DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Agriculture and Natural Resources

FSA9802

Arkansas Voluntary Farm Food Safety Assessment

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The passage of the Food Safety Modernization Act (FSMA) in 2010 revolutionized the environment for food safety in the United States. The act called for the government to take a proactive approach in preventing food contamination and defined steps producers could take to ensure the safety of fresh produce. The goal of FSMA is to develop a business environment whereby growers maintain a vigilant culture of identifying and addressing potential hazards.

Of the estimated 48 million Americans stricken with food poisoning every year, more than one-third of them are sickened after eating fresh produce. Certain fresh fruits and vegetables, such as tomatoes, melons, berries and cucumbers, are more susceptible to contamination because they are not processed in a manner that kills bacteria.

The Food Safety Modernization Act heightens the need for growers to evaluate and document their on-farm processes and activities in handling fresh produce. Establishing a food safety program allows producers to assess their situation, detail their on-farm activities with adequate records and communicate their food safety systems to potential customers and regulators.

Producers are often held liable for the safety of their products. By adopting Good Agricultural Practices (GAP), producers can prevent contamination and stop the spread of deadly bacteria. GAP activities are science-based recommendations that if followed can mitigate or reduce the likelihood of food safety incidences and recalls.

To address the needs of small-scale producers, University of Arkansas faculty have identified a science-based food safety program that guides producers through a step-by-step checklist analyzing their operations. The checklist alerts farmers to possible areas of exposure, evaluates where they stand in relation to recommended practices and enhances documentation of on-farm processes for outside parties.

The voluntary checklist (see enclosed insert) focuses on six areas of food safety concern that cause most food safety incidences: (1) production practices, (2) product handling, (3) transportation, (4) facilities, (5) worker health and hygiene and (6) sustainability.

Producers should use the self-assessment program as a starting point to evaluate their business with respect to food safety.

Produce growers do not need to fill out sections that do not apply to them. For example, if you do not have a packing shed, you do not need to complete that section.

More information on GAP and other types of food safety audits can be found at http://www.uark.edu/ua/gap/.

The Arkansas Voluntary Farm Self-Assessment Program serves as a guide so that users can understand the high risk areas on their operations and develop meaningful, verifiable processes to enhance product safety.

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Checklist Explanation

Production Practices

1. *Are surface wells protected from groundwater contamination?* – The quality of irrigation water used for growing produce often dictates the ultimate safety of fresh produce. If wells are used, the wellhead should be checked frequently to make sure of a secure, non-leaking fit.

2. *If irrigation is used, what is its source? (well, stream, pond, municipal, other)* – The microbial quality of the water should be checked frequently. Water checks generally test for fecal coliforms or generic *E. coli*, which indicates the presence of fecal material. *E. coli* is a common type of bacteria, but there are some species that can produce very harmful toxins resulting in severe sickness if consumed. If municipal water is used, no check is required, but a certificate from the municipal source should be on hand. If well water is used, check the water before using it at the start of the season and at least once during harvest. The type of irrigation water should also be considered. Water used for overhead irrigation systems must be at the recreational water quality level. (Water coming from municipal systems may have been treated using "potable" or drinking water standards.)

    - *Drinking Water Standards* – Water used for drinking, hand washing, ice making or cooling and the final rinse of produce. Must be "potable," meaning safe for human consumption. The test for generic *E. coli* is zero per 100 gms. In some test methods the result may read "absent" or "<1."

    - *Recreational Water Standards* – When agricultural water is directly applied to production areas including fields and/or products (overhead irrigation/sprinklers), records should be maintained that verify the presence of *E. coli* is under acceptable thresholds. Water tests should detail the number of colony forming units or most probable number (CFU or MPN) per 100 ml. These levels should not exceed a five-sample average of 126 CFU/100 ml. Water that directly contacts product has specific maximum levels on individual samples. No sample can be over 235 CFU/100 ml that comes in direct contact with foliage or 576 CFU/100 ml that does not come in direct contact with the edible portion of the plant. Water for irrigation may be tested annually or more often for fecal coliforms (2.2 fecal coliforms per 100 mls is the Environmental Protection Agency limit for non-drinking or non-potable uses). Overhead irrigation water should be treated if fecal coliforms exceed this limit.

    The quality of drip irrigation water is not as important because it does not contact the edible portion or tops of plants.

