Increasing Food Safety on the Farm

Management of Wildlife, Domesticated Animals and Land Use

EXTENDING KNOWLEDGE ›› CHANGING LIVES

NDSU | EXTENSION

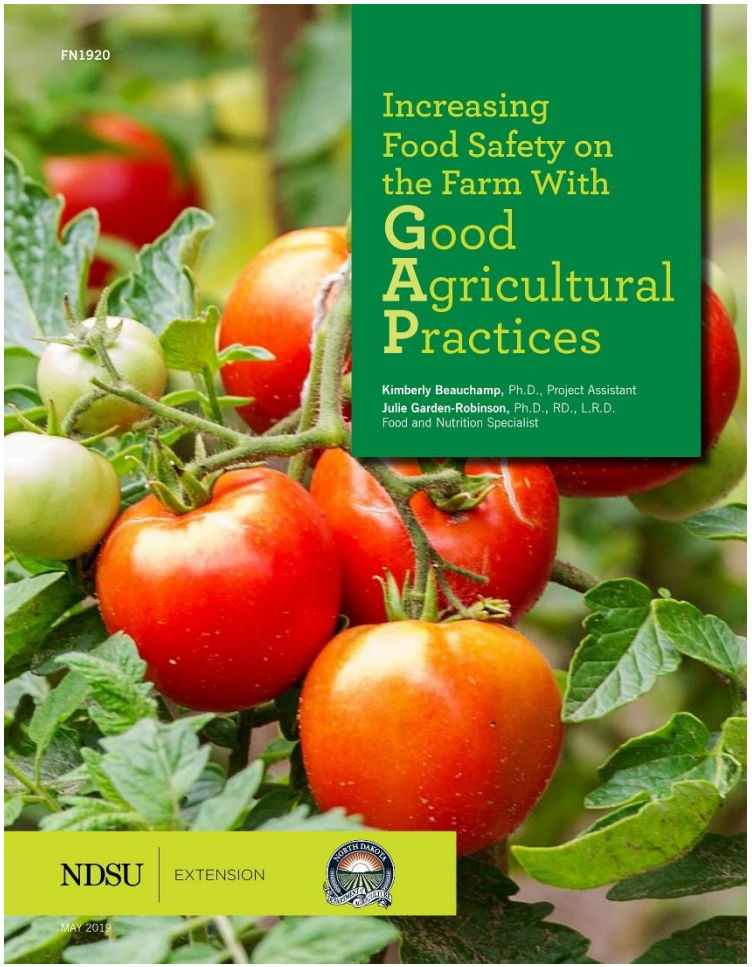
NORTH DAKOTA DEPARTMENT of AGRICULTURE

Introduction

This module is one of three self-paced learning tools designed to serve as an introduction to the information in the “Good Agricultural Practices” manual developed by NDSU Extension.

Development and production of the GAP manual was funded in part by the North Dakota Department of Agriculture.

Completing this module does not result in a certificate of course completion issued by the Produce Safety Alliance and the Association of Food and Drug Officials.



Acknowledgment

Produce Safety ALLIANCE

- This module was adapted from the Produce Safety Alliance Grower Training program and is used here with permission from Cornell University.
- Visit producesafetyalliance.cornell.edu for more information about training, including upcoming courses, to meet FSMA regulatory requirements.

Acknowledgment

- This module is not a certification program. We encourage you to participate in face-to-face Produce Safety Alliance workshops for more in-depth information.

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Instructions

- Please read through the information on the slides and in the notes.
- To view the notes: In the upper left corner of most slides, you will see a “speech bubble.” Mouse-over, click or right-click on the bubble to read additional material about the information on the slide.
- For more information about field-to-fork food safety, visit www.ag.ndsu.edu/fieldtofork and click on Good Agricultural Practices.
- Contact Julie Garden-Robinson at Julie.garden-robinson@ndsu.edu for more information

Pretest: On a piece of paper, answer these questions. The answers are at the end.

1. List three reasons why animals are a produce safety concern.
2. List at least five ways to deter animals from your produce fields.
3. Can domesticated animals/pets be a produce safety concern? Why or why not?
4. List at least four corrective actions in the event of contamination from animals.

