



# Plant Biosecurity Preparedness Plan for U.S. Agricultural Producers



Planning, preparedness, and mitigation tools to fight intentional and unintentional plant biosecurity problems on U.S. farms, orchards, nurseries, and vineyards

Featuring key information on:

- conducting a biosecurity risk assessment on current operation
- mapping your entire operation and documenting assets
- creating emergency response instructions for various scenarios
- performing emergency preparedness drills with family members and employees
- involving others in area-wide efforts against theft, vandalism, and agroterrorism
- initiating mitigation efforts for identified hazards and vulnerable areas

Developed by EDEN as part of its online Plant Biosecurity Management Course for Extension Professionals

This document is available online in PDF format at <http://muextension.missouri.edu/eden/>. Appendixes are available on the Web site as Word files.

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## Introduction

### Purpose of this Guide

Warnings from government agencies and public interest groups point out that the agricultural sector is at high risk of terrorist activity and specifically, that the U.S. food supply is vulnerable to the intentional introduction of pests, diseases, and abiotic (nonliving) disorders, including damage caused by fertilizers and chemicals. Therefore, it is incumbent upon those in the agricultural sector to join national homeland security efforts by instituting comprehensive preparedness activities so that producers, family members, employees, and agricultural consultants know how to respond appropriately to a suspected biosecurity problem. However, agroterrorism is not the only threat to U.S. agricultural producers. Theft, vandalism, and natural disasters (e.g., tornadoes, floods, and fires) also create emergency situations for producers. For this reason, the underlying philosophy of this guide is that preparedness practices in plant biosecurity management will also facilitate rapid and appropriate responses to *any* emergency situation.

This guide will provide you with tools to:

1. assess risks on your farm, nursery, orchard, or vineyard;
2. map your entire operation and document your assets;
3. prepare for a response to a potential plant biosecurity problem or other emergency; and
4. identify activities to help mitigate your vulnerability to theft, vandalism, or a biosecurity event, whether intentional or unintentional.

### 12 Steps to Preparedness Planning

Individuals involved in the agricultural sector must have the knowledge and skills to respond to emergencies in a timely and efficient manner. *Preparedness* is the key to knowing how to react calmly and appropriately to an emergency situation, avoiding lost time and costly mistakes. This guide describes twelve emergency management steps to help improve the preparedness of individuals living and working on your premises:

**Step 1: Post Emergency Response Phone Numbers and Contact List**

**Step 2: Complete a Risk Assessment Checklist**

**Step 3: Create Maps and Records of Your Operation**

**Step 4: Enhance Your Crop Scouting and Pest Management Skills**

**Step 5: Post Visible Address Numbers and Safety Signage**

**Step 6: Sponsor an Emergency Responders' Tour of Operation and Training Event**

**Step 7: Meet with Your Insurance Agent**

**Step 8: Conduct Emergency Response Drills with Employees, Neighbors, Frequent Visitors, and Family Members**

**Step 9: Evaluate, Revise and Update Your Preparedness Plan**

**Step 10: Involve Others in Preparedness Planning**

**Step 11: Use Your Risk Assessment Checklist to Identify Mitigation Activities**

**Step 12: Assemble Your Plan in a Notebook for Emergency Responders**

*Please proceed to Step 1 on the next page.*

### Step 1: Post Emergency Response Phone Numbers and Contact List

Before commencing with any other preparedness activity, make certain that emergency response phone numbers are posted prominently throughout your home and agricultural operation. If you have employees who are not fluent in English, make certain that emergency information has been appropriately translated. For your convenience, **Appendix A** is an example of the types of phone numbers that should be included on your list. You may make copies of Appendix A, or use your own form.

You will also need to include a prioritized list of contact names and numbers (see **Appendix A**) in case you are away from your premises when an emergency happens, or become injured and cannot assist emergency rescue personnel with information. The contact names should include people who are familiar with your entire operation and who understand the threat of agroterrorism and biosecurity issues. Ideally, you should authorize at least one contact person to make decisions in your absence during an emergency situation. Post laminated copies of your phone lists in your office and near emergency wash stations, storage facilities, and livestock buildings. Place one copy in your emergency mailbox (see below) and give one copy of your contact list to the local fire department. Update the lists at least yearly.



**What is an “emergency mailbox”?** An emergency mailbox is simply a regular mailbox designated to hold critical information for emergency first responders — law enforcement officials, fire fighters, and other emergency rescue personnel. If you have not already done so, install a weatherproof emergency mailbox in an inconspicuous place near one of your agricultural buildings, preferably away from toxins, flammables, and explosives. Be certain to tell first responders where your emergency mailbox is located. Clearly mark the mailbox with the words “Emergency Information.” Many of the preparedness forms provided in this plan should be stored in your emergency mailbox, including phone lists, maps of your operation, list of building contents, current chemical inventory logs, and Material Safety Data Sheets (MSDS).

### Step 2: Complete a Risk Assessment Checklist

According to a 2002 EDEN survey, 86 percent of agricultural producers believed that some form of agroterrorism will take place within the United States. Conversely, only 38 percent believed an agroterrorism event could happen on their own operation. Whether or not you concur with the survey results, you are likely to agree that there are many other safety and security threats at the forefront of agricultural issues. These include, but are not limited to, the unintentional spread of plant and animal diseases; pesticide and chemical spills; trespassers; criminal mischief; vandalism; and theft of fertilizers, flammable liquids, or property. As a first line of defense, agricultural producers must be able to identify potential hazards and risks so that they may decrease their vulnerability to theft, vandalism, agroterrorism, biosecurity problems, and other threats.

The risk assessment checklist in **Appendix B** is a tool for quickly identifying potential hazards and risks on *non-livestock* agricultural operations.<sup>1</sup> To complete the checklist, carefully read each question and place a checkmark in either the “yes” or “no” column. If the statement is not applicable to your operation, leave the yes/no columns blank. Each time a checkmark lands in a shaded box, it indicates a potential biosecurity risk or potentially hazardous situation that should be corrected. This form does *not* include tallies, ratings, or scores because it is intended as a tool strictly for your personal use, to help you identify areas on your operation that make you vulnerable to biosecurity problems and other emergency situations. The form should be copied and completed at least once a year.

Employees and family members may also benefit from completing a risk assessment checklist, as it will help them understand the need to adhere to safety and security procedures. Also, by comparing the checklist findings from several individuals, you help ensure that no potential security risks on your operation have been overlooked.

Once the checklist is completed, it becomes a useful guideline for producer mitigation activities. Later in this *Preparedness Plan*, Step 11 explains how a Risk Assessment Checklist may be used to prioritize mitigation activities for your operation.

*Note:* Checklists do *not* encompass every imaginable biosecurity risk, but they do serve as a guide to delineate some of the biosecurity hazards and concerns that may be overlooked by those in the agricultural sector.



## Plant Biosecurity Preparedness Guide

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### Step 3: Create Maps and Records of Your Operation

Time is of the essence when first responders need to determine how best to handle an emergency on your premises. Therefore, maps and records of your entire premises will greatly facilitate their decisions about actions to take for managing a suspicious activity, crime, explosion, spill, or accident. An added benefit of mapping is the discovery of potential biosecurity risks or security weaknesses that were not identified by completing a risk assessment checklist, such as areas of your premises with poor lighting or hidden entrances that may be attractive to vandals or terrorists. As a preparedness training tool, maps and records can also be used with employees, family members, neighbors, and other visitors to practice emergency response and evacuation procedures. Finally, maps and supporting documents also provide good information to insurance agents when documenting your assets and determining appropriate coverage. Step 3 will help you (a) create a map of your premises; (b) document building construction materials and contents; and (c) create maps of your fields, orchards, nurseries, and vineyards.

**Creating a map of your premises.** All you need is a simple map. If the map is too complicated, it may be confusing to first responders unfamiliar with your operation. For your convenience, **Appendix C** is a map template, or you may devise your own on graph paper. At the top of the page, list your latitude and longitude coordinates from a Global Positioning System. Next, sketch a simple layout of your operation. Include structures and landmarks that may be easily recognized by emergency first responders, such as grain bins, large barns, homes, and ponds. Attempt to draw the map close to scale, with a clear distinction between smaller and larger buildings. Place a name, number, or letter on all buildings on your map.

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<sup>1</sup> Several land-grant institutions offer free risk assessment checklists and biosecurity protocols for livestock operations. A select list of additional home and farmstead checklists is provided on page 35 of this document.

Other details to provide on your map include:

- a legend for north, south, east, and west
- main roads, driveways, and access lanes (note problem areas and load limits)
- water sources such as ponds, wells, hydrants, pools, irrigation systems, and creeks
- home(s) and employee housing;
- equipment sheds, outbuildings, and production, processing and storage buildings
- livestock barns; label manure slurry pits beneath buildings
- fuel, chemical, pesticide, liquid propane, and anhydrous ammonia storage and tanks; pesticide mixing and loading areas
- gas, electrical, and water disconnects; power lines
- environmentally sensitive areas like waterways, creeks, wells, or wetlands

**Documenting each building's construction materials and contents.** After the map is completed, you will need to provide detailed information on the building construction materials and building contents *for every building on your premises*. Make certain the building letter, number, or name on your forms corresponds to the labeling on your map.

