

Produce Safety Workshop Summary

Purpose of the Meeting

Currently there is an emphasis on increasing the amount of fresh fruit and vegetables served to students participating in Child Nutrition Programs in an effort to improve the nutritional quality of their diets. The purpose of this workshop was to identify:

- Potential food safety risks that might exist from consuming fresh produce.
- Where the risks might exist along the continuum of growing, harvesting, sorting, packing, finishing, transporting, receiving, storing, preparing and serving to students.
- Mitigation strategies to reduce risks.
- Gaps in existing practices and available tools to provide mitigation.
- Needs for research and educational resources to support mitigation strategies.

The USDA Food and Nutrition Service (FNS) Food Safety Staff and the Joint Institute for Food Safety and Nutrition sponsored a 1-day workshop on produce safety. There were 38 invited participants who attended, representing local school districts, USDA/FNS Child Nutrition Program and Food Safety Staff from headquarters and Regional Offices, USDA/AMS, USDA/ARS, USDA/CSREES, FDA, academia, and the produce industry. Participants represented various steps of the produce continuum from production to service.

Workshop Structure

The workshop was structured to encourage focused discussion among participants. To facilitate discussion, the director of the FNS Food Safety Staff set the scene by presenting current trends related to the increased funding and emphasis on produce in schools, followed by a panel discussion on produce use in schools, and presentations by subject matter experts. This information about current practices and research provided background the two breakout groups, one charged with addressing a series of questions concerning food safety with farm-to-school purchasing and school gardens and a second answering these questions when using traditional purchasing sources. A summary of the presentations and of the breakout group discussions follow.

Setting the Scene

Brenda Halbrook, Director of the FNS/Food Safety Staff, provided background information about the use of fresh produce in schools. These remarks provided context about the importance of produce safety in school nutrition programs.

The National School Lunch Program (NSLP) serves 31 million lunches and 9 million breakfasts every day that include domestically grown fresh fruit and vegetables purchased by the USDA, procured from Department of Defense (DoD) distributors using USDA entitlement commodity dollars, or purchased from local vendors. Approximately

Produce Safety in Schools, Workshop Summary

85% of food used in schools is purchased at the local level from the commercial market and 15% is purchased by USDA using entitlement money. The 2008 Farm Bill required USDA to spend at least \$50M of entitlement dollars per year for fresh produce for schools, increasing to \$54M in SY 2009 and \$64M in SY 2010. In addition, some schools participate in the Fresh Fruit and Vegetable Program (FFVP) that provides snacks in addition to the school breakfast and lunch programs. The fruit and vegetables for the program are obtained through DoD or local vendors. Food safety is addressed in schools through their Food Safety Program based on HACCP principles, which is required by the 2004 Child Nutrition and WIC Reauthorization Act.

Panel Discussion:

Current Practices Related to the Use of Fresh Fruit and Vegetables in Schools

Three foodservice directors were selected to serve on a panel to discuss current practices related to fresh fruit and vegetable use in schools. These directors were selected to represent large and small school districts and different regions of the country. Panel members included:

Carolyn Griffith – Aberdeen School District, Aberdeen MS

Kathy Gutowski – Manistee Area Public Schools, Manistee, MI

Suzanne Wood – Montgomery County Public Schools, Rockville, MD

	Carolyn Griffith	Kathy Gutowski	Suzanne Wood
Location	Aberdeen, MS	Manistee, MI	Montgomery Co Rockville, MD
Number of Schools	6	8	201
Number of Students	1500	2200	141,000
% Free & Reduced	90	54	30

Carolyn Griffith (MS) – All six Aberdeen schools participate in the FFVP and serve students a snack three days a week. Cafeteria staff prepares the fruit and vegetable snacks, which are stored in the classroom and served by teachers who use the program as an opportunity for teachable moments. Ms. Griffith uses a fruit bowl/basket in both NSLP and in FFVP. Purchasing is done through a State Agency operated cooperative and through the DoD Fresh program. In addition to fruits, fresh broccoli, cauliflower, and celery are served as part of the FFVP. Prepackaged salads are served in the school lunch program instead of a salad bar. They have cold holding equipment for serving. The school system's union contract states that every worker must be ServSafe® certified, and food safety procedures for fruits and vegetables are included in the training. One of the challenges in this district is that produce deliveries are made once each week.

