

# Wildlife and Animal Management Overview

## To minimize food safety risks associated with wild and domestic animals, every farm should:

- Identify and assess risks posed by wild and domestic animals.
- Consider methods to prevent and minimize animal entry through the use of fences, noise cannons, or other deterrents.
- Reduce or eliminate animal attractants such as standing water, cull piles, and nesting areas.
- Monitor and document animal activity in the field.
- Conduct field assessments prior to harvest.
- Train all workers to follow company policies regarding monitoring animal activity and proper harvest procedures.

## Summary

Wild and domestic animals are a food safety concern because they can carry human pathogens in their feces and can spread contamination around fields as they move.

Animals are a natural part of the farm environment, so complete exclusion is not possible. It is still important to limit their access to fields to reduce the risks of contamination from pathogens such as *Salmonella*, *E.coli* O157:H7, and *Campylobacter jejuni* since these pathogens have all been found in animals.

In addition to direct contamination of the crop in the field, it is important to recognize that animal feces could also contaminate water sources used during production, leading to cross-contamination of crops. Large numbers of animals (i.e., flocks of geese, herds of deer, or a large scale cattle operation) represent the biggest risks because they produce large amounts of fecal matter that could enter fields through water runoff, airborne particles, cross-contamination from insects, or by contaminating water sources used during production.

Although dogs and cats may be considered family members and may be used as deterrents to wildlife, they also have the potential to harbor pathogenic microorganisms. Family pets should be kept out of the packinghouse, production fields, and vehicles carrying fresh produce, especially close to harvest. While it is unreasonable to expect complete animal exclusion in the field and packinghouse, steps to identify and minimize their presence should be taken.

## Conduct a risk assessment to identify risks posed by wild and domestic animals

Before each season, every farm should identify and assess the risk of wildlife and domestic animal presence in or near fruit and vegetable fields. Proximity to wooded areas or water sources that attract wildlife should be a consideration. Any domestic animals, such as grazing cattle, chickens, or other farm animals, may pose a risk of contamination if runoff occurs from their feces or bedding areas into production fields.

## Prevent animal entry through the use of fences, noise cannons, and other deterrents

Animal controls and deterrents may be used when problems are identified or needed based on observations done on the farm. Decoys, such as plastic coyotes, owls, and swans, are effective if they are actively moved around the farm to deter wildlife. Noise makers can also be effective, but animals may become desensitized to the noise over time. Fencing can be an effective deterrent, but it may not be practical for larger farms; however, small portions of fencing may direct animals around high value or sensitive crops to other areas. Nuisance permits may be another option, but check with your local Department of Environmental Conservation (DEC) or the National Resources Conservation Service (NRCS) before choosing this method.

## Monitor and document animal activity in the field

Throughout the production season, take an active role in monitoring fields and packing areas for the presence of animals. Be sure to eliminate or properly manage any possible animal attractants such as cull piles, access to water, garbage cans, and dumpsters.

Incorporate monitoring into your day-to-day activities on the farm. Document your observations and look to see if there are patterns of animal presence throughout the season. Understanding patterns and seasonal changes in wildlife can help you prevent problems and deter animals from entering production areas.

## Conduct field assessments prior to harvest

Before each harvest, an assessment of the field should be done to ensure that there are no obvious signs of animal intrusion or fecal contamination. If feces are found in the field or have come in direct contact with produce, this area should not be harvested. If a large amount of animal activity (i.e. tracks, damaged product) is found, the farm manager should be notified and an assessment of risk should be done to determine what action should be taken next and determine whether the produce is safe to harvest.<sup>5</sup>

- **Option 1:** Flag feces or affected crop and do not harvest. Create a buffer zone so that workers will know what areas not to harvest. At minimum, the no-harvest buffer zone should have a 5 foot radius.<sup>3</sup>
- **Option 2:** If feces or contaminated crop can easily be removed and the contamination is somewhat isolated, be sure to properly clean and sanitize all equipment used to remove contaminated produce or feces, as well as follow proper personal hygiene (i.e., hand washing) to reduce cross-contamination risks.
- **Option 3:** If fecal contamination or animal intrusion is extensive, do not harvest the field and/or disk the crop into the soil.

