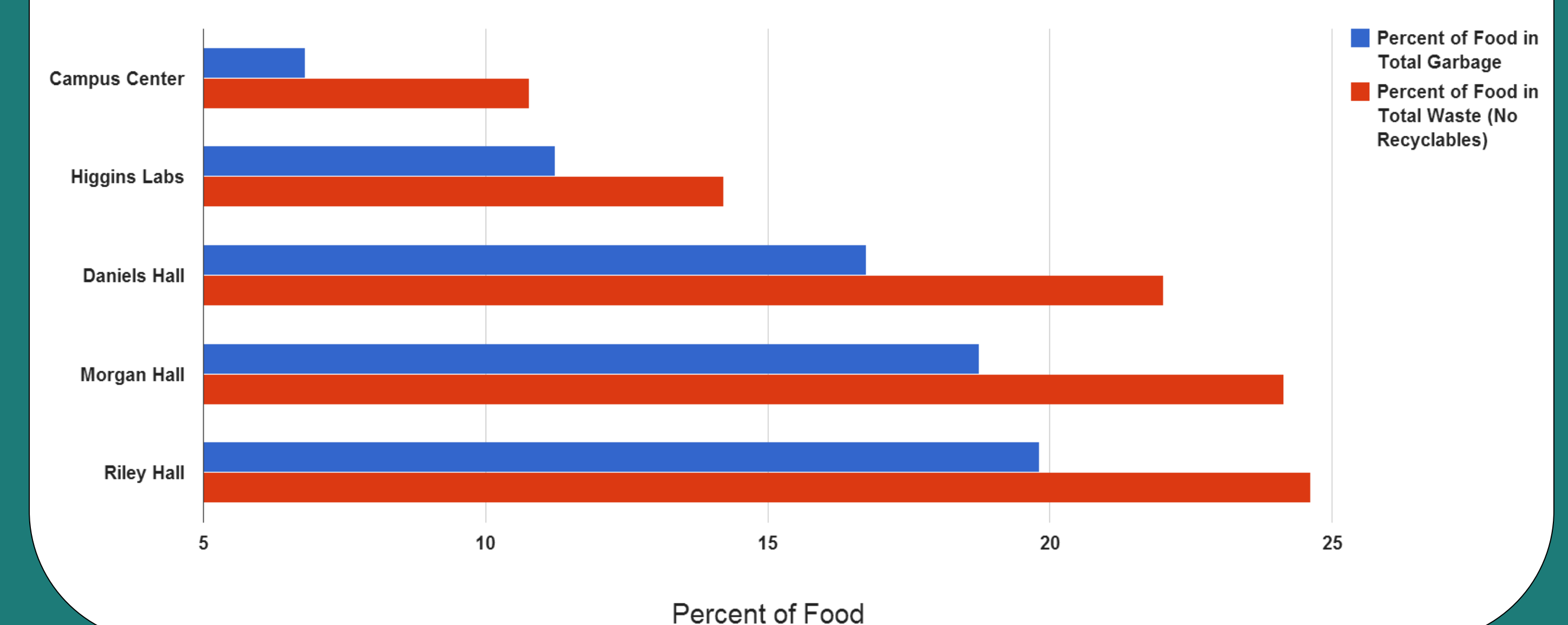
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2013 WPI Waste Stream Audit Results

WPI Discards by Type (Non-Recyclable)



WPI Discards by Building



Conclusion

- WPI needs to develop a sustainable and low cost food scrap composting system on campus
- Capital investment can be secured from state grants
- Fertilizer could be sold to the community or spread on campus gardens
- Maintenance costs can be offset through profit and money saved by diverting material from waste management companies

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