    Well water tests can generally be obtained from your local county sanitation office. If the water source is from surface water such as a pond or stream, tests should be carried out three times during the growing season – at planting, at peak use and near harvest. In general, surface water should NOT be used on berries, fruit and produce that are eaten raw (i.e., without a heat treatment). If one does choose to use surface water, it is best to use the drip irrigation method. Most county sanitation offices will not test surface water, so you may have to request sampling from a certified program. A list of certified laboratories can be found at www.adeq.state.ar.us/techsvs/labcert.asp#Displav.

3. *What types of manures are used? (raw manure, composted, aged, no manure is used)* – Animals and humans carry pathogens in their intestines. The use of animal manure or human waste (biosolids) must be treated with concern. If raw manure is used, it should be treated by composting or heat treatment. If composted, the U.S. Department of Agriculture recommends maintaining a temperature of 131 degrees Fahrenheit for at least 14 days. If heating manure, a temperature of 165 degrees Fahrenheit will destroy most pathogens.

4. *Is raw manure incorporated at least two weeks prior to planting and/or 120 days prior to harvest?* – Pathogenic bacteria die in the soil over time. However, research tends to suggest that the rate of decline is dependent on many factors such as soil moisture, temperature, etc.

5. *Is the manure application schedule documented with a copy submitted to the retail operation?* – It may not be required to submit a copy, but producers should keep a notebook of manure application, planting and harvest dates.

6. *Is land use history available to determine risk of product contamination (e.g., pesticide and herbicide use on prior crops, runoff from upstream, flooding, chemical spills or excessive agricultural crop application)?* – A producer should have a written history of land used to grow fresh produce. It is never a good idea to grow produce on land that has a history of flooding or has been used as a chemical dumpsite or manure storage depot. It is also good to record previous uses of the land, such as cattle grazing, hay production, etc.

7. *Is the field exposed to runoff from animal confinement or grazing areas?* – Producers must be aware of what is upstream from their production areas. Cattle feedlots, dairy operations, chicken houses, sewer treatment facilities and livestock grazing pastures can all contaminate streams flowing toward produce fields.

ARKANSAS VOLUNTARY FARM SELF-ASSESSMENT PROGRAM CHECKLIST

Farm Name or Business _____

Phone _____ Email _____

Production Practices	**Yes**	**No**	**N/A**
Are wells protected from contamination?			
If irrigation is used, what is its source? Well Stream Pond Municipal Other			
What types of manures are used? Raw manure Composted Aged No manure use			
Is raw manure incorporated at least 2 weeks prior to planting and/or 120 days prior to harvest?			
Is the manure application schedule documented with a copy submitted to the retail operation?			
Is land use history available to determine risk of product contamination (e.g., runoff from upstream, flooding, chemical spills or excessive agricultural crop application)?			
Is the field exposed to runoff from animal confinement or grazing areas?			
Is land that is frequently flooded used to grow food crops?			
Are coliform tests conducted on soil in frequently flooded land?			
Are farm livestock and wild animals restricted from growing areas?			
Are portable toilets used in a way that prevents field contamination from waste water?			
Product Handling	**Yes**	**No**	**N/A**
Are storage and packaging facilities located away from growing areas?			
Is there risk of contamination from manure?			
Are harvesting baskets, totes or other containers kept covered and cleaned (with potable water) and sanitized before use?			
Is harvesting equipment/machinery that comes into contact with the products kept as clean as possible?			
Are product and non-product containers available and clearly marked?			
Is dirt, mud or other debris removed from product before packing?			
Are food-grade packaging materials clean and stored in areas protected from pets, livestock, wild animals and other contaminants?			
Transportation	**Yes**	**No**	**N/A**
Is product loaded and stored to minimize physical damage and risk of contamination?			
Is transport vehicle well maintained and clean?			
Does transport vehicle have separate areas for food and non-food items?			
Are products kept cool during transit?			
Facilities	**Yes**	**No**	**N/A**
Is potable water/well tested at least once per year and results kept on file?			
Is product protected as it travels from field to packing facility?			
Is a product packing area in use with space for culling and storage?			
Are packing areas kept enclosed?			