## Train all workers to follow company policies regarding monitoring animal activity and proper harvest procedures

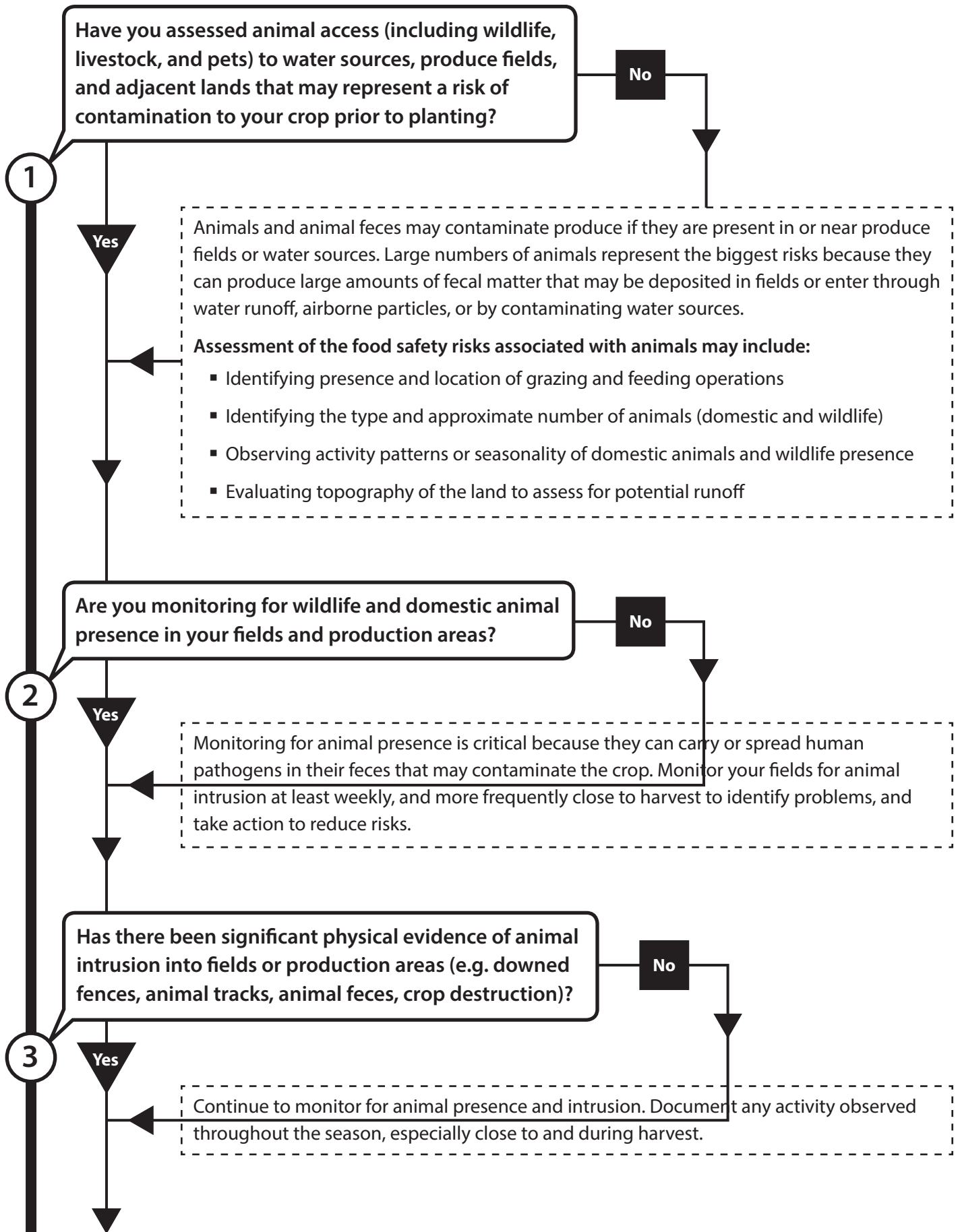
Field workers should be trained to recognize the risks associated with animal presence in or around the field as well as the presence of fecal contamination on fresh produce. If fecal material is found in the field, or has directly contaminated produce, workers need to understand how to create buffers and follow the farm policy for leaving or removing the contamination. Workers must also be instructed to wash their hands after handling contaminated produce or fecal material.