Kathy Gutowski (MI) – One Manistee, MI school participates in the FFVP, with students getting a fruit snack every morning and a vegetable snack every afternoon. Many different fruits are served in the FFVP and the primary vegetables served are raw asparagus and sugar snap peas. Lack of refrigeration is an issue in the school district, including no refrigerated serving lines at elementary schools. Bagged ice is used for cold holding of fruits and vegetables on the serving lines. Salad bars operated for the NSLP

Produce Safety in Schools, Workshop Summary

are sanitized between serving periods and serving utensils are changed. Salad bars are not operational when there is a high incidence of H1N1 in schools. This district received produce deliveries 2-3 times a week, which helps with storage space and access to quality produce. The school district has a HACCP program in place and managers must be certified in ServSafe®. Regional training sessions are held once a year.

Suzanne Wood (MD) – Four of the county’s 201 schools (serving about 2,300 students) participate in the FFVP two days per week (fresh-cut produce once a week and a whole fruit once a week). The produce is delivered by cafeteria staff to the classroom prepackaged or whole. One of the barriers to the program is lack of refrigeration in the classrooms. They do have cold holding equipment for service in the cafeteria. They get daily produce deliveries from a local distributor. The school district does not purchase directly from farmers, but rather through a local distributor. The district staff assessed capabilities of their current distributor and determined that they had sufficient options available through the existing channel so they chose not to approach farms directly. They offer a wide variety of fresh fruits and vegetables in their school meals program, but salad bars are not used in the due to cost and time constraints. They do use some specialty bars, which include fresh vegetables. They have several food safety concerns that they are trying to address. For example, prepackaged fruits (such as sliced apple program) are procured to address food safety concerns. All whole fruits are washed in cold water. The district does conduct annual HACCP training, but she continues to be concerned about food safety training of staff because of language barriers.

Concerns of Panelists

There were some common concerns for all panelists, including:

- Inadequate refrigeration space. This is a problem both in the cafeteria and, for some districts, in classrooms.
- Limited snack program funds to purchase equipment to support the program. There currently is a 10% limit on funds for equipment.
- Rising costs of produce.
- Lunch periods are very short, typically about 18-20 minutes. This limits the feasibility of self-serve salad bars due to the time it takes students to serve themselves and eat.
- Serving fresh fruits and vegetables in classrooms creates some specific challenges, such as temperature control and cross contamination.

Presentations

Risk Ranking and Risk Prioritization Tools

Dr. Sherri Dennis, Supervisor, Risk Assessment Coordination Team
FDA/Center for Food Safety and Applied Nutrition

Risk assessment/risk management tools, including risk rankings, risk prioritizations, and risk analysis, were discussed with examples of how FDA has used them to make risk management decisions about the foods they regulate. The risk assessment process is important to provide the basis for prioritizing mitigation strategies. One risk assessment

Produce Safety in Schools, Workshop Summary

tool, a semi-quantitative risk ranking, was used to assess produce to determine which commodity/pathogen combinations present the most significant risks and prioritize them as candidates for interventions. The top five commodity/pathogen combinations included leafy greens and *E.coli* O157:H7, tomatoes and *Salmonella enterica*, leafy greens and *Salmonella enterica*, melons and *Salmonella enterica*, and mixed produce and *E.coli* O157:H7. FDA is developing a semi-quantitative online tool to compare food safety risks.

Produce Production, Processing, and Distribution

Dr. Barry Eisenberg, Vice President for Technical Services
River Ranch Fresh Foods

Food safety has become the number one concern of the fresh produce industry, especially after the spinach recall in 2006. Foodborne illness outbreaks no longer affect a single company but rather the entire industry and have severe consequence for consumers. As a result, new growing and processing requirements, such as the California Leafy Green Marketing Agreement, have been developed that focus on risk management; new guidelines for fresh produce were issued by the federal government; and budgets were increased for education and training programs. Standards such as Good Agricultural Practices (GAP), Good Handling Practices (GHP), hazard analysis and critical control points (HACCP), and industry metric standards are informing industry's food safety plans. In addition, corporate customers are demanding more pathogen testing and requiring specific audits.

Food safety mitigation strategies at the growing, initial processing and packaging, and transportation steps were discussed. School foodservice produce buyers should be aware of these strategies and make sure purchase specifications include requirements for industry best practices.

Food Handling Practices in Schools

Dr. Jeannie Sneed, Food Safety Specialist
USDA, FNS/Food Safety Staff

Although the food safety record of schools is very good, food handling by employees has the potential to cause more foodborne illnesses as the quantity of fresh produce in schools increases. Three major areas of concern were identified based on research in school kitchens: handwashing, cold chain management, and cross contamination. For handwashing, there is concern with both the frequency and methods for handwashing. Cold chain management issues relate to limitations in storage capacity, lack of cold holding equipment, and perceptions that produce may not require refrigeration. Cross contamination can occur at any step in the flow of food from receiving to serving. Mitigation factors that should be strengthened in schools include employee education, policies and procedures to address fresh produce, equipment adequacy, and active supervision to ensure that food safety practices are implemented.

