Designing Curricula to Reduce Food Wasted by Students in Indiana Elementary Schools

Rebecca Busse and Rod Williams
FNR Extension Staff, Associate Professor and Associate Head for Extension

Abstract

My master’s thesis will involve:
- Designing a unit of lesson plans that Indiana teachers can use to teach their students about food waste and food waste reduction strategies
- Designing and administering a survey to quantify changes in student knowledge or attitudes about food waste
- Measuring the food wasted in school cafeterias by study classrooms before and after the lesson plans are delivered

The main goals of this project are:
- To create an effective food waste educational unit to be published on the Purdue Nature of Teaching website for the use of other Indiana instructors
- To increase youth knowledge of food waste and food waste reduction strategies

Hypothesis

If students are presented with my unit of lesson plans, then their knowledge of food waste and food waste reduction strategies will increase and they will reduce the food that they waste in their cafeteria.

How much food do we waste? 90 billion lbs. wasted by U.S. consumers alone in 2010. Equal to the weight of 214,286 blue whales, or 781 Titanic ships!

Environmental impacts: Landfills (Fig. 1) are mostly anaerobic, reducing the rate of decomposition and emitting methane, a greenhouse gas 21 times worse for climate change than CO2. 25% of all freshwater we use in the U.S. is used to grow wasted food. Leachate from landfills causes algal blooms that reduce dissolved oxygen.

Economic impacts: U.S. schools spend over $1 billion on wasted food annually. All U.S. consumers spend $161.6 billion on wasted food annually.

Social impacts: The Food and Agriculture Organization of the United Nations predicted that we could feed all estimated 805 mil. hungry people in the world from 2012-2014 with global food waste, and that if we eliminated food waste, we would not have to increase agricultural land to feed the growing human population.

Existing Food Waste Education

- EPA Food Recovery Challenge (Fig. 2)
- CafeteriaCulture.org
- Finding Solutions to Food Waste: Persuasion in a Digital World
- Institute for Humane Education: 13 Resources for teaching about food waste
- Food Waste: An Educator’s Guide
- USDA K-12 Food Waste Challenge
- Love Food Hate Waste UK
- Do the Rot Thing: a Teacher’s Guide to Compost Activities

What is Missing?

An holistic published unit of food waste lesson plans for K-5 youth that incorporates Indiana academic standards.

Food Recovery Hierarchy

Fig. 2: EPA Food Recovery Hierarchy Pyramid.

What Education Can Address

- Meal planning
- Food storage
- Impulse buying
- Pickiness
- Leftovers

- Ugly food
- Sell-by dates
- Impacts of food waste
- Perceived value of food

Methods

1. Students will complete a survey on their knowledge of and attitudes toward food waste
2. Researchers will measure food wasted by study classes in school cafeterias
3. Instructors will teach food waste lesson plans
4. Researchers will collect feedback about lessons from teachers and students
5. Students will complete the same survey on their knowledge of and attitudes toward food waste
6. Researchers will measure food wasted by study classes in school cafeterias
7. I will analyze the survey data using STATA, and analyze changes in food waste measurements using Microsoft Excel
8. Changes will be made to the lesson plans as needed according to the results of the data analysis and student/teacher feedback

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