Facilities *(cont.)*	**Yes**	**No**	**N/A**
Are food contact surfaces regularly washed and rinsed with potable water and then sanitized?			
Are food-grade packaging materials used?			
Do workers have access to toilets and hand-washing stations with proper supplies?			
Are toilets and hand-washing stations clean and regularly serviced?			
Is a pest control program in place?			
Worker Health and Hygiene	**Yes**	**No**	**N/A**
Is a worker food safety training program in place?			
Are workers trained about hygiene practices and sanitation with signs posted to reinforce messages?			
Are workers and visitors following good hygiene and sanitation practices?			
Are smoking and eating confined to designated areas separate from product handling?			
Are workers instructed not to work if they exhibit signs of infection (e.g., fever, diarrhea, etc.)?			
Do workers practice good hygiene by:			
• Wearing clean clothing and shoes?			
• Changing aprons and gloves as needed?			
• Keeping hair covered or restrained?			
• Washing hands as required?			
• Limiting bare hand contact with fresh products?			
• Covering open wounds with clean bandages?			
Sustainability	**Yes**	**No**	**N/A**
Are soil erosion control methods practiced to save topsoil? (terracing, waterways, avoiding planting too close to creeks/rivers, etc.)			
Are pesticides and herbicides used in accordance with labeling instructions and in accordance with state laws? (i.e., observance of withdrawal times)			
Are minimal tillage methods used where applicable?			
Do you practice ethics in your business dealings? (selling only your farm-grown produce, making honest statements to consumers, etc.)			

I confirm that the information provided above is accurate to the best of my knowledge.

Name _____ Title _____

Signature _____ Date_____

This checklist was adapted from an Iowa State University fact sheet. A. Casselman, C. Stroheln and S. Beattie. Iowa State University. (2011) *Checklist for Retail Purchasing of Local Produce* (PM2046A).

8. *Is land that is frequently flooded used to grow food crops?* – When flooding occurs, the water could be contaminated from septic tank leaks, backup from sewer treatment plants, contamination from animal facilities, etc. If flooding occurs in a fresh produce field, extensive microbiological tests need to be conducted to assure the produce is safe. It is best to avoid planting in fields susceptible to flooding.

9. *Are coliform tests conducted on soil in frequently flooded land?* – Refer to the item above. Tests can be very expensive, so it is best to avoid land prone to flooding. Coliforms are a large group of bacteria whose presence is indicative of fecal contamination.

10. *Are pets, farm livestock and wild animals restricted from growing areas?* – Fecal material must not be present in the produce-growing area. Keeping livestock out should be easy, but pets and wildlife may require extra effort. It is almost impossible to keep all wildlife out, but every attempt should be made. If fecal material is found in the growing field, the field must be sectioned off and fecal material removed and burned.

11. *Are portable toilets used in a way that prevents field contamination from waste water?* – Portable toilets must be regularly emptied and cleaned to prevent contamination of field produce. Toilets must be located in a place that prevents the contamination of produce if flooding or overflowing occurs.

Product Handling

1. *Are storage and packaging facilities located away from growing areas?*

2. *Is there risk of contamination from manure?* – This refers to the proximity of manure to the packing shed where produce may become contaminated.

3. *Are harvesting baskets, totes or other containers kept covered and cleaned (with potable water) and sanitized before each use?* – Harvest equipment must be kept covered to prevent droppings of fecal material from birds and rodents, and properly cleaned and sanitized before use to prevent contamination of fresh produce.

4. *Is harvesting equipment/machinery that comes into contact with produce kept as clean as possible?* – Harvest equipment and machinery must not be used during harvest time for hauling manure. Any mud or debris must be removed regularly.

5. *Are product and non-product containers available and clearly marked?* – Make sure containers used for produce packing and/or storage are labeled to prevent possible contamination with containers used for other activities. For example, growers should make sure that workers do not use fertilizer, pesticide or herbicide containers for product transport or storage.

6. *Is dirt, mud or other debris removed from product before packing?* – It is usually best to remove soil from produce before delivery, but some produce will decompose faster if subjected to excess moisture.

7. *Are food-grade packaging materials clean and stored in areas protected from pets, livestock, wild animals and other contaminants?* – Many parts of storage facilities are often visited by mice, raccoons and other animals that could contaminate food containers prior to their use.

Transportation

1. *Is product loaded and stored in a way to minimize physical damage and risk of contamination?* – Produce should be packed in containers to reduce physical stress or injury to the food's surface. If bacteria obtain access to the inside of produce, the food will rapidly decompose.