Produce Safety in Schools, Workshop Summary

Breakout Group Discussion Summary

Two breakout groups, one focusing on traditional purchasing methods and one focusing on farm-to-school purchasing and use of school gardens, discussed 10 questions. Responses for the groups were combined and are summarized below.

1. What are the most significant food safety risks to schools related to produce use in schools?
 - Growers not using Good Agricultural Practices (GAP)
 - Suppliers of processed produce not using Good Manufacturing Practices (GMP)
 - Food handlers (staff, teachers, and consumers) not trained in proper produce safety
 - Maintaining the cold chain throughout purchasing, receiving, storage, preparation, and service of the produce
2. What best practices should be used to minimize risk when purchasing fresh produce?
 - Establish school and school district ordering and inventory management procedures, specifications, and requirements that include:
 - GAP and GHP requirements including the requirements for documentation
 - safe handling, safe delivery
 - product traceability
 - Establish relationships with farmers, suppliers, and distributors to communicate specifications and requirements for safe produce
 - Use State Agency and local sanitarians as a resource when establishing management procedures
3. What best practices should be used during the receiving of produce?
 - Establish receiving standard operating procedures that include:
 - place and time of delivery
 - expected cleanliness and wholesomeness of produce
 - standards for cleanliness of dock and receiving areas
 - Train staff in established receiving procedures and standards
 - Provide adequate and appropriate storage for the quantity and type of produce being delivered
4. What best practices should be used during storing, preparing, holding, and serving fresh produce?
 - Develop and follow standard operating procedures for storing, preparing, holding, and serving.
 - Maintain the cold chain using proper temperatures for each type of produce during storage, preparation, holding, and serving. This would take into consideration the perishability, temperature sensitivity, and risk of microbial growth for the various products.
 - Practice food handler hygiene

Produce Safety in Schools, Workshop Summary

- Practice proper handling of produce by personnel and other food handlers (to include no bare hand contact)
 - Establish and practice appropriate cleaning and sanitizing practices for each type of produce (including pre-cut and washed)
 - Establish and practice procedures for preparation equipment and surfaces to avoid cross-contamination
 - Conduct produce safety training for all food handlers, including staff, teachers, and students
5. What best practices should be used to minimize the risk when purchasing fresh-cut or ready-to-eat produce?
- Establish procurement specifications that include GAP and GHP requirements
 - Conduct a safety audit of the processor
 - Determine if state licensing is required and terms have been met
6. How can school food service managers minimize risk from in-coming fresh produce?
- Procure produce using specifications that include produce safety
 - Ensure that suppliers understand the food safety specifications
 - Establish standard operating procedures for receiving produce that includes food safety. This would include an evaluation of produce at the time of receiving, including checking produce for quality, temperatures as appropriate, and integrity of packaging.
 - Train staff on implementing standard operating procedures for receiving produce
7. What novel delivery systems (outside of the cafeteria) to students do you use, or are aware of?
- Serve breakfast, which includes fruit, in the classroom
 - Provide the FFVP in alternative locations to the cafeteria, such as in classrooms, hallways, or kiosks
 - Grow gardens as a learning experience. The produce may be served as part of a school meal or used in the classroom.
 - Use produce as part of classroom nutrition education
8. What training is needed by school food service employees, managers, and directors?

Food service employees

- Receive, store, prepare, hold, and serve produce safely. The training could be incorporated into existing food safety training or could be stand-alone training.
- Use of food safety basics such as handwashing, temperature control, and how to minimize cross contamination

Managers

- Develop and use procedures and standards needed for receiving, inventory, preparation, and service to address produce safety

Produce Safety in Schools, Workshop Summary

- Implement food safety standards in the kitchens, including understanding of roles of supervisors and employees
- Implement controls for produce safety that are included in the food safety program
- Serve as role model for produce safety to employees and other food handlers