- **Appendix D** is a form you may copy and use to describe the construction of each building. As shown on this form, you will need to include information on the primary construction materials of the frame, roof, walls, floors, windows, and doors. A simple sketch of the building should reveal critical structures such as rooms, inner walls, doors, windows, crawl space, loft, and upper/lower levels, including manure pits. Indicate floor drains, if any, and shut offs for power and water sources.
- **Appendix E** is a form you may copy and should complete on each building's contents. In the event of an explosion, fire, or chemical spill, this form contains critical information for emergency responders. Accuracy is imperative. Document the number of humans and livestock in the building. Record the exact location, amount, and types of pesticides, chemicals, oil, gasoline, and diesel fuel in the building, as well as all agricultural equipment, work vehicles, and passenger vehicles.

**Reviewing your map and forms with others.** To ensure that your map and information forms are clear to others, it is recommended that you review them in draft form with law enforcement and emergency response personnel, family members, and employees. Concurrently, verify your latitude and longitude coordinates with emergency responders. With input from others you can add clarity to your maps that will pay you dividends in the event of an actual emergency.

**Sample maps.** Two sample maps with building information forms follow. One is a simple map of a crop and livestock operation. The second map is more appropriate to operations with public access, such as u-pick farms and wineries.

### Keeping Maps and Documents Safe, Yet Accessible

When your maps and forms have been finalized, *make at least one copy* of your work. Assemble the maps and forms in a notebook for safekeeping. Place the notebook in your "emergency mailbox" (see page 3) for first responders. Step 12 of this plan will provide additional suggestions on how to organize a preparedness notebook and methods for protecting the pages from dirt and moisture (see page 17).



# Map Example 1 for a Crop and Livestock Operation

**Family name and name of operation:** Frank Tompkins

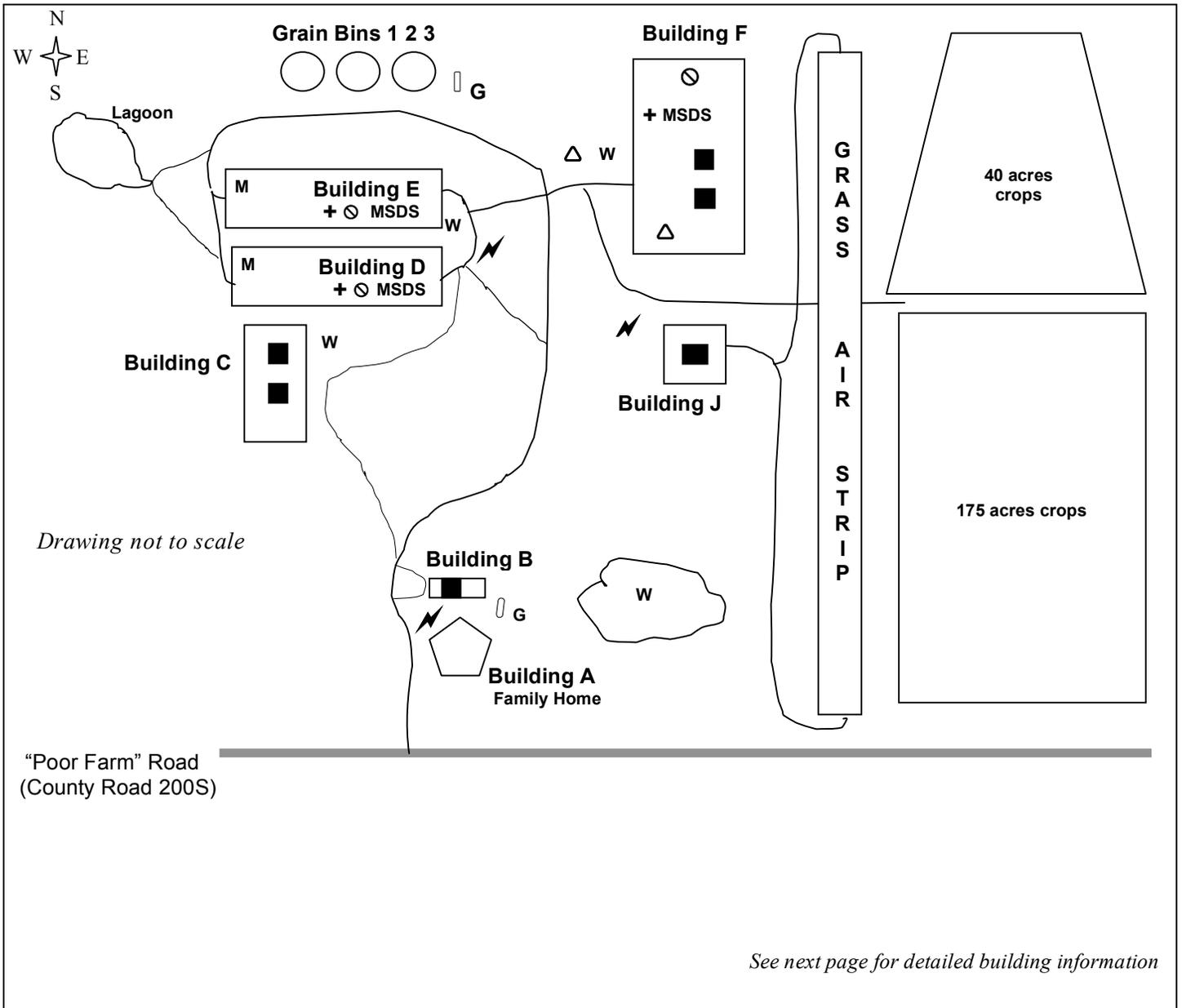
Circle T Ranch

**Street number address:** 7501 Poor Farm Road (County Road 200)

Salem, South Dakota 57058

**GPS coordinates (DMS):** latitude 43° 37' 33" longitude 097° 22' 30"

**Directions:** From the intersection of Broadway and Maine in Salem, head east on Maine 2.5 miles to county highway AG. Turn right (south) onto highway AG for 0.5 miles to county road 200 S, also known as Poor Farm Road. Turn left (east) on county road 200 S for 2.7 miles to Circle T. Number 7501 on mailbox post. Driveway curves just behind house to agricultural buildings. No other entrance to farm.



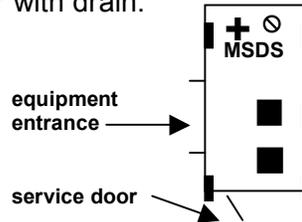
Pesticide/chemical storage	Gas, fuel, oil storage	Gas or diesel equipment/vehicles
Electrical shutoff/breaker box	Gas shutoff valve	Water source
Manure pit - toxic gases	Containment supplies & PPE	MSDS Material Safety Data Sheets

## Example of Information on Building Construction

**Family name and name of operation:** Frank Tompkins                      Circle T Ranch  
**Street number address:** 7501 Poor Farm Road (County Road 200) Salem, South Dakota 57058  
**Building letter:** F "Equipment shed"    **Approximate dimensions:** 30' X 120'    **Date built:** 1986

**Primary construction materials:** Wood trusses, metal siding and roof, fiberglass skylights, metal framed glass windows, concrete slab floor with drain.

**Floor plan:** Open



**Critical structures:** West side - service door and equipment door. No internal walls.  
**Electrical:** Wired 110 and 220. Breaker box outside on pole by drive SW of building  
**Gas:** Propane heater in work area SW corner of building  
**Water:** Outside equipment door west side of building.  
**Inside drains:** Emergency spill station inside building left side of equipment door

## Example Information on Building Contents

**If facility is locked, location of keys:** On utility pole off SW corner of building  
**Number of people normally inside building**    **Days:** 2    **Nights:** 0  
**Number of livestock or pets normally inside building:** 0  
**Location of pesticides and chemicals:** North end of building against wall on shelves  
**Location of MSDS/PPE and spill containment supplies:** Storage box mounted on west wall  
**Mixing and loading area:** West wall near center of building  
**List all pesticides and chemicals and the amounts typically on hand:**

<i>Type</i>	<i>Brand name</i>	<i>Amount</i>
Herbicide	Acme	40 gal

**Size of propane tank and location:** 30 gal in SW corner of building for heater  
**Welding gas or other compressed gas:** None  
**Gasoline, diesel fuel or oil storage:**  
**Other drums or storage containers:** None