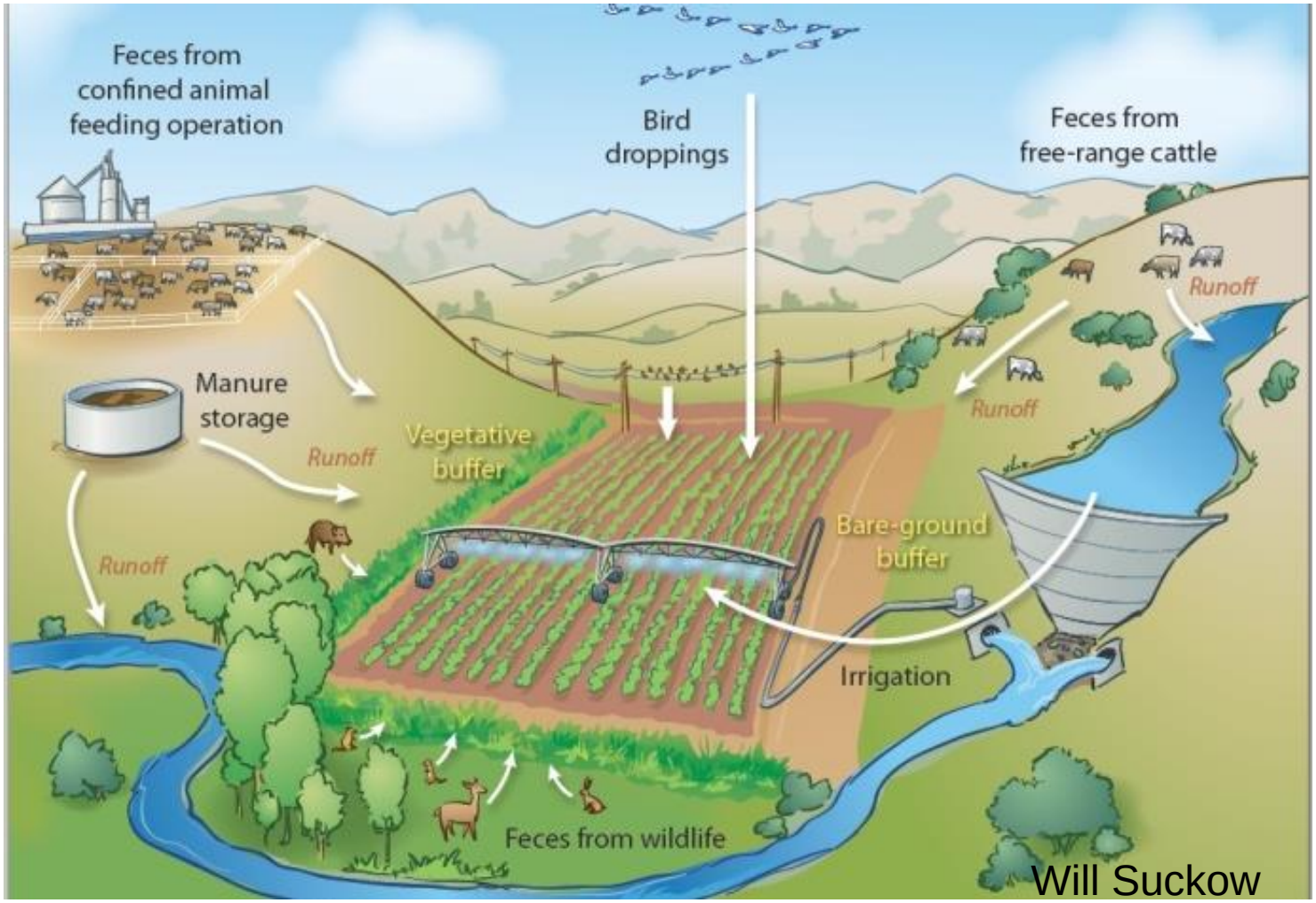
After reading through this information, you will be able to:

- Identify potential routes of contamination from wildlife, domesticated animals, and land use
- Describe practices to mitigate risks associated with wildlife, domesticated animals, and land use
- Describe co-management strategies that address conservation and food safety goals
- Describe the importance of conducting a pre-plant and pre-harvest assessment of fields
- Describe corrective actions that could be used if significant risks are present in production fields
- Identify records that should be kept to document any management, monitoring, or corrective actions

Animals Are A Produce Safety Concern Because They:

- Can carry human pathogens
  - e.g., *E. coli* O157:H7, *Salmonella, Listeria monocytogenes*
- Can spread human pathogens
  - By depositing feces in fields
  - By spreading fecal contamination as they move
- Are very difficult to control
  - Birds and small animals travel unnoticed
  - If fencing is used, even the best fence can be breached
  - Complete exclusion is not possible

Managing Food Safety on the Farm Can Be a Complex Issue!



