A National Food Safety Education Program: Building a Multidisciplinary Food Safety Training Pipeline from K-12 to Graduate School

Cornell University; Texas Tech University; Purdue University; North Carolina State University; Alabama A&M University; North Carolina A&T State University; Texas Wesleyan University

BACKGROUND

- Foodborne diseases cause 48 million illnesses and 3000 deaths in the US each year (Scallan et al. 2011).
- Improving the safety of our food supply requires a well educated and diverse workforce at all levels of training, including B.S., M.S., and Ph.D. degrees for employment by industry, government, and academia.

INTRODUCTION

- Purpose: create and conduct innovative research- and classroom-based K-12, undergraduate, and graduate training activities in the area of food safety in order to build an overall pipeline of students that will be prepared for employment in the area of food safety.
- Target groups: K-12 students, K-12 teachers, undergraduate students, graduate students, underrepresented minorities, students nationwide.

OBJECTIVES

- The overall goal of this project is to increase the number of qualified food safety professionals. We seek to foster an interest in food safety and increase awareness of food safety careers. These efforts will result in a pipeline of students that are specially prepared for employment in industry, academia, or government in the area of food safety. The supporting objectives are:

  Objective 1: Develop and conduct science teachers' workshops that enable the teachers to use food safety lessons in the classroom and assist students on careers in food safety.

  Objective 2: Develop and deliver K-12 food safety activities and experiments to be taught by graduate and undergraduate students.

  Objective 3: Develop and conduct a multi-institutional undergraduate summer research program in food safety.

  Objective 4: Recruit and train undergraduate students through a "food safety track" within existing food science undergraduate programs.

  Objective 5: Develop and implement multi-institutional course-based Masters of Professional Studies (M.P.S.), research-based M.S., and Ph.D. training programs in food safety.

ACCOMPLISHMENTS

Objective 1: Science Teachers' Workshops

- Cornell, North Carolina A&T, Texas Wesleyan, North Carolina State, and Alabama A&M held 16 food safety workshops from 2011-2013. Over 310 middle and high school science teachers have participated.
- Workshops demonstrated food safety case-based lessons and provided information on food safety issues, research, and career opportunities.

Objective 2: K-12 Student Outreach

- Since 2011, over 2,000 K-12 students have participated in food safety workshops, summer camps, high school research programs, and various other food safety outreach activities hosted by Cornell, North Carolina A&T, Alabama A&M, and Purdue.

Objective 3: Undergraduate Summer Research

- Since 2011, undergraduate students interested in food safety have conducted research at Cornell, Purdue, Texas Tech, Texas Wesleyan, North Carolina State, North Carolina A&T, and Alabama A&M.
- Students have been recruited from across the nation to work with faculty and graduate students to carry out a food safety related research project over the summer.
- Current topics: Listeria virulence, prevalence, ecology; Norovirus ecology.

Objective 4: Undergraduate Education

- Cornell University has implemented and is now enrolling students in the food safety concentration for undergraduates within the Department of Food Science. The new food safety concentration will provide graduates with relevant knowledge and skills for graduate school and employment.
- Using a modified Delphi approach, North Carolina State University has developed core competencies for undergraduate food safety programs. This study has been submitted to the Journal of Food Safety Education.

Objective 5: Graduate Education

- A multi-institutional graduate level case-study food safety course was developed and offered for the first time in spring 2013 with 25 students from Cornell, Texas Tech, and Purdue. Instructors and students used video conferencing and social media to work through food safety case studies and share the latest issues in food safety.

INFORMATION DISSEMINATION

- Information on completion of project objectives, as well as materials and methods, are being made publicly available via the Food Safety Wiki at: https://confluence.cornell.edu/display/FOODSAFETY/

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References