**List agricultural equipment:**

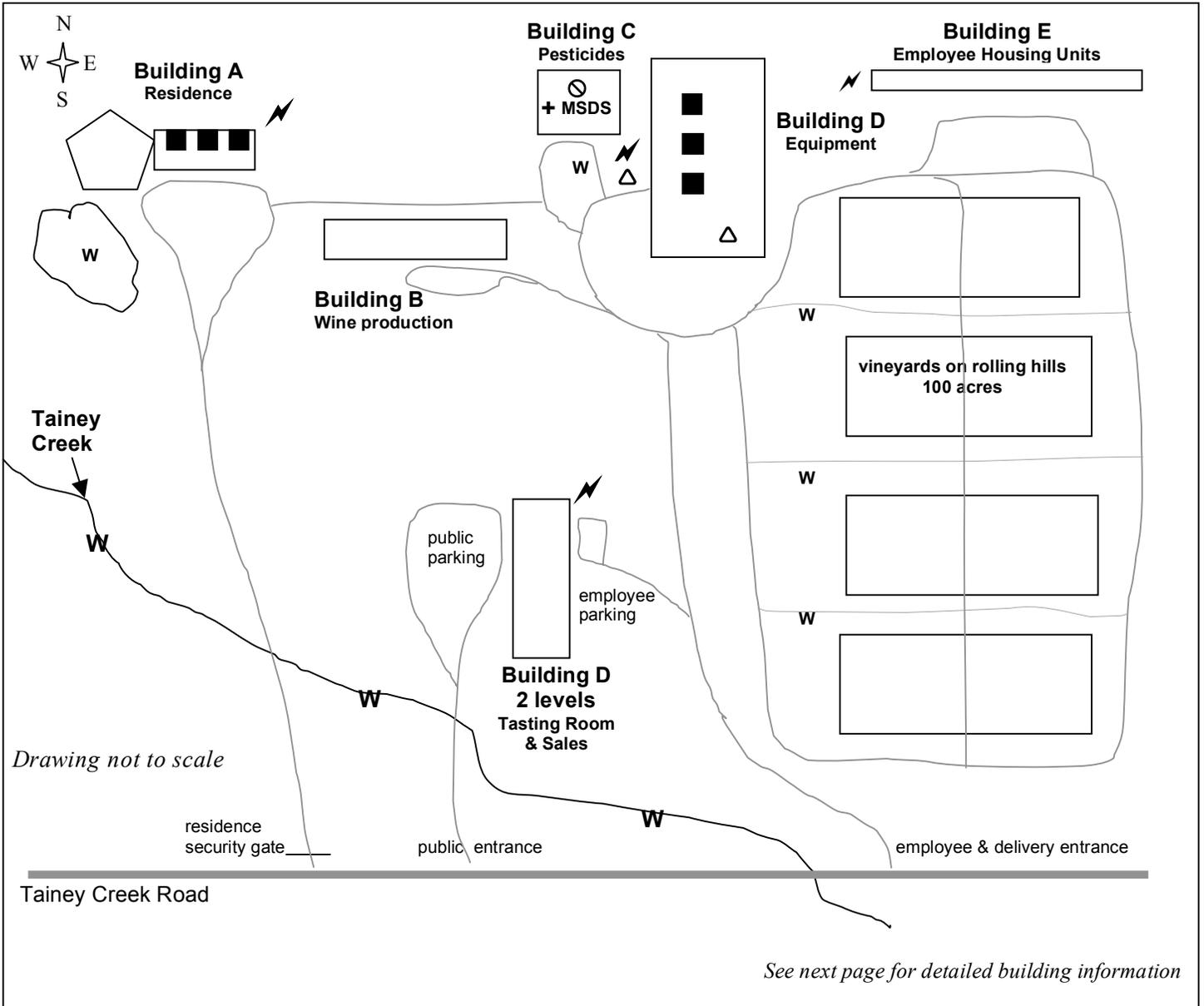
<i>Type</i>	<i>Self-propelled?</i>	<i>Gasoline or diesel?</i>	<i>Location of keys?</i>
Combine	yes	diesel	ignition
Tractor	yes	diesel	ignition

**List work trucks, off-road vehicles, and passenger vehicles:** None in this building

# Map Example 2 for an Ag Operation with Public Access

**Family name and name of operation:** Tainey Creek Vineyards & Tasting Room Peter Dominguez Family  
**Street number address:** 21000 Tainey Creek Road West Sheridan, Oregon 97378  
**GPS coordinates (UTM):** latitude 45 longitude 123.375

**Directions:** In Pinot, head south from the intersection of First and Pine on Route 16. Go 7.2 miles on Route 16 to Tainey Creek Road West. Turn right (west) on to Tainey Creek. Go two more miles to 21000 Tainey Creek Road West. The first drive is for the private residence and is marked with 21000 Tainey Creek Road West on the brick wall of the security gate. The next drive, 0.1 mile on the left, is for the public tasting room, and is marked by a large sign. Tainey Creek Vineyards & Tasting Room. **NOTE:** This drive is weight restricted over creek. Emergency vehicles should use delivery entrance. The third drive, 0.3 mile, is an employee and delivery entrance and is marked with a sign. No other entrances.



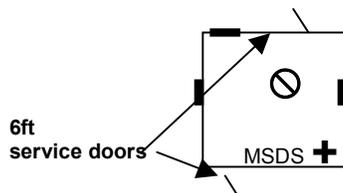
Pesticide/chemical storage	Gas, fuel, oil storage	Gas or diesel equipment/vehicles
Electrical shutoff/breaker box	Gas shutoff valve	Water source
Manure pit - toxic gases	Containment supplies & PPE	Material Safety Data Sheets

## Example of Information on Building Construction

**Family name and name of operation:** Tainey Creek Vineyards & Tasting Room Peter Dominguez Family  
**Street number address:** 21000 Tainey Creek Road West Sheridan, Oregon 97378  
**Building letter:** C "Chemical shed" **Approximate dimensions:** 20' X 20' **Date built:** 1998

**Primary construction materials:** Concrete block walls with brick façade on front; wood trusses and metal roof; wood doors; metal framed glass windows; concrete slab floor with drain

**Floor plan:** Open



**Critical structures:** 6' service doors on north and south sides. No internal walls.

**Electrical:** Wired 110. Breaker box outside on pole SE corner of building

**Gas:** None

**Water:** Outside south of building. Self-siphoning spigot

**Inside drains:** Emergency spill station inside building on south wall

## Example Information on Building's Contents

**If facility is locked, location of keys:** On utility pole off SE corner of building

**Number of people normally inside building** Days: varies Nights: 0

**Number of livestock or pets normally inside building:** 0

**Location of pesticides and chemicals:** Shelving units lining north, east and west walls

**Location of MSDS/PPE and spill containment supplies:** Storage box mounted on south wall

**Mixing and loading area:** center of building

**List all pesticides and chemicals and the amounts typically on hand:**

<i>Type</i>	<i>Brand name</i>	<i>Amount</i>
Fungicide	Acme	80 gal
Insecticide	Get 'em	15 gal

**Size of propane tank and location:** None

**Welding gas or other compressed gas:** None

**Gasoline, diesel fuel or oil storage:** None

**Other drums or storage containers:** None

**List agricultural equipment:**

<i>Type</i>	<i>Self-propelled?</i>	<i>Gasoline or diesel?</i>	<i>Location of keys?</i>
None in this building			

**List work trucks, off-road vehicles, and passenger vehicles:** None in this building

## Map of Premises Checklist

<b><i>Did you remember to include these items on your map:</i></b>	<input checked="" type="checkbox"/>
Directional legend	
Coordinates from a Global Positioning System (GPS), if available	
Home(s), employee housing, carports, and garages?	
Barns, sheds, outbuildings, drying sheds, greenhouses?	
Grain bins, refrigeration units, and production facilities?	
Pesticide, chemical, anhydrous, and fuel storage areas?	
Gasoline, diesel fuel, and oil storage?	
Wells, ponds, streams, lakes, lagoons, waterways, and dry hydrants?	
Environmentally sensitive areas?	
All entrances, access roads, bridges, and security and livestock gates?	

## Building Construction Checklist

<b><i>Did you include this information about each building?</i></b>	<input checked="" type="checkbox"/>
Building dimensions, primary construction materials, and construction date?	
Floor plan of critical structures such as wall, doors, windows, crawl space, or upper levels?	
Electrical outlets, fuse box, or breaker box?	
Gas meter shutoffs?	
LP tanks?	
Water sources and shutoff valves?	
Inside drains and where they lead?	
Location of manure slurry pits under buildings?	

## Building Contents Checklist

<b><i>Did you include this information about each building's contents?</i></b>	<input checked="" type="checkbox"/>
The number of employees typically working at this location?	
The number of family members living at this location?	
Location of Material Safety Data Sheets (MSDS)?	
Pesticide and chemical mixing and loading areas?	
Location of current pesticide and chemical inventory list?	
Location of MSDS, personal protective equipment, and spill containment supplies?	
Propane tanks, welding tanks, and other compressed gas?	
Gasoline, diesel fuel, and oil storage?	
Types of agricultural equipment? Note if self-propelled; note if gasoline or diesel engine	
Location of keys to agricultural equipment?	
Number and type of work trucks, off-road vehicles, and passenger vehicles?	
Location of keys to work trucks, off-road vehicles, and passenger vehicles?	
Contents of drums and containers?	

### Step 3: Create Maps and Records of Your Operation -- *Continued*

**Creating maps of your fields, orchards, nurseries, or vineyards.** After you have completed a map and records of your homestead and agricultural buildings, you will also need to create maps of your fields, orchards, nurseries, and vineyards. Why? Consider the scenario of an agroterrorist (or vandal) who attempts to destroy your crops or disrupt your operation by dumping pesticides or chemicals in your fields or on your waterways. Once a problem is discovered, a map can help you, plant specialists, and emergency response personnel make rapid and sound decisions about how to contain and clean up the spill. A rapid response combined with the appropriate decisions will result in minimizing damage to crops, halting environmental pollution, and preventing drinking water from becoming contaminated.