## References

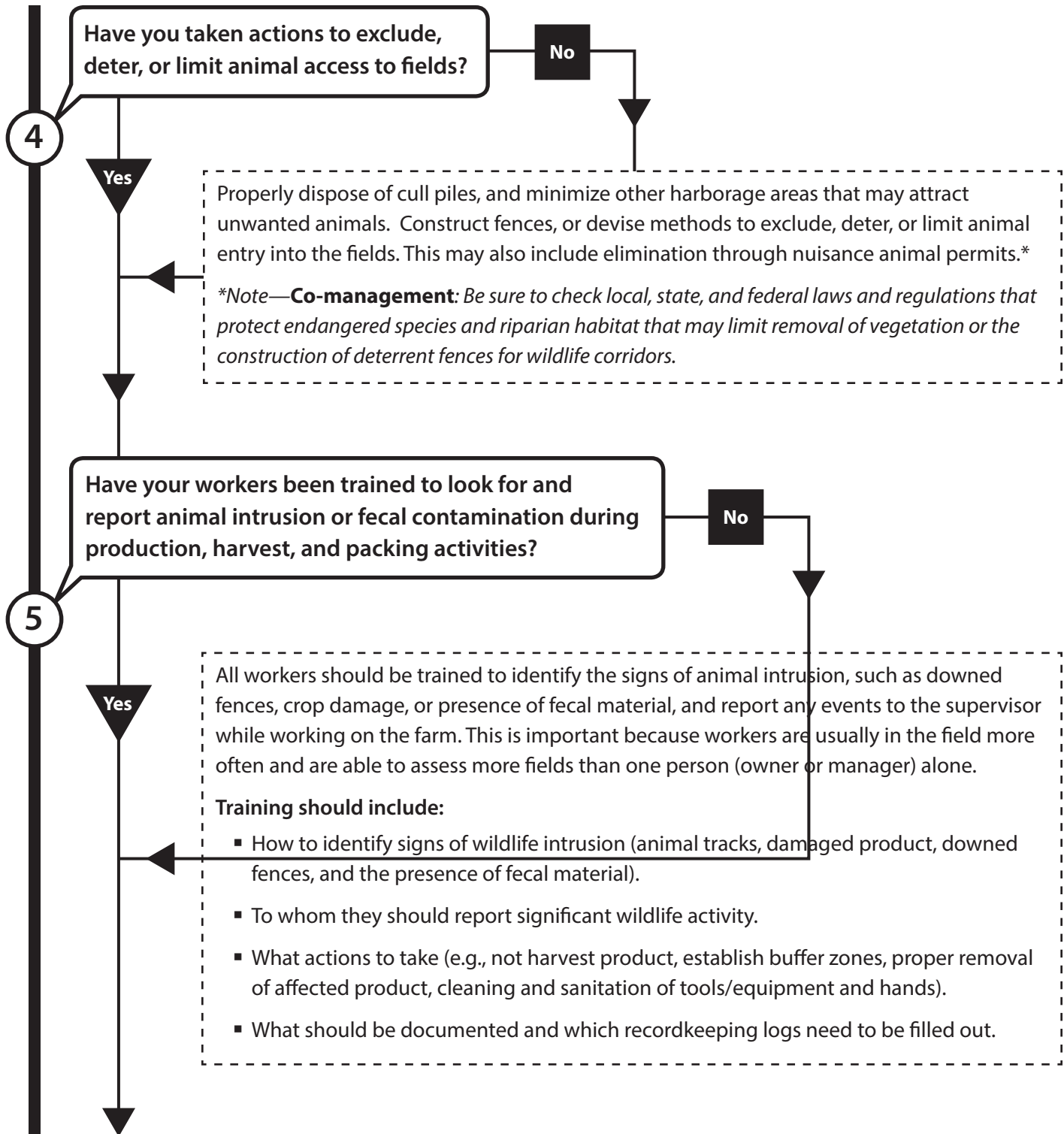
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5. California Leafy Green Products Handler Marketing Agreement (LGMA). (2013) Assessing Animal Activity in the Field. [http://www.caleafygreens.ca.gov/sites/default/files/CAL-GMA\\_2013\\_MetricsChange\\_eng.pdf](http://www.caleafygreens.ca.gov/sites/default/files/CAL-GMA_2013_MetricsChange_eng.pdf).

The information in the template food safety plan, SOPs, and recordkeeping logs are examples you can use. They are not intended to be used directly. Tailor each to fit your farm operation and practices. These documents are guidance for risk reduction and for educational use only. These documents are not regulatory and are not intended to be used as audit metrics. These documents are subject to change without notice based on the best available science.