Directors

- Write procurement specifications that include food safety for purchasing and delivery of different types of produce from local growers
 - Use appropriate produce handling methods to ensure safety at receiving, inventory, preparation, and service management programs
 - Review food safety program to make sure produce safety is included
 - Incorporate produce safety into a food safety program, including any novel delivery of produce that might be used
 - Assess refrigeration equipment needs for appropriate produce storage, including equipment needed for novel delivery areas
 - Provide produce safety training for managers and employees as well as for teachers and students
9. What educational materials would be useful to train school food service employees? Are there educational materials or training that you use currently that you would recommend?
- Procurement documents are available from the FDA, the USDA, Cornell and Iowa State and other universities, as well as from industry; however, the information needs to be focused on the school audience. Consistency in the messages also needs to be addressed
 - Training materials for produce safety that incorporate farm to school and novel service methods specific to school food service need to be developed
 - Existing training material developed by the FNS/NFSMI (such as *Choice Plus*, *Fruits and Vegetables Galore*, and others can be revised to emphasize and reflect new produce safety measures)
10. What research is needed to learn more about risks and mitigation strategies needed to assist schools?
- Assess whether the safety of locally grown produce is different from produce purchased through traditional distribution channels
 - Assess the current use of locally grown produce and/or produce from school gardens
 - Determine if purchasing locally might assist schools who have difficulty finding traditional produce suppliers
 - Compare risk management practices between schools involved with cooperative purchasing of locally grown produce and individual school districts doing purchasing
 - Determine the extent to which school systems process produce during the peak season harvest and if there are associated hazards

Produce Safety in Schools, Workshop Summary

- Examine the extent of preparation of produce being performed in central kitchens compared to individual school kitchens
- Assess the current state of serving produce in novel settings to identify food safety risks and mitigation strategies. Some factors to identify include:
 - Where is the preparation taking place – in or outside of the school kitchen?
 - Who is cutting and serving the produce – food service workers, teachers, or others?
 - What are the ages of the children – are there any highly susceptible population concerns?
 - Is the cold chain being maintained?

Action Plan

Research Needs. The following areas for research have been prioritized according to importance and influence for developing educational training and material.

1. Determine current practices that schools are using for procuring fresh produce, including purchasing from traditional and local farmers/suppliers and use of produce from school gardens. An understanding of these practices will assist in identifying the necessary educational tools, materials, and training needed.
2. Determine current food handling practices in schools for receiving, storing, preparing, and serving fresh produce that may relate to food safety. This information will assist in identifying gaps in training and prioritizing training needs.
3. Examine food safety programs to determine how produce safety is addressed and determine improvements to more adequately address produce safety.
4. Identify best practices for purchasing from traditional suppliers and local growers. This should include best practices for whole and processed (value-added) produce. These best practices will guide school nutrition purchasing agents in establishing purchasing specifications to adequately address food safety.
5. Conduct a risk assessment or hazard analysis to determine where the vulnerable points for food safety may occur in the procedures for produce purchased from traditional sources and from local growers and what, if any, mitigation strategies are practiced.
6. Identify the practices schools are currently using to serve produce in novel settings in order to develop strategies to improve food safety. Some factors to identify include:
 - a. Where is the preparation taking place – in or outside of the school kitchen?
 - b. Who is cutting and serving the produce – food service workers, teachers, or other
 - c. What are the ages of the children?

Produce Safety in Schools, Workshop Summary

- d. Is the cold chain being maintained and, if not, what are the obstacles for doing so? What are suggested solutions?
7. Determine refrigeration requirements to adequately store and hold different quantities and types of fresh produce.
8. Determine work station needs to prepare fresh produce safely.

Educational Needs for School Foodservice Staff

1. Develop sample procurement specification language for produce that can be incorporated into school purchase specifications to address food safety issues. Revise existing Child Nutrition procurement materials, such as *First Choice* and *Choice Plus*, to include food safety requirements when purchasing fresh produce.
2. Review and combine existing food safety training materials for fresh produce available from universities and industry and tailor it for use by the school food service audience. Training should be targeted to school food service and streamlined to meet the needs of shorter training classes and self instruction (condense from multi-day or 10+ hour self instruction to shorter modules (20-60 minutes) that can be adapted for computer-based self instruction). Training should target specific audiences, including foodservice workers, managers, directors, and other produce handlers (such as teaching staff, parents, and students).
3. Develop new or revise existing tools for modifying school food safety programs to include handling fresh produce. This would include reviewing and revising current SOPs and potentially developing new ones.

Other

Possible educational needs for farmers to help them better meet the needs of schools.

- Develop educational materials for farmers that promote basic information on school district purchasing practices and needs. School expectations/specifications for food safety when purchasing produce should be included, along with simple checklists farmers could use to make sure they can market to schools.
- Develop an educational tool to communicate GAP or GHP minimum standards for local growers.