As you did with the map of your home and operation, keep these maps simple. Create a map for each field, nursery, orchard, and vineyard. At the top of each map, list the latitude and longitude coordinates from a Global Positioning System. For your convenience, **Appendix F** is a map template that you may copy or you may devise your own on graph paper. Attempt to draw the map close to scale. Begin by sketching the boundaries and landmarks. Add key information that will facilitate sound decision making if a disease outbreak is confirmed. For example, you and your consultants will need to discuss prevailing wind direction, drainage, water sources, and access roads. Each map of a field, nursery, orchard, or vineyard should contain the following:

- legend for north, south, east, and west
- main roads, driveways and access lanes (note problem areas and load limits)
- directional slope of the land to indicate drainage patterns, terraces, waterways, tile systems,
- septic tanks, wells (active and abandoned), and cisterns
- environmentally sensitive areas like streams, wildlife refuge, or wetlands
- fences and gates on or around property, gate widths
- water sources such as cisterns, ponds, hydrants, irrigation systems, and creeks
- gas, electrical and water disconnects, power lines
- experimental crops and fields that may be a target of anti-biotechnology groups
- underground sewer, electrical, water, and gas lines
- fuel, chemical, pesticide, liquid propane, and anhydrous ammonia storage and tanks
- prevailing wind directions

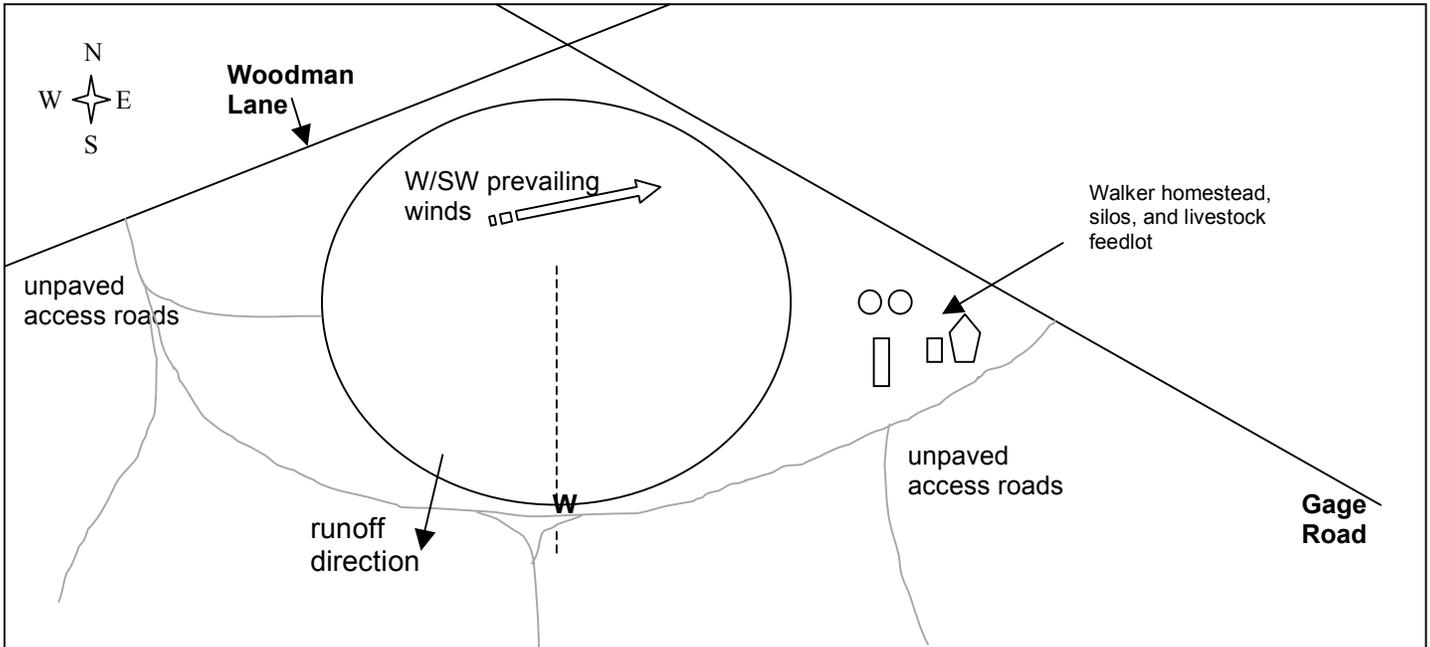
**Agronomic planning** is another concept related to plant biosecurity management. In the event of a suspected biosecurity problem, it will be helpful for diagnosticians to have baseline data on your soils and water sources. Therefore, beyond mapping your fields, it is also important to document field histories, runoff characteristics, soil and water analysis data, reports on drainage, and erosion hazards. Irrigation and water resource management reports are also important. For more information on agronomic planning, contact Extension professionals specializing in soils, agronomy, and water quality. Assemble agronomic planning information in a notebook (see Step 12 for details) and place it in your “emergency mailbox” (page 3).

**Reviewing your map with others.** To help ensure that your maps are clear to others and no pertinent information is missing, review the maps of your fields, orchards, nurseries, or vineyards with an Extension professional in plant or soil science. Once the maps are finalized, add them to your notebook of preparedness maps and documents for safekeeping (see Step 12 for details).

**Sample field maps.** Two sample maps follow. The first is for an irrigated field on flat land and the second, for an orchard or vineyard on slopes.

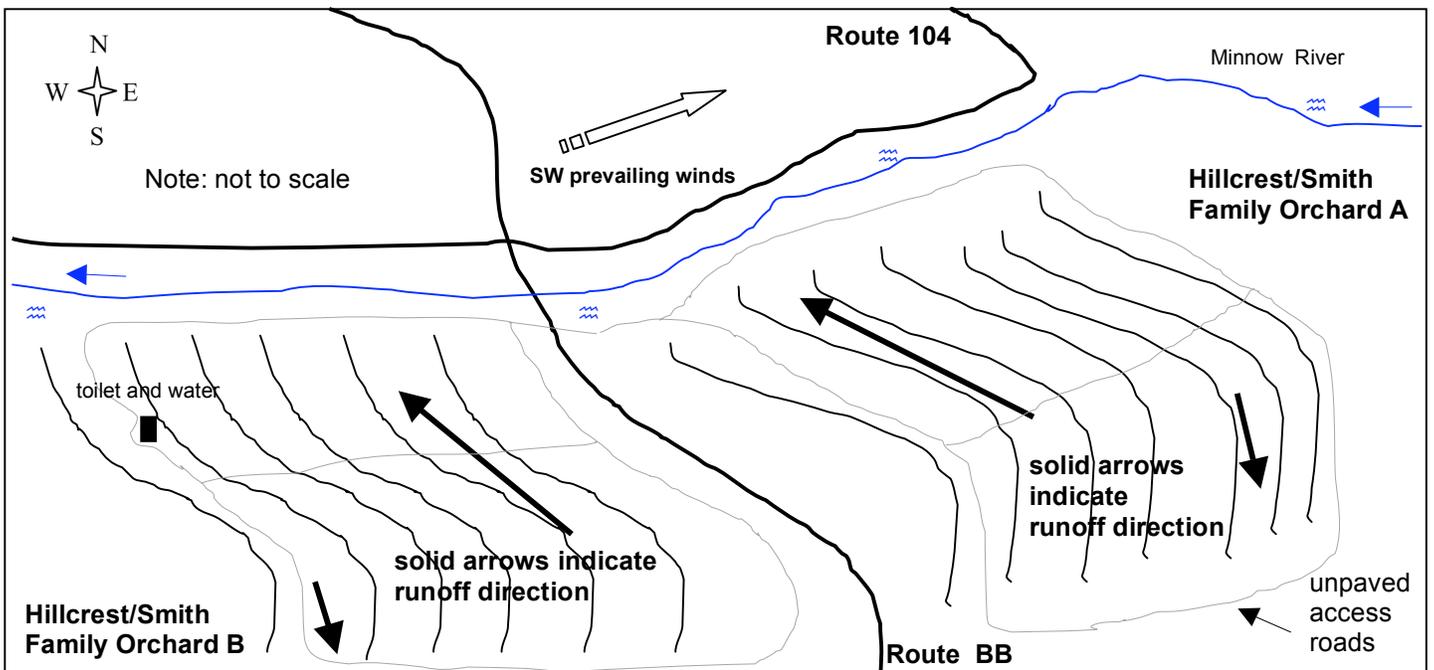
## Map Example 3 for an Irrigated Field Next to Homestead

**Family name and name of operation:** Fred Walker Farm **Site adjacent to homestead?**  Yes  No  
**Street number address:** Rural Route 5 (Gage Road) Box 2226 Pontotoc, MS 38863  
**GPS Coordinates in DMS:** latitude 34° 15' 00" longitude 088° 52' 30"  
**Directions:** Take Gage Road south out of Neosho for 3.3 miles. Driveway before house on west side of road.