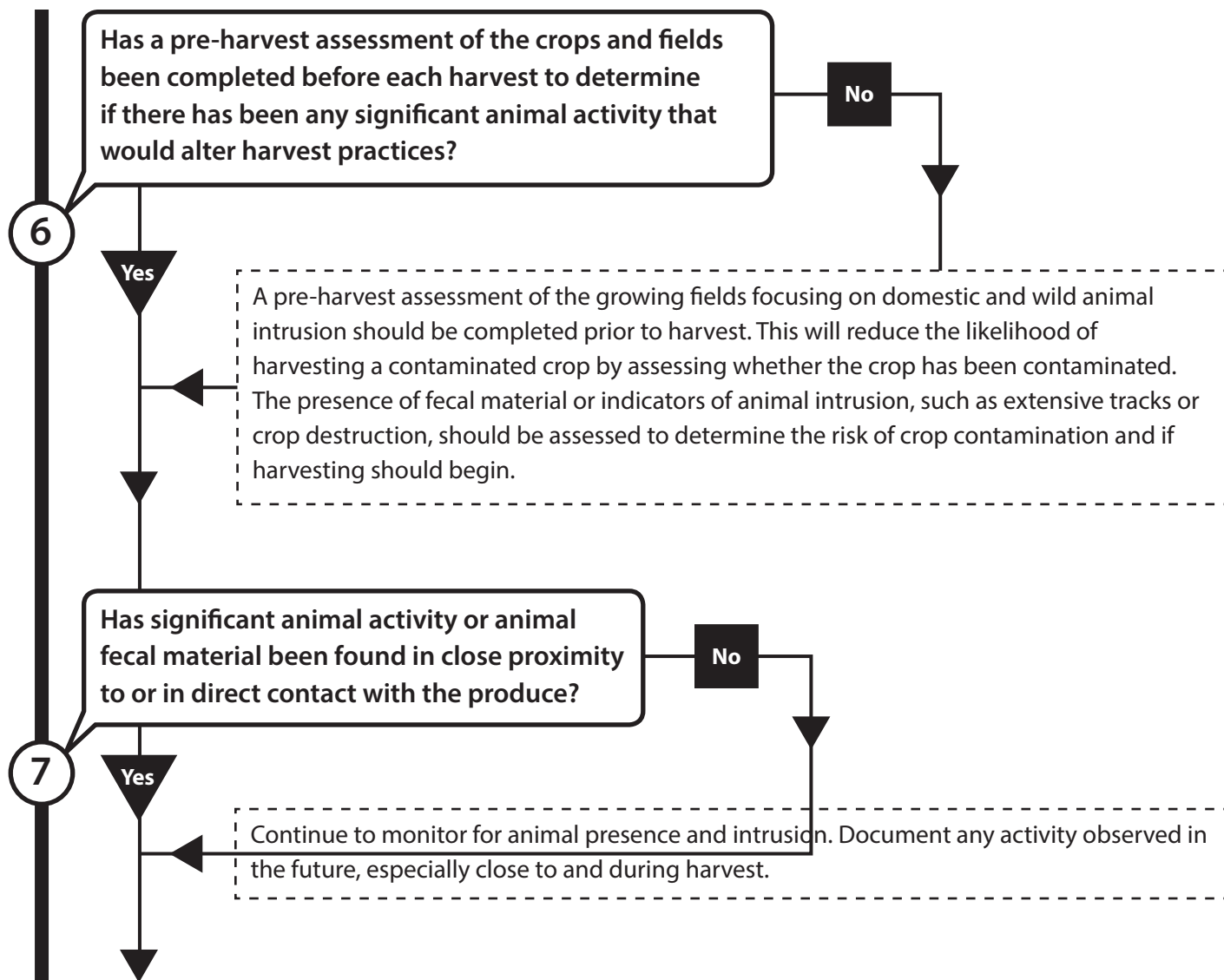
# Wildlife and Animal Management Decision Tree



