



**CPS 2011 RFP
FINAL PROJECT REPORT**

Project Title

Developing a program to educate the walnut supply chain as it pertains to product handling and safety

Project Period

January 1, 2011 through December 31, 2011; NCE to February 29, 2012

Principal Investigator

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Objectives

1. To bring the level of knowledge and understanding of food safety and security among walnut handlers up to a common level through self-paced, on-line learning modules.
2. To use that common knowledge as a platform upon which to build food safety and security programs through hazard analysis workshops.
3. To provide necessary tools and guidance to allow the construction of risk based and stringent food safety programs through detailed training materials based on risks identified in the risk assessment workshops.
4. To provide training in how to effectively develop trace-recall and food security programs through development of detailed training materials

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Abstract

This project was initiated in an effort to enhance the understanding and implementation of food safety practices among California walnut handlers. The project was originally going to have three parts, a self paced, on-line food safety learning program, a series of workshops to teach attendees how to perform a systematic hazard analysis and a further series of workshops to teach attendees how to construct trace/recall and food defense programs. We completed the first two sections and agreed with the sponsoring agencies not to conduct the final series of workshops. This was due to a lack of enthusiasm among walnut handlers as they await new regulations from FDA as part of the Food Safety Modernization Act. It seemed premature to hold these workshops until the new regulations are clear. Each participant received an electronic manual that contained the results of the hazard analysis applicable to their specific operation together with associated materials to facilitate implementation of the results of the workshops. These materials included such things as training materials, sign-off sheets, check lists, sample policies, examples of SSOPs, examples of sanitation schedules and many other materials.

Background

Walnuts have recently been implicated in two food borne illness outbreaks caused by *E. coli* O157:H7. Recent *Salmonella* outbreaks associated with almonds and more recently pistachios have also highlighted the vulnerability of nut crops as potential vectors for food borne pathogens. The California walnut industry has a critical interest in preventing outbreaks associated with walnuts and limiting the scope should there be such an outbreak. Various print resources are available to walnut handlers, including FDA Guidelines, University GAP programs, and a comprehensive "Nut Safety Handbook" prepared by the Grocery Manufacturers Association. Nevertheless, many walnut handlers have not fully adopted the recommendations from these resources. Since a food borne illness outbreak caused by one handler could cause substantial economic damage to all handlers, enhancing the food safety and security programs of all handlers up to a high common level offers the best protection for the industry as a whole. This training program was constructed to raise the level of awareness and understanding of food safety in the walnut industry and to put practical food safety tools in the hands of California walnut handlers.

Research Methods and Results

This was not a traditional research project, but rather a teaching and training project. As such, we did not use research methods. Rather we constructed a two part education and training program designed to provide necessary background information and guided hands-on training to teach walnut handlers how to assess and address risks in their operations. This consisted of on-line food safety training followed by a series of hazard analysis workshops.

1. The self paced on-line food safety learning program consisted of a series of twelve Power Point presentations with a multiple choice exam following each one. The purpose was to introduce the important concepts of food safety and so that participants all had a common understanding and common food safety vocabulary. Upon completion of the on-line training, participants received a “Certificate of Completion” from NSF International.
1. Groups of handlers then got together and Dr. Devon Zagory of NSF Agriculture led the group through a step-by-step hazard analysis. These workshops took place on Feb. 1 in Parlier, Feb. 7 in Chico and Feb. 15 in Modesto.
2. All participants prepared and sent flow diagrams of their operations in advance of the workshops.
3. Before the “Hazard Analysis” workshop we constructed a composite generic flow diagram that contained all of the process steps from all of the companies that were to participate in the workshop.
4. During the workshops, as we went through the hazard analysis, we recorded all of the hazards/risks identified at each process step.
5. We also discussed and agreed upon interventions and programs that the group decided were appropriate to address each identified risk.
6. We assembled documents, forms, lists, policies and other materials necessary for the identified programs and interventions.
7. For each company we assembled a hazard/risk analysis for the process steps included in the flow diagram for that company.
 - a. We then assembled appropriate documentation for those risks.
 - b. We put all of these materials in an electronic “food safety manual” specific to each operation.
8. The food safety manuals included:
 - a. A detailed hazard analysis for those unit operations that included in each companies flow diagram.
 - b. Suggested actions to address the identified hazards.
 - c. Suggested validation strategies.
 - d. Supporting materials specific to the activities in each operation.
 - i. These included such things as training materials, sign off sheets, sample policies, sample SSOPs, information supporting your food safety program.

Outcomes and Accomplishments

The on-line food safety training consisted of a series of short Power Point presentations with a multiple choice exam following each one. The purpose was to introduce the important concepts of food safety and that we all have a common understanding and common vocabulary. Upon completion of the on-line training, handlers received a “Certificate of Completion” from NSF International.

Upon completion of the hazard analysis workshops each attendee received an electronic “manual” that had as chapters the unit operations that appeared in the flow diagram of each individuals company. Each chapter included the hazard analysis for that unit operation together

with ancillary materials to help facilitate the operation of the food safety program. These included such things as training materials, sample policies, examples of SSOPs, sign-off sheets, check lists, cleaning schedules etc. The workshops were particularly well received and we got many positive comments pointing out how useful and practical they were. Very few people actually used the on-line training. This may have been a lack of effective communication about the value of the training, or just a reluctance to spend time in front of a computer monitor.

Summary of Findings and Recommendations

The availability of the on-line training portion was not communicated effectively and so few handlers actually saw it and fewer completed it. This may be due to general unfamiliarity with, or resistance to distance learning, or it may be that most handlers were simply not aware it was being offered. In contrast, the hands-on hazard analysis workshops were very well received and appreciated. The purpose was not only to develop a systematic hazard analysis for each attendee, but to teach a process of evaluating and addressing hazards that participants could take back to their companies and use going forward. We continue to believe that this approach has merit in strengthening institutional knowledge, enhancing food safety programs, and preparing for audits. Without such hands-on learning opportunities many produce industry managers are left to prepare for audits without a clear understanding of the basis of a strong food safety program and are consigned to treating food safety as a series of checklists.

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APPENDICES

Publications and Presentations (required)

See accompanying CD with results of the hazard analysis workshops.

Budget Summary (required)

See attached "Final Invoice" which contains a summary of the budget.

Tables and Figures (optional)

Suggestions to CPS (optional)