## Map Example 4 for a Field with Slopes or Terraces

**Family name and name of operation:** Hillcrest Orchard **Bob Smith Family**  
**Street number address:** 1200 Hillcrest Lane Columbus, New York 13411  
**GPS Coordinates in UTM:** latitude 41.875 longitude 7.5  
**Directions:** From Columbus, take Route 104 south for 7.5 miles. Orchards A & B on left side of road after curve on both sides of BB. Turn left (south) on BB over Minnow River to access road less than 0.1 mile from junction.



## Step 4: Enhance Your Crop Scouting and Pest Management Skills

As noted earlier, *an outcome of preparedness is that you are able to reduce your vulnerability to intentional and unintentional biosecurity problems*. Therefore, Step 4 of this *Preparedness Plan* calls for you to (a) increase your knowledge of pests, diseases, and abiotic (nonliving) disorders and (b) strengthen your crop scouting and integrated pest management skills.

The Risk Assessment Checklist (Step 2), raises four questions that are critical to plant biosecurity management:

1. Can you identify potential signs and symptoms of known plant diseases, pests and abiotic (nonliving) disorders?
2. Are you knowledgeable about diseases and pests that *potentially* threaten the U.S.?
3. Do you routinely inspect all fields, orchards, nurseries, and vineyards?
4. If you suspect a plant biosecurity problem in your field, nursery, orchard, or vineyard, do you know how to obtain a timely diagnosis from the National Plant Diagnostic Network?

If you are able to answer “yes” to all four of these questions, you have completed Step 4 of this plan and now may progress to Step 5. However, if you answered “no” to any of the questions, or are unsure, you should ask your local, regional, or state Extension professional for instructional materials and reference guides, such as:

- photos comparing healthy plants and plants exposed to pests, diseases, and abiotic (nonliving) disorders, such as herbicide damage
- lists of threatening pests and diseases within *and* outside of the U.S.
- Web sites that publish the status of current quarantines and eradication programs
- strategies for conducting routine inspections of fields, orchards, nurseries, and vineyards
- self-study materials or classes on crop scouting, integrated pest management, and pesticide applicator training
- how the National Plant Diagnostic Network operates in the event of a suspected problem

Remember: Every state land grant university has numerous local, regional, and state specialists prepared to teach you the proper measures to protect your crops from biosecurity problems. Many also have state-specific crop information on the Internet.

## Step 5: Post Visible Address Numbers and Safety Signage

In the event of an explosion, chemical spill, natural disaster, or agroterrorist event, emergency first responders will need to rapidly locate your premises. Unfortunately, addresses on many rural route mailboxes are missing, too small to read, or have faded and are illegible in the dark.

To make certain that responders can locate your property, your street address should be boldly displayed on the mailbox or on a durable post *at all entrance lanes*. (If your county or parish has assigned you an emergency “911” address, be sure to post that number.) You should be able to easily read the address from both sides of the road, and at night, so the numbers should be at least 3 inches tall and made of reflective material. Position numbers high enough to be seen over plowed and drifted snow.

Safety signs on buildings and containers should be clearly visible to emergency responders, so replace faded or damaged signs. If you have not already done so, install hazardous materials placards on buildings, *especially* if the buildings contain flammable or explosive chemicals and motorized vehicles. Post appropriate warning signs on fuel, pesticide, and chemical drums and containers. Durable signage with standard safety colors and symbols may be ordered from select sign shops and over the Internet.



## Plant Biosecurity Preparedness Guide

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### **Step 6: Sponsor an Emergency Responders' Tour of Operation and Training Event**

An important preparedness step that is often overlooked is to invite emergency response personnel (paramedics, EMTs, fire fighters, and law enforcement officials) to tour the entire agricultural operation. There are numerous producer benefits to sponsoring a tour or open house. Foremost, a tour gives a producer the opportunity to familiarize first responders with the layout of the agricultural operation, including its buildings, location of explosive and toxic materials and MSDS copies, access roads, and water sources. It is also an opportunity for emergency response personnel to review the map of operation and the information sheets on building construction materials and contents you created during Step 3 of this plan.

This on-site meeting also provides an excellent setting to educate first responders about the threat of agroterrorism, biosecurity issues, and areas on your premises that may be considered especially vulnerable to a malicious attack. You may also be surprised to learn that emergency response personnel may not be familiar with agricultural equipment. If you find this is the case, consider (a) hosting a training session for rescue personnel on how to start, move, and shut down equipment in the event of a farming accident or other emergency or (b) cosponsoring a farm accident rescue course with your state fire training academy.

As a final note, consider this: The more emergency response personnel who participate in the training session and tour of your operation, the greater your chances are that a person familiar with your operation will be on call if you experience an emergency situation.



## Plant Biosecurity Preparedness Guide

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### **Step 7: Meet with Your Insurance Agent**

If you have not already done so, schedule a meeting with your insurance agent to review your insurance coverage. Since September 11, 2001, some insurance carriers amended their policies to exclude acts of terrorism. Therefore it is important for you to verify that your current insurance plan covers the recovery costs associated with all natural disasters and accidents, environmental pollution, theft, vandalism, agroterrorism, and both intentional and unintentional biosecurity problems. For example, an agroterrorism event could result in contamination of soils or water. The costs of containment, decontamination, and cleaning may be quite high. Be certain to verify what your policy does and does not cover.

When you meet with your insurance agent, take the maps of your operation and forms that you created under Step 3 of this plan. You may use the maps to help document your assets, but also

review the maps with your agent and ask for input on vulnerable areas you may have overlooked. Ask for suggestions on mitigation strategies that may affect your insurance rates.



### **Step 8: Conduct Emergency Response Drills with Employees, Neighbors, Frequent Visitors, and Family Members**

Once your maps and supporting documents have been finalized, you will need to share this information with family members, employees, neighbors, and frequent visitors to your operation, such as seed and chemical dealers. Explain the purpose of each document, the basic contents, and how to retrieve the documents in the event of a suspected biosecurity problem, agroterrorism event, or other emergency. If you have employees who are not fluent in English, make certain that this crucial information and other pertinent emergency response information has been appropriately translated.

When you gather your family members, employees, neighbors, and frequent visitors to review the map of your operation, you should also establish basic emergency procedures with them, such as decontamination, alerting others on the premises, and avoiding injury. For your convenience, a checklist of discussion topics is provided as **Appendix G**. Again, make certain this information is appropriately translated for those who are not fluent English speakers.

To reduce panic and enhance the likelihood that your family members and employees respond appropriately to a suspected biosecurity problem or emergency situation, preparedness drills are highly recommended. Preparedness drills are practice emergency response drills that simulate a problem, accident, or disaster, thereby requiring all individuals on the premises to respond appropriately. Drills should be conducted with new employees and on a quarterly basis with family members and all employees. Your goal is that routine training will make their responses more automatic in the event of an emergency. While it may be difficult to get neighbors and visitors to participate in emergency drills, encourage their participation at least once per year. **Appendix G** contains a place for you to describe what individuals on your premises are to do (and *not* to do) under biosecurity and agroterrorism scenarios, and offers additional emergency scenarios for your planning consideration.

Finally, you may also want to consider offering basic first aid and CPR training (cardiopulmonary resuscitation) for all employees and family members. The American Red Cross and other organizations provide this type of training.



### **Step 9: Evaluate, Revise, and Update Your Preparedness Plan**

The ultimate test of this preparedness plan is how well you, your family, and your employees respond to a suspected biosecurity problem or actual emergency. On the other hand, you have several other opportunities to improve the effectiveness of your plan:

- Review the elements of your plan with others (insurance agent, emergency response personnel, family members, employees, and neighbors). Gather suggestions to improve your maps, supporting documents, and emergency response instructions.

- Following emergency response (practice) drills, ask family members and employees if your instructions are clear or if they are in need of modification.
- Take time to review your plan on an annual basis. Because you wrote the materials a year earlier, you can critique the plan with a fresh outlook — noting changes and oversights.
- If your operation experiences a biosecurity problem or other emergency, be sure to sit down with family members and employees as soon as possible after the event to debrief them about “what worked” and “what didn’t” on the preparedness plan.



## Step 10: Involve Others in Preparedness Planning

Consider the following scenario as rationale for involving others in preparedness planning: *After a lunch break with friends who work on an adjacent property, your employees return to work and tell you that they suspect a plant disease outbreak on your neighbor’s property.* Think about what your reaction might be. But before you answer, take a look at APHIS’ Plant Protection and Quarantine<sup>2</sup> maps of plant disease outbreak areas in the U.S. From this evidence, it is clear that one person’s problem can affect many other agricultural operations. Do your neighbors know how to respond appropriately to a potential outbreak and obtain an official diagnosis from the National Plant Diagnostics Network?