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Wildlife on the Farm

- Can be a natural and valuable part of the landscape and farm environment
- Depending on species, management options may be limited by county, state, or federal law
- May be resident or transient (e.g., migrating species)
- Wildlife with close association to human activities may pose greater risks
  - e.g., seagulls feeding at dumps, starlings feeding in cattle feedlots

Assessing Risks: Wildlife

- Do you find wildlife feces in your produce fields?
  - How often? Is it widely distributed? Is it in contact with produce?
- Is your farm in an area that large numbers of animals visit (e.g., flocks of migrating birds, herds of deer)?
- What management practices can limit wildlife contamination of produce fields and water sources?

Co-Management: Striking a Balance

- Farmers must address food safety requirements, but should keep the conservation of natural resources in mind
- Farmers also have stewardship, aesthetic, and business objectives of their own
- **Co-management** considers both food safety and conservation of natural resources

Co-Management Considerations

- Some conservation practices support wildlife and may increase wildlife activity near produce fields
- As food safety concerns have increased, some farms have stopped or changed their conservation practices, particularly those perceived to provide habitat for wildlife (e.g., vegetation and water sources)
- Removal of conservation practices can damage natural resources (e.g., soil, water, wildlife) and may not mitigate hazards posed by domesticated and wild animals

Skills to Support Co-Management

- Review the risks and benefits of practices as they relate to food safety and conservation
  - e.g., bare ground buffer and hedgerow vegetation

- Consider impact on conservation when implementing produce safety practices
  - Unintended consequences
  - Direct conflicts between produce safety and conservation

Monitoring Wildlife Activity

- **During the growing season:**
  - Monitor for feces and evidence of intrusion
  - Evaluate the risk of fecal contamination on produce (e.g., tree vs. root crop)
  - Consider past observations and wildlife attractants

- **Immediately prior to harvest**
  - Monitor for fecal contamination, signs of animal activity (e.g., trampling, rooting, feeding, tracks)
  - Assess risks and decide if the crop or a portion of the crop can be safely harvested

Deterring Wildlife

Decoys

Fencing & Netting

Deterring Wildlife

Visual Deterrents

Noise Deterrents

Tactile Repellent

Relocation

Domesticated Animals on the Farm

- Domesticated animals, such as livestock and pets, may harbor human pathogens
- Domesticated animals are sometimes used in fields
  - As working animals
  - As wildlife management (i.e., dog
  - To graze crop residues/culls
- Assess the risk if animals are allowed or are likely to ente your production fields

Assessing Risks: Domesticated Animals

- Are domesticated animals allowed in the field while the crop is present as part of the production process?
  - Are they working animals?
- Are workers aware of cross-contamination risks from fecal contamination of hands, clothing, shoes, and equipment after handling animals or fecal material?
- Are production fields rotated into grazing land?
  - If manure is present on the ground, one recommendation is to extend the period of time between when animals were grazed and when produce can be planted

Assess Risks BEFORE Planting

- **Assess the field location**
  - Topography, wind patterns, water movement
  - Previous uses (e.g., grazing, landfills, manure applications)
  - Impact of domesticated animals
- **Assess adjacent land uses**
  - Animal production, compost, or manure storage
  - Residential, commercial, or other land uses
- **Assess wildlife risks**
  - Number, movement, likelihood of fecal contamination

Working Animals

- The best way to minimize risk is to not allow working animals in the field when the edible portion of the crop is present
- If working animals need to be used close to harvest:
  - Establish paths to minimize contact with growing areas
  - Have an SOP that outlines practices to take if an animal defecates (poops) in the field near or on produce
- Anyone working with the animals should understand risks and be trained to minimize risks
- Develop SOPs for animal and manure handling
  - e.g., handwashing, cleaning and sanitizing tools, practices to complete after handling animals