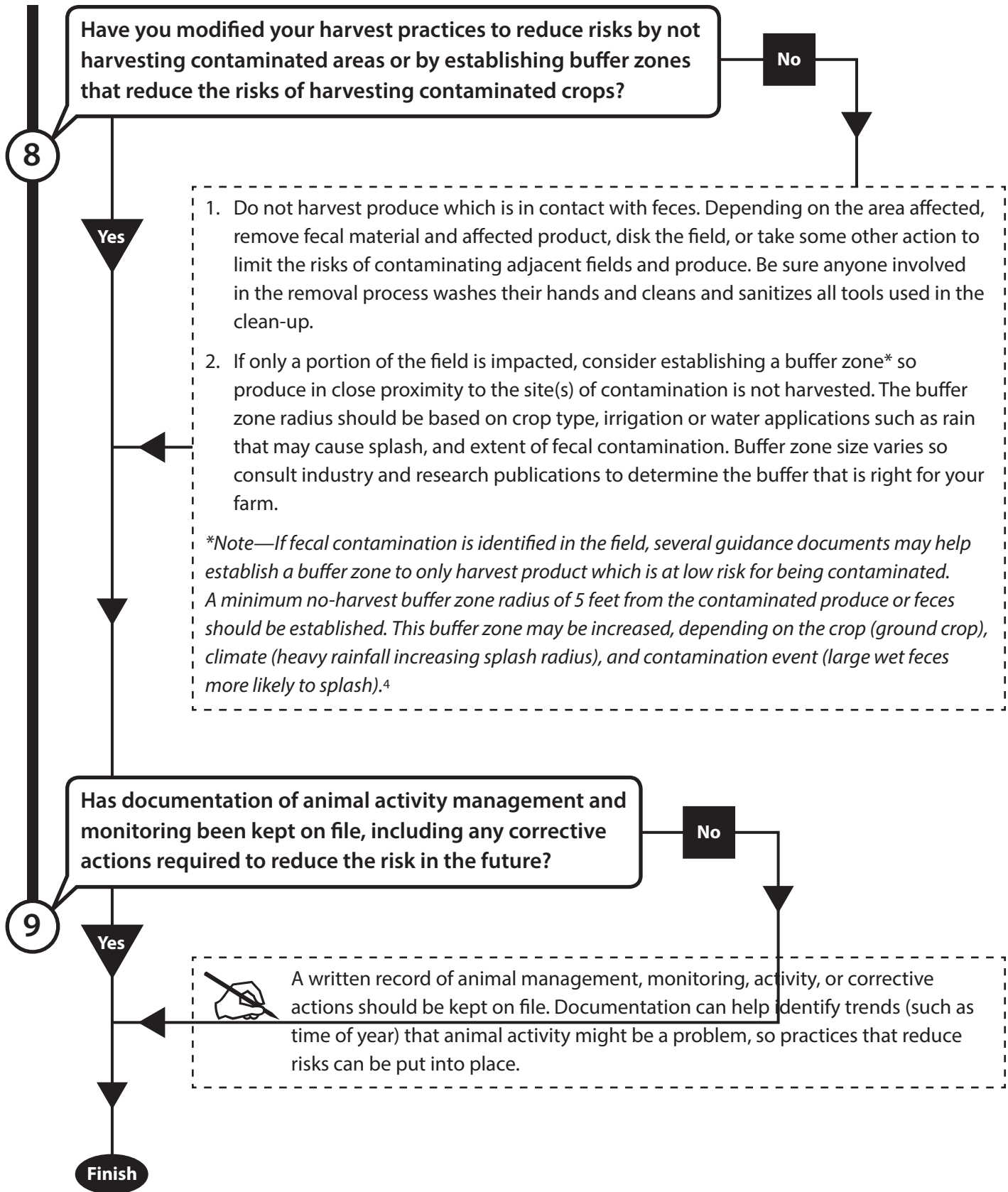
# Wildlife and Animal Management Decision Tree



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# Sample SOP: Worker Training to Identify, Report, and Respond to Animal Activity and Fecal Contamination in Produce Production Areas

Revision: 3.0

Date: 07/16/2014

## 1—Purpose

Describes how workers are to identify, report, and respond to animal activity in produce production areas.

## 2—Scope

Applies to farm personnel including workers, owners, and managers.

## 3—Responsibility

Farm owners, managers, and workers must be able to recognize the signs of animal activity and take corrective actions to prevent the harvesting and packing of fresh produce.

## 4—Materials

- Worker training materials (videos, handouts, teaching notes)

## 5—Procedure

To be included in training programs for all workers and reviewed on an annual basis. Workers should:

- A. Be able to identify signs of wildlife or domestic animal intrusion such as: downed fences, damaged product, presence of fecal material, animal tracks, or other indicators that the crop may be contaminated.
  - B. Be instructed to report any food safety concerns in the field or packing area to a designated person who can determine what corrective actions to take.
  - C. Workers should be instructed to NOT harvest or pack any product that is in close proximity to<sup>1</sup> or in direct contact with fecal material.
  - D. Establish a buffer zone<sup>1</sup> around any fecal material as designated by the farm food safety plan.
  - E. Follow procedures for proper removal and disposal of fecal material and contaminated product.
  - F. Be instructed to wash their hands with soap and water after handling contaminated product or fecal material.
  - G. Be instructed to wash and sanitize all tools, equipment, and other items that came into contact with or were used for the removal of contaminated product or fecal contamination.
1. If fecal contamination is identified in the field, it is recommended that a buffer zone around the contamination be established and that no product in the buffer zone be harvested. These buffer zones should be a minimum of a 5 foot radius from the contaminated crop or feces, depending on the crop type, climate, and contamination event.