To help protect your assets, the following is a list of ideas for engaging others in plant biosecurity management and emergency preparedness planning:

- Ask your local Extension professional to sponsor short seminars on threatening plant diseases, pest management, crop scouting, global information systems, and other plant biosecurity issues. Encourage other producers and their employees to participate.
- Work with an Extension professional to encourage the local media to institute awareness campaigns on agroterrorism and preparedness planning.
- Work with local law enforcement officials to encourage citizen involvement in monitoring and reporting suspicious activity in rural areas.
- Share this planning guide with local government officials and other interested individuals. Encourage them to organize risk assessments throughout your county or parish. Identify agribusinesses and rural areas that are vulnerable to vandalism, theft, or an agroterrorist attack.
- With local government officials and other interested individuals, develop an area wide preparedness plan. Devise a schedule for practicing area wide response drills for various rural emergency scenarios. Discuss how geospatial mapping can assist disaster response and recovery efforts. Make recommendations for mitigation activities.
- Gather area producers and organize a training opportunity for first responders. Be sure to cover agroterrorism issues and other emergency response strategies for agricultural operations. If possible, make it a “hands on” event and teach them how to start, move, and shut down agricultural equipment in the event of an emergency or farm accident.

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<sup>2</sup> Plant Protection and Quarantine (PPQ) is a part of the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS).

### Step 11: Use Your Risk Assessment Checklist to Identify Mitigation Activities

**Mitigation** can be defined as *a comprehensive, multifaceted strategy to reduce or eliminate hazards and risks, thus reducing producer vulnerability to unintentional biosecurity problems, agroterrorist activity, disease outbreak, or other emergency situations. Examples of mitigation strategies include:*

- installing locks on fuel, oil, pesticide, and chemical storage areas and buildings
- planting several resistant varieties of crops
- routine scouting of fields, orchards, nurseries, and vineyards for diseases
- instituting volunteer patrols for suspicious activity
- disinfecting borrowed equipment and trucks
- installing security gates, lighting, or security cameras
- establishing visitor security measures
- conducting background checks on prospective employees
- installing field sensors for foreign particles

Once completed, a risk assessment checklist can serve as a useful tool for outlining plant biosecurity mitigation activities.<sup>3</sup> Many mitigation activities simply require a change in practice and may be instituted without cost to your agricultural operation. Other mitigation activities are relatively low-cost, such as placing warning placards on buildings and locking facilities where pesticides, chemicals, and flammables are stored.

To begin, first review your completed *Risk Assessment Checklist* (page 22). On a separate piece of paper, list all of the risks and hazards (vulnerabilities) that were designated by checks in shaded boxes. Evaluate the likelihood of a problem resulting from the identified risks and hazards. Next, assess each hazard or risk for the potential impact on human life, your assets (home, buildings, and equipment), and crops. For example, a “high impact” rating would represent potential loss of life, total destruction of crops or property, or severe economic loss. If feasible, attempt to first mitigate the problems you identified as potentially having the greatest impact on your operation. (An alternative approach is to first mitigate no-cost and low-cost problems. Prioritize the more costly hazard elimination activities, and set a schedule for mitigating problems as time and funds permit.) **Appendix H** is a form you may reproduce and use as a worksheet to help prioritize your mitigation activities.

### Step 12: Assemble Your Plan in a Notebook for Emergency Responders

In the event of a suspected biosecurity problem, agroterrorism event, or other rural emergency, law enforcement officials, fire fighters, and other emergency rescue personnel need accurate and comprehensive information about your operation to make rapid and accurate decisions on how to respond to the situation — especially if you are injured, off-premises, or otherwise unavailable. Under Step 1 of this plan, you were encouraged to install a weatherproof “emergency mailbox” to hold critical information about your operation for these first responders. As you may have realized by now, many of the forms you completed in this preparedness plan

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<sup>3</sup> For additional information on crop or livestock biosecurity mitigation strategies, contact your local, regional, or state Extension professional.

contain critical information that should be stored in your emergency mailbox. Additionally, your current chemical inventory logs, Material Safety Data Sheets (MSDS), and copies of agronomic planning information (field histories, runoff characteristics, soil and water analysis data, etc) should also be made available to first responders.

Because you have completed this *Preparedness Plan*, you now have numerous documents to organize and protect. The best method for keeping all of your documents organized is to prepare a three-ring binder (notebook). To protect the pages from tears, dirt, and moisture, insert each page in a clear page protector. Binders and page protectors are available in the office supply section of discount stores and at office supply stores. By storing all of your documents in one binder and placing them in your “emergency mailbox,” law enforcement officials, fire fighters, and other emergency rescue personnel will be able efficiently retrieve the information they need to appropriately respond to an emergency. A table of contents, to list the order of your documents, will also be useful. Organize your binder as follows:

1. Contact lists (see Appendix A)
2. Emergency phone numbers (see Appendix A)
3. Map(s) of agricultural operation (see Appendix C)
4. Information on building construction for each building on map (see Appendix D)
5. Information on building contents for each building on map (see Appendix E)
6. Material Safety Data Sheets (MSDS)
7. Current logs of fertilizers, pesticides, and other chemicals
8. Maps of fields, orchards, nurseries, and vineyards (see Appendix F)
9. Agronomic planning information

You should also make *at least* one copy of your emergency notebook for your personal record and safekeeping. However, in addition to the list above, your personal binder should also include your most recent risk assessment checklist, detailed instructions on emergency procedures, records of preparedness drills and employee training, and your visitor log. Make certain that family members and employees know the location of your backup binder copies.



## Conclusion

The purpose of this preparedness guide was to provide you with tools to:

- (a) assess risks on your farm, nursery, orchard, or vineyard;
- (b) prepare for a rapid and appropriate response to a suspected plant biosecurity problem or agricultural emergency; and
- (c) identify mitigation activities to help reduce your vulnerability to theft, vandalism, or an intentional or unintentional plant biosecurity event
- (d) create an emergency preparedness notebook with current and accurate emergency response information for suspected biosecurity problems and other emergencies.

For your convenience, a checklist of the twelve preparedness steps is provided as **Appendix I**. It is our hope this guide helps you improve the preparedness level of individuals living and working with you on your premises, as well as others living in your local area. Thank you for taking part in homeland security efforts and helping to protect the integrity of U.S. agricultural systems and the safety of our food supply.



# Appendix A Plant Biosecurity Emergency Phone Numbers and Contact List

## Information on Your Operation

Name of Operation \_\_\_\_\_  
 Street Number/Address \_\_\_\_\_  
 City \_\_\_\_\_  
 Directions: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 GPS coordinates:  DMS  UTM      Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

## Emergency Response Phone Numbers

Does this area have a 9-1-1 System? If yes, dial 9-1-1 in the event of an emergency.

Fire Department and/or Rescue Squad: \_\_\_\_\_  
 Sheriff or Local Police: \_\_\_\_\_  
 Hospital Emergency Room: \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Poison Control Center *Call toll free 1(800) 382-5544 Have Material Safety Data Sheet (MSDS) nearby.*

## Phone Numbers for Suspected Biosecurity Problems

Local Extension Office \_\_\_\_\_  
 State Plant Diagnostic Laboratory \_\_\_\_\_  
 Local Veterinarian \_\_\_\_\_  
 State Animal Disease Diagnostic Laboratory \_\_\_\_\_

	Name	Phone
Other:	_____	_____
Other:	_____	_____
Other:	_____	_____

**NOTE:**  
 If you have employees who are not fluent in English, make certain this emergency information is translated for them.



# Contact List

In the event a family member is unavailable to provide emergency responders with information about your operation, list at least three people (such as family members, employees, neighbors, or friends) who are familiar with your operation and potential biosecurity issues:

Name	Number	Alternate Number

In the event of a *confirmed* biosecurity problem, you will need to contact employees, neighbors, and other producers who may be affected:

Name	Number	Alternate Number

In the event of a *confirmed* biosecurity problem, other persons you may wish to contact:

Name	Number	Alternate Number



## Appendix B: Risk Assessment Checklist For Farms, Fields, Orchards, Nurseries, and Vineyards

**Purpose:** This risk assessment form is a tool for quickly identifying potential hazards and risks that increase producer vulnerability to vandalism, theft, biosecurity problems, and other emergency situations. Employees may also benefit from completing the list as it will help them understand the need to adhere to safety and security procedures. Once completed, the checklist becomes a useful guideline for producer mitigation activities. Many mitigation activities simply require a change in practice and may be instituted without cost to the agricultural producer. *Note:* This checklist does *not* encompass every imaginable biosecurity risk, but it does delineate some of the biosecurity hazards and concerns that may be overlooked by those in the agricultural sector.

**Instructions:** Carefully read each section of the following form. For each statement, place a check mark in either the “yes” or “no” column to answer the question. Each time your check mark falls in a shaded box, you have identified another potential biosecurity risk or potentially hazardous situation that should be corrected. If the statement is not applicable to your premises, leave the yes/no columns blank.