2. *Is transport vehicle well maintained and clean?* – The vehicle used to haul the produce should be in reasonably good shape and food contact surfaces as clean as possible.

3. *Does transport vehicle have separate areas for food and non-food items?* – Do not let food come into contact with non-food items like chemicals, paint, oil, dirty clothes or rags.

4. *Are products kept cool during transit?* – Produce should be kept as cool as possible during transport. Try to haul produce in early morning or late evening times to avoid extreme heat. Produce will start decomposing if exposed to heat for an extended period of time.

Facilities

1. *Is potable water/well tested at least once per year and results kept on file?* – Water used in packing facilities should be "potable" or meet drinking water standards. If municipal water is used, a certificate of use should be kept on file. If using well water, test the water at least once during the harvest period. Stream and pond water should never be used to wash or cool produce.

2. *Is product protected as it is transported from field to packing facility?* – Loads should be covered when traveling between the harvest field and the packing house to reduce exposure to airborne dust and dirt.

3. *Is a product packing area in use with space for culling and storage?* – Pack-off areas should have sufficient space for storage of produce and cull material. If cull material is allowed to build up, it can create unsanitary conditions.

4. *Are packing areas kept enclosed?* – Packing areas should be enclosed to prevent entry of unwanted animals or pests, and dust and dirt.

5. *Are food contact surfaces regularly washed and rinsed with potable water and then sanitized?* – All food contact surfaces should be rinsed and sanitized regularly to prevent contamination.

6. *Are food-grade packaging materials used?* – Only packaging materials approved for food contact should be used for packing food products.

7. *Do workers have easy access to toilets and hand-washing stations with proper supplies?* – Workers should have access to working toilets and hand-washing facilities as well as sanitary supplies.

8. *Are toilets and hand-washing stations clean and regularly serviced?* – Keeping facilities clean ensures workers will use them.

9. *Is a pest control program in place?* – Because packing houses attract birds and rodents, an adequate pest control program should be in place. This includes cutting surrounding weeds and brush and the placement of bait stations and insect control measures.

Worker Health and Hygiene

1. *Is a worker food safety training program in place?* – Harvest workers and food handlers can easily spread infectious diseases. To increase product safety, harvest and processing employees must be properly trained in food safety and proper sanitation and hygiene.

2. *Are workers trained about hygiene practices and sanitation, with signs posted to reinforce messages?* – To develop a culture of food safety, place signage such as "Workers must wash their hands before returning to work" on doors in restrooms. If there are employees who do not read English, consider placing signs in their language to show all efforts have been made to reinforce hygiene practices.

3. *Are workers and visitors following good hygiene and sanitation practices?* – All employees, visitors and management must be required to follow similar hygiene practices as required of harvest workers and food handlers.

4. *Are smoking and eating confined to designated areas separate from product handling?* – Since many bacteria and viruses are transmitted via the hand-to-mouth route, smoking, eating and drinking activities should take place in non-food contact areas.

5. *Are workers instructed not to work if they exhibit signs of infection (e.g., fever, diarrhea, etc.)?* – Many diseases can be transmitted through the contact with food. Workers feeling sick should not be allowed to do harvesting or have contact with produce.

Sustainability

These are not food safety-related questions but are important questions to ask during an assessment as these issues are becoming more important to regulatory agencies, buyers and the general public. The issues are part of the food safety discussion because of conservation, environmental and social factors.

1. *Are soil erosion control methods practiced to save topsoil? (terracing, waterways, avoiding planting too close to creeks/rivers, etc.)* – Sediment is a major polluter of waterways. Sediment and the materials that run off with it can affect oxygen levels of a river or stream, leading to algae blooms or fish kills.

2. *Are pesticides and herbicides used in accordance with labeling instructions and in accordance with state laws? (i.e., observance of withdrawal times)* – Producers are liable for their produce. It is prudent to follow labeling instructions and state laws to prevent harm to people or the environment.

3. *Are minimal tillage methods used where applicable?* – Minimal tillage is a soil conservation measure.

4. *Do you practice ethics in your business dealings? (being honest in discussions with customers, improper labeling and claims, etc.)* – Consumers want to know more about the food they are buying. They don't often have the same knowledge as producers about the products, so being honest with them can help create better understanding of agriculture. Proper labeling is also important and is often regulated by state or federal agencies.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

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FSA9802-PD-10-13N