# Sample SOP: Pre-Plant Risk Assessment of Wildlife and Domestic Animal Activity In or Near Produce Growing Areas

Revision: 3.0

Date: 07/16/2014

## 1—Purpose

Describes how to identify and assess wildlife and domestic animal activity (e.g. tracks, trampling, rooting, feeding), feces, or harborages in produce fields that may pose a risk of contaminating fresh fruits and vegetables prior to planting or the start of the production season.

## 2—Scope

Applies to farm personnel including owners, and managers.

## 3—Responsibility

Prior to planting or at the start of the growing season, farm owners/managers must identify and assess potential food safety hazards associated with wildlife and domestic animal presence, feces, and nesting areas in an effort to prevent the contamination of produce.

## 4—Materials

*Pre-plant Animal Activity Assessment Log*

## 5—Procedure

*To be completed prior to harvesting fresh fruits and vegetables to assess potential animal activity in or around production areas that may pose a risk of contamination to the crop.*

Assessment should include, but is not limited to:

- Identifying the location of domestic animals, including pets and livestock, on your property as well as those on adjacent lands.
- Noting the wildlife present, their numbers (i.e. flocks, herds, or single animal) and any activity in or around fruit and vegetable production areas.
- Identifying the location of water sources used in production of fruits and vegetables in relation to wildlife and domestic animal activity (i.e. upstream, uphill, downwind, etc.).
- Outlining any actions that are being taken or that will be taken to prevent animal intrusion into fields during fruit and vegetable production.



# Sample SOP: Monitoring Wildlife and Domestic Animal Activity During the Production Season

Revision: 3.0

Date: 07/16/2014

## 1—Purpose

Describes how to monitor and manage wildlife and domestic animal activities that could result in contamination of fresh fruit and vegetables during the production season.

## 2—Scope

Applies to farm personnel including workers, owners, and managers.

## 3—Responsibility

Fields must be monitored throughout the production season and during harvest to identify wildlife and domestic animal activity that may pose a food safety risk to the crop. This responsibility can be designated to any farm personnel including workers, managers, or owners.

## 4—Materials

*Wildlife and Domestic Animal Monitoring Log*

## 5—Procedure

*To be completed at least weekly during the production season and more frequently close to harvest. These activities can also be incorporated into daily activities on the farm.*

Farm owners or managers must establish a monitoring program to identify any evidence of produce contamination due to wildlife and domestic animal activity throughout the production season and close to harvest.

- A. Conduct periodic assessments of animal activity (presence, feces, or nesting areas) through the production season and record on the *Wildlife and Domestic Animal Monitoring Log*.
  - Monitor for domestic animal or wildlife activity that may affect the safety of produce crops.
  - Record monitoring activities such as the date, time, and location of your observations.
  - If animal activity is found, devise methods to deter, reduce, or eliminate wildlife or domestic animal activity in produce fields (e.g. constructing fences, using noise cannons, eliminating attractants such as cull piles, or other mitigation strategies) while keeping co-management and natural wildlife habitats in mind.
  - Refer to the SOP for *Managing Wildlife and Domestic Animal Intrusion and Contamination* if you determine there is a significant risk to the crop due to animal activity.
- B. Train workers on how to recognize the signs of animal activity and take the correct actions to prevent the contamination of produce.
  - See SOP for *Worker Training to Identify, Report, and Respond to Animal Activity in Produce Fields*.



# Sample SOP: Pre-Harvest Risk Assessment of Wildlife and Domestic Animal Activity in Produce Fields

Revision: 3.0

Date: 07/16/2014

## 1—Purpose

Describes how to assess risks that wildlife and domestic animal activity and fecal contamination may pose to contamination of the fresh produce crop prior to harvest.

## 2—Scope

Applies to farm workers including farm owners and managers.

## 3—Responsibility

Farm owners/managers must conduct a risk assessment prior to harvest to identify potential food safety hazards associated with wildlife and domestic animal activity in effort to prevent the contamination of fresh produce.

