

INTRODUCTION

More than one third of all the food produced globally never reaches a mouth. This is the equivalent of over 1.3 billion tons of food and 1 trillion dollars discarded (National Geographic, 2015). Every step of the food system requires immense amount of water, energy, and land inputs. By throwing away food, we are essentially throwing away all of these resources. Additionally, food waste, when dumped in a landfill, emits methane, a greenhouse gas 21 times more potent than carbon dioxide (EPA, 2015).

Institutions, such as college campuses, have significant power and reach to affect environmental change and to influence the behavior of a large group of people at once. Universities must feed large numbers of people everyday, all day. In doing so, dining services ultimately wastes high volumes of food. With the 2014 Commercial Food Waste Disposal Ban, Boston College (BC) must look for ways to reduce food waste stream to landfills.

While studies have been conducted to assess and reduce the amount of waste generated by on-campus dining halls, no such study has measured the amount of waste produced at Conte Forum, BC's ice hockey and basketball arena. This facility operates up to 16 concessions food stands and can host 8,606 fans. By focusing on Conte Forum there is opportunity to dramatically reduce the waste produced on campus by both students and spectators.

METHODS

A waste audit of Conte Forum was conducted in order to analyze the amount of food waste being produced within the facility, as well as to determine how waste could be more efficiently monitored. Two Boston College Division I Basketball games were selected for the audit: women's basketball (Game 1) and men's basketball (Game 2). Both of these games were projected to have different numbers of attendees, with Game 1 representing a small scale game and Game 2 representing a medium scale game.

We decided to divide our data collection into two different categories: 1) the waste generated by vendors and 2) the waste generated by consumers. At Conte Forum, the vendor is the concessions team, and food waste is considered any edible item that is left unpurchased at the end of the night and ultimately discarded. We received data on this directly from the team's records. On the consumer side, food waste was considered anything intended for human consumption that was found in the facility's trash bins at the end of the game. To collect this data, we gathered and weighed the total waste produced at each game before sorting out the food waste and weighing it separately.



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DURING THE 2015-2016
SPORTING SEASON, CONSUMERS
THREW AWAY:

1,257
IBS OF FOOD

THIS IS EQUIVALENT TO:



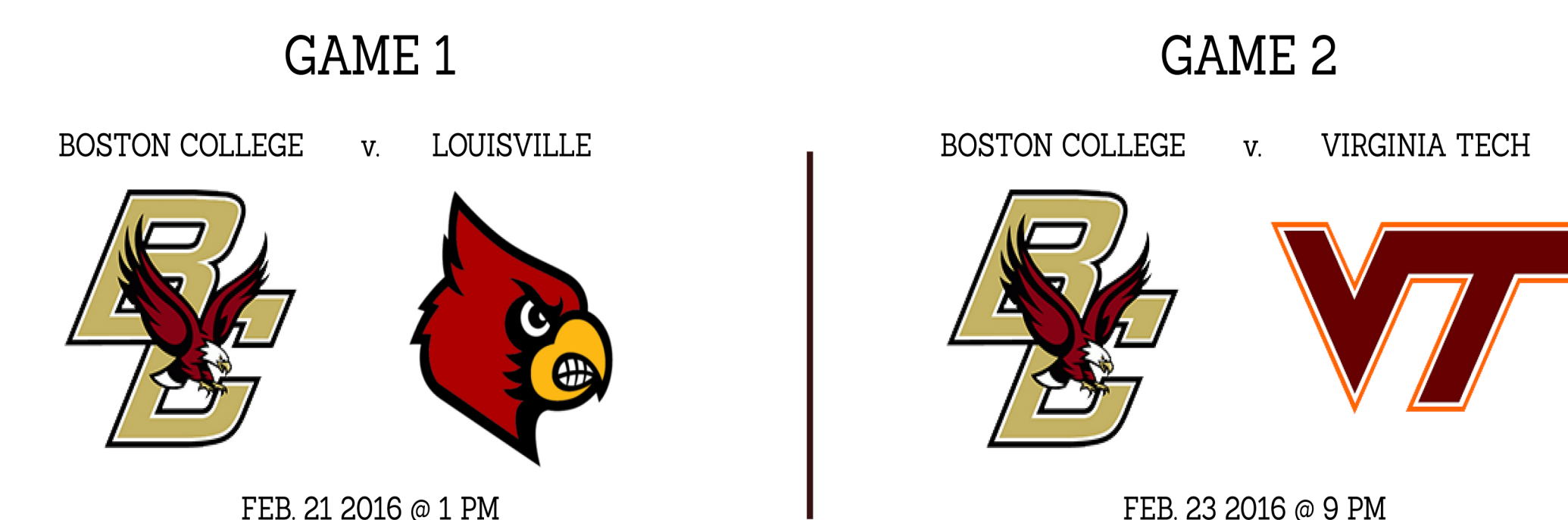
THE CO2 EMISSIONS FROM
BURNING 55,670 LBS OF COAL



CONSUMING 5,870
GALLONS OF GASOLINE



FEEDING 228 ADULT AMERICANS
FOR A FULL DAY



RESULTS

VENDOR FOOD WASTE:

GAME 1:	%	SERVINGS
PRETZELS	69.0	22
HOT DOG BUNS	6.9	22
HOT DOG LINKS	12.2	137
PIZZA	3.0	11

GAME 2:	%	SERVINGS
PRETZELS	82.0	510
HOT DOG BUNS	92.0	1104
HOT DOG LINKS	5.3	81
PIZZA	1.0	4

* PIZZA AND HOT DOG LINKS COME IN FROZEN AND ARE COOKED TO ORDER
** SOFT PRETZELS ARE FRESH BAKED PER GAME AND CANNOT BE REUSED IF UNSOLD
*** DATA PROVIDED BY CONCESSIONS WAS OFTEN INCOMPLETE AND INACCURATE

~14% OF CONTE'S TOTAL CONSUMER
WASTE IS FOOD WASTE

REFERENCES

ENVIRONMENTAL PROTECTION AGENCY. "GREENHOUSE GAS EQUIVALENCIES CALCULATOR." EPA. SAN FRANCISCO. OCTOBER 2015. WEB. ACCESSED 3 MAY. 2016. [HTTPS://WWW.EPA.GOV/ENERGY/GREENHOUSE-GAS-EQUIVALENCIES-CALCULATOR](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator).

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DISCUSSION

SOLUTIONS EXPLORED:

- Larger storage space and freezers.
- Advanced signage / cash registers to promote and process sales when surplus food is apparent.
- Demand forecasting and prediction technology.
- Composting bins and a sorting system.
- Compostable packaging and servingware.
- Partnerships with local food banks and food donations services.

CONCLUSION

Conte Forum is the second largest athletic facility on the Boston College campus and as such, contributes a lot of waste to the environment and produces a much larger carbon footprint than most people realize. One of the most feasible methods to reduce this carbon footprint is tackling the issue of food waste. It was discovered throughout the study that much of the food waste was produced on the vendor side, behind the scenes. It is clear that there are steps that can be taken place to make the entire process much more efficient. However, a commitment towards reducing food waste must be made by all those involved, as our research has shown that it is clearly possible.