Pets

- Should be excluded from produce fields
- Visitors to the farm should be instructed to leave their pets at home
- Farms with petting zoos should have handwashing sinks available and signage instructing visitors of the food safety policies

Pre-Harvest Assessment

A process to assess fields before harvest to help determine if:

- Fecal contamination is present, or signs indicate a risk (e.g., tracks, trampling, rooting, feeding)
- Fresh produce has been contaminated and cannot be harvested
- Corrective actions, such as no-harvest buffer zones, are necessary
- Harvest can safely proceed

Corrective Actions: What To Do If There's Contamination

1. Do not harvest any produce that may be contaminated
2. Determine if no-harvest buffer zones around the contamination are sufficient to reduce risk to allow harvest of the uncontaminated produce
   - Suggested no-harvest buffer zones vary from a 0-25 foot radius, depending on the crop, climate, contamination event, and harvest equipment
3. Consider other corrective actions that could reduce contamination risks

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Corrective Actions Continued

4. Make a decision about what to do with the contamination
   - Remove, leave, bury, or use other strategies
   - Consider risks that could result from these actions (e.g., cross-contamination of equipment with feces)
5. Document all actions
   - Monitoring, deterrence, and corrective actions

Worker Training:
Establishing Your Front Lines of Defense

Workers must receive training to:

- Recognize and not harvest contaminated produce
- Inspect and correct problems with harvest containers and equipment or report issues to a supervisor, so they do not become a contamination source

Workers must:

- Take measures to not harvest contaminated produce
- Wash hands after handling animal feces or any time hands may be contaminated

Workers should:

- Report food safety concerns to a supervisor

Recordkeeping

Records must be kept for:

- Worker training

Records should be kept for:

- Pre-plant land assessments
- Monitoring for animal activity
- Actions taken to reduce the risks related to animal intrusion into crop (domesticated animals and wildlife)
- Pre-harvest risk assessments
- Intrusion and contamination events
- All corrective actions taken

Example of Recordkeeping

Wildlife and Domesticated Animal Monitoring Log

Name of operation:

Please see the food safety plan for overall wildlife and domesticated animal management, monitoring, and corrective actions. Attach any relevant pictures, maps, or other notes about the monitoring or intrusion event to this recordkeeping sheet.

Date	Field or location	Wildlife activity or intrusion event noted (yes or no)	Corrective actions taken	Date corrective actions implemented	Initials

Reviewed by: **Title:** **Date:**

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Summary

- Feces and urine from domesticated and wild animals can contaminate produce fields and water sources
- Conduct pre-planting and pre-harvest assessments
- Presence of animals in the environment does not necessarily mean that produce is contaminated
- If animal intrusion occurs, fields must be monitored during the growing season for evidence of contamination
- Steps should be taken to reduce risks from animals
- Co-management should be used to balance food safety and conservation goals
- Document all actions taken to reduce risks from animals and adjacent land uses

Answer

1. List three reasons why animals are a produce safety concern.

- Can carry human pathogens
- Can spread human pathogens
- Are very difficult to control

Answer

2. List at least five ways to deter animals from your produce fields.

Decoys

Fencing and netting

Visual deterrents

Noise deterrents

Tactile repellents

Relocation

Answer

3. Can domesticated animals/pets be a produce safety concern? Why or why not?

- Yes, domesticated animals, such as livestock and pets, may harbor human pathogens
- Domesticated animals are sometimes used in fields
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  - As wildlife management (i.e., dogs)
  - To graze crop residues/culls

Answer

4. List at least four corrective actions in the event of contamination from animals.

1. Do not harvest any produce that may be contaminated
2. Determine if no-harvest buffer zones around the contamination are sufficient to reduce risk to allow harvest of the uncontaminated produce
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Answer (continued)

3. Make a decision about what to do with the contamination
   - Remove, leave, bury, or use other strategies
   - Consider risks that could result from these actions (e.g., cross-contamination of equipment with feces)

4. Document all actions

Improving Food Safety with

Managing Wildlife, Domesticated Animals and Land Use

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