## 4—Materials

*Pre-harvest Field Assessment Log*

## 5—Procedure

*To be completed prior to harvesting fresh fruits and vegetables to assess potential animal activity or fecal contamination in or around production areas that may pose a risk of contamination to the crop.*

- A. Conduct an assessment of risk prior to each harvest to determine if there is wildlife and domestic animal activity or contamination of product in the field. Refer to the *Pre-Harvest Field Assessment Log*.
- B. Assessments should include, but are not limited to:
  - Determining if animals have been in the field (i.e., evidence of downed fences, damaged product, animal tracks, feces) and if fecal contamination is present.
  - Determining if fresh produce has been contaminated and if any corrective actions, such as buffer zones, need to be put into place.
  - Determining if harvest should proceed or if harvest practices should be modified.
- C. Document your observations and actions prior to harvest in the *Pre-Harvest Field Assessment Log*.



# Sample SOP: Managing Wildlife and Domestic Animal Intrusion and Contamination

Revision: 3.0

Date: 07/16/2014

## 1—Purpose

Describes how to manage wildlife and domestic animal intrusion and fecal contamination in fresh fruit and vegetable production areas.

## 2—Scope

Applies to farm personnel including workers, owners, and managers.

## 3—Responsibility

Farm workers are most likely able to identify animal and fecal material presence because of their presence in the field. Farm owners and managers will make decisions about deterrent methods, corrective actions, and farm policy regarding continued animal intrusion and presence.

## 4—Materials

- *Wildlife and Domestic Animal Monitoring log*
- Tools for removing and disposing of fecal contamination and affected fresh produce
- Clean water, hand soap, disposable towels
- Detergents and sanitizers for cleaning tools and equipment that have come into contact with contaminated soil, product, or feces

## 5—Procedure

*To be completed upon finding evidence of animal intrusion or fecal contamination in fresh produce production areas.*

- A. If wildlife or domestic animal activity (e.g., extensive tracks, destroyed product) or fecal material is found in fresh fruit and vegetable production areas, the following actions should be taken:
  1. Determine if the animal intrusion has compromised the safety of the crop by scouting for extensiveness of animal activity and for fecal material.
  2. Repair or construct methods to exclude (or limit) animal entry into the field in the future. This might include fencing, noise deterrents, or removal of cull piles which may attract unwanted animals.<sup>1</sup>
  3. Record this observation and any actions taken as a result of the animal intrusion, including any methods to keep animals out of the field and what actions were taken to correct the incident.

B. If fecal contamination from wildlife or domestic animal activity is found in fresh produce production areas or on the product itself, the following actions should be taken:

1. Do not harvest any produce that may be contaminated with fecal material.

**Option 1:** Flag the affected area(s) and create a buffer zone<sup>2</sup> to identify the affected product that is to be excluded from harvest.

- Evaluate the extensiveness of the contamination, weather conditions (such as rain that may cause splash), and whether the affected product and fecal material can be removed without causing further spread of contamination.
- Make a decision whether to remove fecal material and contaminated product, if possible; or whether flagging and creating a buffer provides sufficient protection from contamination.
- If extensive contamination is found throughout the field, it is best to take action to evaluate whether harvest should proceed and whether actions, such as disking in the crop, should be taken to minimize the risk.

**Option 2:** Remove the feces and/or affected product from the field using designated tools or equipment.

- Clean and sanitize all equipment and tools used to flag, remove, and dispose of affected produce and fecal material.
- Any worker involved in the removal of contaminated product or animal fecal material must wash their hands with soap and water. Additionally, boots and clothing that may be soiled with contaminated product or feces should be changed to minimize the potential that contamination is spread.

2. All actions must be documented in the *Wildlife and Domestic Animal Monitoring Log*, including a description of the actions taken to reduce current food safety risks in the produce.

1. Note—Co-management: Be sure to check local, state, and federal laws and regulations that protect riparian habitat, removal of vegetation, or the construction of deterrent fences for wildlife corridors.

2. If fecal contamination is identified in the field, it is recommended that a buffer zone around the contamination be established and that no product in the buffer zone be harvested. These buffer zones should be a minimum of a 5 foot radius from the contaminated crop or feces, depending on the crop type, climate, and contamination event.



# Sample Pre-Plant Animal Activity Assessment Log

Name of farm: Pleasant Valley Farm

Please see the food safety plan for overall wildlife and domestic animal management, monitoring procedures, and corrective actions. Attach any relevant information (e.g. pictures, maps, or other notes about the monitoring or event) to this assessment.

*\*Please complete this assessment each year before planting to assess wildlife and animal risks on the farm.*

Task	Yes or No	Observations	Corrective actions (CA) taken	Date	Initials
Are animals or animal pastures located up slope from produce fields and packing areas?	Yes	15-20 cattle grazing up the hill to east of retaining pond on neighbor's property.	Test water if we plan to use it for irrigation this season. We also evaluated whether run-off might occur and decided to build a berm on the west side of the retaining pond in case of a flood event.	5-10-13	GW
Are there nearby bodies of water or other riparian areas where animals gather that represent significant risks to the crop?					
Are there lands close by with significant numbers of wildlife that may gain access to production land?					
Has the land being planted recently been grazed by domestic animals?					
Are there any fences, barriers, or deterrent methods in place to reduce or prevent entry of animals and significant risk to the crop?					