<b>New Plants, Trees, Seed, and Propagation Stock</b>	<b>Yes</b>	<b>No</b>
Do you purchase input supplies from reputable seed dealers, nurseries, and greenhouses?		
Do you purchase plants, trees, seed, and/or propagation stock that are certified as disease-free?		
Do you avoid uniform susceptibility of host plants in fields, orchards, nurseries, and vineyards by planting more than one variety or more than one type of crop?		
<b>Fields, Orchards, Nurseries, and Vineyards</b>	<b>Yes</b>	<b>No</b>
Can you identify potential signs and symptoms of known plant diseases, pests, and disorders?		
Are you knowledgeable about diseases and pests that <i>potentially</i> threaten the U.S.?		
Do you routinely inspect all fields, orchards, nurseries, and vineyards?		
If you suspect a plant biosecurity problem in your field, orchard, or vineyard, do you know how to obtain a timely diagnosis from the National Plant Diagnostic Network?		
If livestock are fed contaminated forage or grain, is manure stored or properly discarded?		
Do you monitor water quality and runoff?		
Do you allow off-road vehicles to drive through your fields, orchards, nurseries, or vineyards?		
After visiting other farms, orchards, nurseries, or vineyards, do you scrub your hands and change clothes upon returning to your premises?*		
<b>Seed and Chemical Dealers, Crop Adjusters, and Other Visitors</b>	<b>Yes</b>	<b>No</b>
Do you have one designated visitor entry for your farm, orchard, or vineyard?		
Do visitors park in one designated area away from fields, orchards, nurseries, and vineyards?		
Is your visitors’ parking area covered with pavement or concrete (not dirt or gravel)?		
Do you have a biosecurity “rules” posted for visitors?		
Do you keep a record of visitors to premises (seed and chemical dealers, crop adjusters, etc.)?		
Do you ask visitors if they have been in others’ fields, orchards, nurseries, or vineyards?		
If visitors have been in others’ fields, orchards, nurseries, or vineyards, do you provide them with disposable boots and coveralls?*		
If visitors have been in others’ fields, orchards, nurseries, or vineyards, do you require them to wash their hands before entering and after leaving your field, orchard, or vineyard?*		
If a visitor has arrived in the U.S. within the last 7 days, would you allow that person in your fields, orchards, nurseries, or vineyards?		

<b>Established Security Procedures</b>	<b>Yes</b>	<b>No</b>
Have you posted emergency phone numbers and contact lists in numerous prominent locations?		
Do you have appropriate emergency information posted for employees not fluent in English?		
Do you conduct <i>routine</i> safety and security inspections of your entire operation?		
Do you maintain a record (log) of your safety and security inspections?		
Do you perform emergency response drills at least annually with family and employees, including those who are not fluent in English?		
Do you always report suspicious visitor activity to your local law enforcement agency?		
However minor, do you always report vandalism to your local law enforcement agency?		
Have you discussed the threat of agroterrorism with local law enforcement officials?		
Have you installed a weatherproof “emergency mailbox” to hold information for first responders?		
Do you conduct background checks on all prospective employees?		
<b>Grain Storage Facilities</b>	<b>Yes</b>	<b>No</b>
Do you keep grain storage facilities locked?		
<b>Pesticide, Fuel, and Chemical Storage</b>	<b>Yes</b>	<b>No</b>
Do you purchase only the amount of pesticides/chemicals you need?		
Do you read and follow pesticide labels?		
Do you maintain an inventory list of all pesticides/fertilizers/chemicals?		
Do you keep pesticide and chemical storage facilities locked at all times?		
Are flammables stored in special cabinets or facilities of durable, blast-resistant materials?		
Are hazardous materials facilities clearly identified with appropriate safety warning signs?		
Do you routinely monitor tanks (fuel, propane, anhydrous, etc.) for potential theft?		
Do you have either outdoor security lights or security systems on locked facilities?		
<b>Trucks, Equipment, and Other Vehicles</b>	<b>Yes</b>	<b>No</b>
Do you have a separate parking area for “on-farm” vehicles and “off-farm” vehicles?		
If you loan pickup, grain, or crop trucks to other producers, do you disinfect the trucks before re-entering your own fields, orchards, nurseries, or vineyards?*		
If you loan your planting and harvesting equipment to others, do you disinfect equipment before re-entering your own fields, orchards, nurseries, or vineyards?*		
Do you maintain an accurate log of loaned equipment and trucks?		
Do you keep keys in tractors, pickups, and other equipment?		
Do you keep application equipment locked at all times?		
Are airplanes and aerial application equipment in locked facilities?		
<b>Biosecurity Preparedness Plan and Maps of Operation</b>	<b>Yes</b>	<b>No</b>
Have you completed a comprehensive plant biosecurity management preparedness plan, including maps and supporting documents of your entire operation?		
Did you review your plan and maps with law enforcement and emergency response officials?		
Did you review your plan and maps with family members and all employees?		
Are copies of your preparedness plan and maps kept in several accessible locations?		

**\*These Asterisks Denote Important Information:** Hand washing, the use of disposable clothing, and disinfecting trucks and equipment may seem excessive and unnecessary. However, in states where quarantines are in place, it is prudent to consider these activities as “best practice” for preventing the unintentional spread of disease. Remember that the overarching goal of plant biosecurity management is to protect fields, orchards, nurseries, and vineyards from intentional and unintentional biosecurity problems. To achieve that goal, “best practice” is the key.

# Appendix C: Map Template for an Agricultural Operation

Family name or name of operation \_\_\_\_\_

Street number address \_\_\_\_\_

GPS coordinates:  DMS  UTM    Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

Directions \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



- |                                |                            |                                  |
|--------------------------------|----------------------------|----------------------------------|
| Pesticide/chemical storage     | Gas, fuel, oil storage     | Gas or diesel equipment/vehicles |
| Electrical shutoff/breaker box | Gas shutoff valve          | Water source                     |
| Manure pit - toxic gases       | Containment supplies & PPE | Material Safety Data Sheets      |



## Appendix D\*

# Information on Building Construction

\*Make duplicate copies of this form for each building

Family name and name of operation: \_\_\_\_\_

Street number address: \_\_\_\_\_

Building letter/name: \_\_\_\_\_ Year built: \_\_\_\_\_

Approximate dimensions: \_\_\_\_\_

Primary construction materials (include materials used for frame, roof, walls, floor, windows, and doors):

Sketch floor plan here:

*Note: Show critical structures such as rooms, inner walls, doors, windows, crawl space, loft, and upper/lower levels*

Manure pit under building?  No  Yes **Caution: Highly toxic gases DO NOT ENTER PIT!**

Electrical:  110  220 Location of shutoff: \_\_\_\_\_

Liquid propane tank?  No  Yes Location: \_\_\_\_\_

Natural gas?  No  Yes Location: \_\_\_\_\_

Location of shutoff: \_\_\_\_\_

Water source(s): Location: \_\_\_\_\_

Location of shutoff: \_\_\_\_\_

Emergency wash station  No  Yes Location: \_\_\_\_\_

Location of floor drain(s): \_\_\_\_\_

List other pertinent information about this building's construction on back of sheet:



**Appendix E** (two sided) \*

**Information on Building's Contents**

\*Make duplicate copies of this form for each building

Family name and name of operation: \_\_\_\_\_

Street number address: \_\_\_\_\_

Building letter (from map): \_\_\_\_\_

Building name or primary use: \_\_\_\_\_

Approximate dimensions: \_\_\_\_\_

If facility is locked, location of keys: \_\_\_\_\_

Number of people normally inside building: \_\_\_\_\_

Days: \_\_\_\_\_

Nights: \_\_\_\_\_

**Number of livestock and pets normally inside building:**

<i>Species</i>	<i>Number</i>	<i>Location</i>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**List all pesticides and chemicals and the amounts typically on hand:**

Location of pesticides and chemicals: \_\_\_\_\_

Location of MSDS, PPE and spill containment supplies: \_\_\_\_\_

Location of mixing and loading area: \_\_\_\_\_

<i>Type</i>	<i>Brand Name</i>	<i>Amount</i>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Propane, compressed gas, gasoline, diesel fuel, and oil storage:**

Size of propane tank and location \_\_\_\_\_

Welding gas or other compressed gas: \_\_\_\_\_

<i>Gasoline, diesel fuel, or oil</i>	<i>Location</i>	<i>Amount</i>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**List content of other drums or storage containers and locations:**

<i>Type of container</i>	<i>Contents</i>	<i>Location</i>	<i>Amount</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*continued on the next page >>*

**Information on Building's Contents**

Building letter (from map): \_\_\_\_\_

**List agricultural equipment in this building:**

<i>Type</i>	<i>Self-propelled?</i>	<i>Gasoline or diesel?</i>	<i>Location of keys?</i>
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	

**List work trucks, off-road vehicles, and passenger vehicles in this building:**

<i>Type</i>	<i>Self-propelled?</i>	<i>Gasoline or diesel?</i>	<i>Location of keys?</i>
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> gasoline <input type="checkbox"/> diesel	

List other pertinent information about this building's contents:

# Appendix F: Map Template for Fields, Nurseries, Orchards, and Vineyards

Family name \_\_\_\_\_ Is this site adjacent to homestead?  Yes  No

If no, address of this site \_\_\_\_\_

GPS coordinates:  DMS  UTM Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

Directions to this site: \_\_\_\_\_

\_\_\_\_\_



Water	Runoff direction	Prevailing winds
<b>W</b> Water source	Electrical shutoff/breaker box	<b>G</b> Gas shutoff valve
<b>■</b> Structure	Pesticide/chemical Storage	<b>△</b> Gas, fuel, oil storage
<b>+</b> Containment supplies & PPE		<b>MSDS</b> Material Safety Data Sheets

