

## Development of an online food safety training for employees of university farms and school gardens

**Abstract:** With a rise in the number of publicly accessed fruit and vegetable growing venues, there is a need for food safety training for staff of these schools and research facilities. This project created a variety of media options to educate workers about proper ways to handle fruit and vegetables to ensure food safety.

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**Budget:**  
\$28,391 for year one

**Q** Can online educational guides educate school and university employees on safe production of fruits and vegetables?

**A** After the development of two online food safety videos, activities, and instructor guides, a survey was provided to one elementary school, one high school student, and two universities to gauge the impact of the developed material. From this survey, the team determined several updates needed to make the material more effective for the youth and young adult audience.



**MARKETING**

### Background

The number of school gardens in Iowa is increasing dramatically, yet most of the workers in these gardens have little or no food safety training. Likewise, university research farm staff work with researchers from different disciplines and attempt to answer a host of questions related to fruit and vegetable production, yet there is little or no food safety training available about good agricultural practices. These produce items grown in school gardens and on university farms could constitute high-risk products for food safety. End products from both school gardens and university farms are placed directly into the hands of students or consumers, potentially placing these populations at risk.

With an increasing number of foodborne outbreaks associated with unprocessed produce, the risk of sparking an outbreak falls onto the school district and university. A critical need exists to develop specialized food safety training that will result in behavior change by produce growers and mitigate risk for the school district and university.

The project objective was to develop two specialized one-hour, on-farm food safety educational modules and user manuals. Their use will lower the risk of having a foodborne outbreak due to lack of knowledge and training for workers.

### Approach and methods

The main objective of this project was to develop two one-hour online education modules, two user manuals, and perform a mini-pilot project evaluating the developed materials. These steps were followed to generate the end products:

#### 1) Develop a steering committee of major stakeholders and hold quarterly feedback sessions.

The team recruited a steering committee of six people who are closely affiliated with school gardens, ISU horticulture farms, and community garden advocates. The committee met three times during the year to provide feedback and guidance during the



*Decorah (Iowa) school garden.*

development of the modules and manuals and implementation of the pilot study. Additional feedback was gathered from individuals during development of each unit.

## **2) Develop the content/script for the two online modules.**

A graduate student assisted with the development of the scripts for the two modules based on the current Iowa State University Good Agriculture Practice (GAP) workshops. The content of the script was modified based on the reading levels of the two modules. The elementary school gardens script was aimed at a 4/5 grade level and the university farms was targeted to a grade 12 education.

## **3) Produce video clips and still photos to illustrate fundamental principles.**

ISU's Brenton Center recorded video clips and still photos that were incorporated into the modules after the script was created.

## **4) Employ graphic designer and actor to provide professional touches to the modules.**

A graphic designer and actor were hired through the Brenton Center to incorporate additional visual aids within the video.

## **5) Develop two user manuals appropriate for the two audiences targeted for the modules.**

Instructor user manuals were created to assist school garden coordinators and university farm managers with implementation of the food safety training modules into their organization. Both manuals included criteria for online use, user information/teacher plan, glossary of terms and resource guides for additional information. Hands-on activities were created for each of the modules to assist instructors with by another method of training.

## **6) Develop a website to share these resources.**

The original goal was to create a DVD for schools to use, but the team determined that continued updates would be needed, so a website was created instead. The website contains all the materials, which are easy to download, and changes can be made in the future. Postcards were developed to inform schools and university garden participants about the website (<http://www.safeproduce.cals.iastate.edu/elementary/>).

## **7) Offer the two online modules and accompanying user manuals as a pilot option to two K-12 schools and one university farm.**

During the pilot study, users took part in a pre-post knowledge assessment and provided feedback for improvements in the two modules. One middle school, one elementary school, and two university farm participants were randomly selected to complete the knowledge assessment. Knowledge assessment of the developed material was provided through extended quizzes that were given before and after the completion of viewing the online material.



*Lynch garden.*

## Results and discussion

As a result of this proposal, a website was developed which includes downloadable video-based food safety trainings, quizzes and activities, along with an instructor's manual for the online food safety trainings.

Knowledge assessments of the materials were made through extended quizzes given before and after viewing the material online. The two tests were scored and averaged. Results indicated a significant change in knowledge level after viewing the material. This trend was more prevalent across the segments for the school instructors.

A mini-evaluation of the materials used in the pilot study was completed by staff at two elementary schools, one middle school, two land grant universities, and four of the steering committee members. The overall results indicate that the materials were appropriate for the targeted population and that the supporting material was useful. Specific comments indicated that some of the videos and pictures need to be revised for better clarity, some of the quiz questions need to be modified for clarity and difficulty, more pictures with young adults were needed for the university version, and some of the topics tailored to an older audience. Overall, the comments on changes needed were minor and all parties that piloted the material will be using it in spring 2014.

## Conclusions

The team successfully developed two online food safety modules that should help to increase food safety knowledge. The team is seeking additional funding to make recommended changes in the online materials and to provide additional resources on the website prior to a national release of the program. They are translating the school garden script into Spanish with the assistance of a partner at the University of Costa Rica. The goal is to have the translated script available by summer 2014 and to record both versions 2014 or 2015 if funding allows.

## Impact of results

The project results offer outreach and collaborative opportunities for many different people in the Iowa State University system and beyond. The resulting modules and user manuals will be shared throughout the state with partners such as FFA and 4-H educators, state agencies involved with Farm to School programs, Master Gardeners, school district and child nutrition program administrators, and higher education institutions' farm managers.

Project findings also will be shared with other out-of-state food safety extension specialists engaged with on-farm outreach efforts and that also have active farm to school programs and/or university research farms. Iowans can use the products of this project to educate their local schools, community gardeners, community colleges and universities on safe handling of produce.

## Education and outreach

### *Publications:*

- Safe Produce website (<http://safeproduce.cals.iastate.edu/>)
- International Association for Food Protection Annual Conference, Indianapolis, Indiana, August 3-6, 2014. Poster Presentation
- Master's Thesis (in progress). Development of Online Food Safety Training. Johnny Dzubak. Master's Student. Graduation, May 2015.

### *Education and outreach*

- S294 Conference/United Fresh Produce Conference. San Diego, California. May 2013. 25 in attendance
- Farm to School Collaboration. Ladora, Iowa. July 2013. 20 in attendance
- Good Agricultural Practices Workshops. Fall 2013 and spring 2014. Altoona, Waterloo, Dubuque and two in Council Bluffs, Iowa. 52 in attendance
- MarketReady Workshops. Cedar Rapids, Iowa. March 2014. 16 in attendance
- The University of Costa Rica was a collaborator throughout this project. In the future they will be translating the elementary version of these online modules into Spanish.

## Leveraged funds

No additional funds were leveraged by this project.

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