Reviewed by: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



# Sample Wildlife and Domestic Animal Monitoring Log

Name of farm: Pleasant Valley Farm

Please see the food safety plan for overall wildlife and domestic 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	Animal activity or intrusion event noted (yes or no)	Corrective actions (CA) taken	Date CA implemented	Initials
2/2/13	West Field (Field #2 planted to cabbage).	Yes, a few deer tracks through field.	None. Determined the tracks were few, no fecal material present, and tracks crossed over road to corn field. Will monitor weekly.	6/2/13	GW

Reviewed by: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



# Sample Pre-Harvest Field Assessment Log

Name of farm: Pleasant Valley Farm

Please see the food safety plan for overall wildlife and domestic animal management, monitoring procedures, and corrective actions. Attach any relevant information including pictures, maps, or other notes about the monitoring or event to this assessment.

Task	Yes or No	Observations	Corrective actions (CA) taken	Date	Initials
Is there any evidence or observations of animals in the field?	Yes	A few deer tracks on the edge of the field.	Scouted tracks to see if fecal material was present. It was not.	7/6/13	GW
Is there fecal material in the field?					
Is there fecal material in direct contact with fresh produce?					
Do areas of "no harvest" need to be established?					
Is this field safe to be harvested?					

Reviewed by: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



# Template Language for Wildlife and Animal Management Section of a Farm Food Safety Plan

## Risk Assessment

Wild and domestic animals can carry and spread many human pathogens. If allowed to enter the field or packing areas, animals can contaminate fresh produce. Wildlife is a part of the natural environment and cannot be excluded entirely, but measures can be established to actively deter animals from entering produce fields and packing areas. Wildlife and domestic animal activity is monitored so that decisions about food safety can be made during production and at the time of harvest, if significant intrusion has occurred.

## Actions to Reduce Risks Associated with Domestic Animals and Wildlife

Animal access to growing fields, adjacent land, and water sources are assessed **[at the beginning of each production season]**. The type, location, and number of animals observed are documented, including grazing and feeding operations nearby. Animal and wildlife presence is monitored **[enter frequency here]** in the field and production areas during the production season.

All workers are taught how to identify and report animal activity (e.g., downed fences, destroyed product, or the presence of fecal material) to the **[Supervisor, or enter specific individual here]** while working on the farm.

## Training may also include:

- How to identify signs of wildlife intrusion (animal tracks, destroyed product, downed fences, fecal material)
- Who workers should report wildlife activity to for risk assessment and documentation
- What actions to take (not harvesting product, proper removal and destruction of affected product, and sanitation of tools, hands, and equipment)
- **[Add other policies here]**

If significant animal activity is found during routine monitoring or pre-harvest assessments, the following steps are followed:

1. Mitigation measures are implemented or repaired as needed based on the pre-season assessment and routine monitoring. Mitigations are documented and their effectiveness is monitored throughout production. **[Enter mitigation measures here]**.
2. Workers do not harvest produce which is in contact with feces and must notify the supervisor so the removal process can be initiated. The supervisor will decide whether to establish a buffer zone and leave feces and contaminated product not harvested and/or determine whether the product can be removed and disposed of properly to reduce the risk of contamination.
3. Buffer zones of **[Enter size/radius]** are established so produce close to the site(s) of contamination are not harvested.

**Note:** The buffer zone radius should be based on crop type, irrigation or water applications such as rain that may cause splash, and extent of fecal contamination. There are various recommendations for buffer size, but at minimum, a five foot radius from feces or contaminated crops is suggested to establish a no-harvest zone.

4. Fecal contamination is removed from the field and disposed of properly, if necessary.
  - If fecal contamination is extensive, management (e.g. disking into the soil) of affected product may be necessary.
  - Equipment used to remove or disk contaminated crop must be cleaned and sanitized when leaving the field to prevent cross-contamination to other areas of produce.
  - All employees involved in the clean-up are instructed to wash and sanitize their hands and replace their gloves, if worn, before returning to work.

Written records of wild and domestic animal risk assessment, monitoring, and corrective actions are kept on file at **[enter location here]** for **[enter amount of time records are kept]**.