## Appendix G: Emergency Procedures Checklist

**Instructions:** On a quarterly basis, gather your family members and employees (and neighbors and frequent visitors if possible) to review response procedures for your agricultural operation. For your consideration, examples of possible scenarios are included below the checklist. Customize this list to meet the needs of your operation, but at a *minimum*, you will need to discuss the following points:

<b>Key Discussion Points</b>	<input checked="" type="checkbox"/>
Monitoring premises for potential plant and livestock biosecurity problems	
Procedures for suspected plant and livestock biosecurity problems	
Monitoring premises for theft, vandalism, and suspicious activity	
Procedures for suspected theft, vandalism, and suspicious activity	
Location of emergency phone numbers, contact lists, and MSDS copies	
Giving accurate directions to emergency responders	
Procedures for alerting others on the premises to an emergency situation	
Congregation points and accounting for everyone	
Procedures for evacuating the public from premises	
No "heroics"; avoid taking risks; wait for trained emergency personnel	
Proper use of respirators and other protective equipment	
Emergency wash station(s) and first aid station(s)	
CPR training	
First aid and decontamination training	
Other procedure:	
Other procedure:	

### Emergency Procedures for Various Scenarios\*

*\*Once completed, use these as practice drill instructions*

**Steps to take if a plant biosecurity problem is suspected:**

**Steps to take if a livestock biosecurity problem is suspected:**

**Steps to take if theft or vandalism is suspected:**

**Steps to take in the event of a fire or explosion in a building with flammables or explosives or pesticides:**

**Steps to take in the event of an intentional or unintentional pesticide, chemical, or fuel spill:**



### **Other Potential Emergency Situations for Preparedness Planning Consideration\***

(\*Develop a section for each topic that is relevant to your operation)

- Fire in the home
- Fire in employee housing
- Fire in a building with public access
- Fire in a livestock building
- Fire in a building with motorized equipment
- Fire in a field, orchard or vineyard
- Grain dust explosion
- Entrapment in grain bin or gravity wagon
- Tractor or equipment rollover
- Tractor or equipment run over
- Body part caught in equipment
- Body part amputation
- Manure pit accident
- Hostage situation
- Pesticides/chemicals in eyes
- Pesticides/chemicals on skin
- Pesticides/chemicals inhaled
- Tornadoes/hurricanes/other weather emergencies
- Floods or flash floods
- Drowning



**Part 2 Instructions\***. Make several copies of this page to use for work sheets, or create a similar form on separate pieces of paper. In the left column, list the problems you wish to mitigate. In the next column, make notes about how you will approach the problem and what supplies you will need to mitigate the problem. In the third column, set a completion date. In the final column, place a check mark next to each risk or hazard you mitigated.

In this column, list your risks with the highest impact scores from the "Total" column on the previous page:	In this column, describe how to mitigate the risk and list necessary supplies (if any):	Targeted Completion Date (Goal)	Done ✓
<i>Example: XYZ hazardous situation</i>	<i>Develop new procedures and train employees on XYZ hazardous situation</i>	<i>January 2005</i>	

*\*Ideally you will want to first mitigate all of your "high-impact" problems — those that place you at the greatest risk for intentional and unintentional plant biosecurity problems. Realizing this approach is not always feasible, consider revising this form. List potential problems by the cost of the mitigation strategy. For example, first list the risks and hazards that are no cost or low cost for you to mitigate, such as security procedures and scouting fields. Next, list your medium-cost mitigation strategies, such as installing locks on all buildings and fuel and anhydrous tanks. Finally, list problems with the costliest mitigation strategies that will have to be addressed as financial resources permit, such as installing security gates or cameras.*

## Appendix I: Preparedness Plan Checklist

<b>Checklist of Plant Biosecurity Preparedness Activities</b> <i>Please use two right columns to mark tasks as you complete them. Review yearly.</i>	Completed	Review date
<b>Step 1: Post Emergency Response Phone Numbers and Contact List</b>		
<ul style="list-style-type: none"> <li>Reviewed list and location of list copies with family members, employees, and contacts</li> </ul>		
<ul style="list-style-type: none"> <li>Gave copy to local fire department and other appropriate first responders</li> </ul>		
<b>Step 2: Complete a Risk Assessment Checklist</b>		
<b>Step 3: Create Maps and Records of Your Operation</b>		
<ul style="list-style-type: none"> <li>Created map of entire operation; documented construction materials and contents of every building</li> </ul>		
<ul style="list-style-type: none"> <li>Created map and completed agronomic planning for every field</li> </ul>		
<ul style="list-style-type: none"> <li>Reviewed map of operation with emergency responders</li> </ul>		
<ul style="list-style-type: none"> <li>Reviewed map of fields with Extension professional</li> </ul>		
<ul style="list-style-type: none"> <li>Reviewed finalized map with family, employees, neighbors, and frequent visitors</li> </ul>		
<ul style="list-style-type: none"> <li>Stored copies of map in several locations</li> </ul>		
<ul style="list-style-type: none"> <li>Set date to review and update maps</li> </ul>		
<b>Step 4: Enhance Your Crop Scouting and Pest Management Skills</b>		
<b>Step 5: Post Visible Address Numbers and Safety Signage</b>		
<ul style="list-style-type: none"> <li>Posted visible addresses at all entry points for emergency responders</li> </ul>		
<ul style="list-style-type: none"> <li>Posted appropriate hazardous materials placards on buildings containing pesticides, corrosives, flammables, and explosives</li> </ul>		
<ul style="list-style-type: none"> <li>Posted visible warning labels on fuel, pesticide, and chemical containers</li> </ul>		
<b>Step 6: Conduct Emergency Responders' Tour and Training Event</b>		
<ul style="list-style-type: none"> <li>Familiarized responders with layout of buildings and building contents</li> </ul>		
<ul style="list-style-type: none"> <li>Discussed location of building keys, security codes and keys to equipment</li> </ul>		
<ul style="list-style-type: none"> <li>Familiarized responders with location of hazardous materials and MSDS copies</li> </ul>		
<ul style="list-style-type: none"> <li>Familiarized responders with access roads, water sources, and runoff areas</li> </ul>		
<ul style="list-style-type: none"> <li>Verified containment and evacuation procedures in the event of an emergency</li> </ul>		
<ul style="list-style-type: none"> <li>Educated responders on basics of how to start, move, and stop agricultural equipment</li> </ul>		
<ul style="list-style-type: none"> <li>Educated responders about the threat of agroterrorism and biosecurity issues</li> </ul>		
<b>Step 7: Meet with Your Insurance Agent</b>		
<ul style="list-style-type: none"> <li>Reviewed map and documents of operation and discussed vulnerabilities and liabilities</li> </ul>		
<ul style="list-style-type: none"> <li>Discussed coverage for environmental pollution, biosecurity problems, and intentional acts of theft, vandalism, and agroterrorism</li> </ul>		
<ul style="list-style-type: none"> <li>Asked for advice on mitigation strategies that may affect insurance rates</li> </ul>		

<b>Checklist of Plant Biosecurity Preparedness Activities</b> <i>Please use two right columns to mark tasks as you complete them. Review yearly.</i>	Completed	Review date
<b>Step 8: Conduct Emergency Response Drills with Others</b>		
<ul style="list-style-type: none"> <li>Discussed emergency response procedures for various scenarios with family, employees, neighbors, frequent visitors, and emergency personnel</li> </ul>		
<ul style="list-style-type: none"> <li>Reviewed response procedures for various scenarios with emergency personnel</li> </ul>		
<ul style="list-style-type: none"> <li>Ensured that non-English-speaking employees received translated information</li> </ul>		
<ul style="list-style-type: none"> <li>Performed annual preparedness drills with all employees and new employees</li> </ul>		
<b>Step 9: Evaluate, Revise and Update Your Preparedness Plan</b>		
<ul style="list-style-type: none"> <li>Discussed response procedures for various scenarios with family, employees, neighbors, frequent visitors, and emergency personnel</li> </ul>		
<ul style="list-style-type: none"> <li>Revised plan for clarity and accuracy based upon input from others</li> </ul>		
<ul style="list-style-type: none"> <li>Revised plan based on results of preparedness drills</li> </ul>		
<ul style="list-style-type: none"> <li>Reviewed plan on an annual basis</li> </ul>		
<ul style="list-style-type: none"> <li>“Debriefed” appropriate individuals on accuracy and clarity of plan following drills and after an actual problem or emergency situation</li> </ul>		
<b>Step 10: Involve Others in Preparedness Planning</b>		
<ul style="list-style-type: none"> <li>With local government officials and other interested individuals, conducted a risk assessment of local area to identify agribusinesses and rural areas that are vulnerable to vandalism, theft, or an agroterrorist attack.</li> </ul>		
<ul style="list-style-type: none"> <li>With local government officials, developed area wide preparedness plans and established a schedule for practicing emergency response drills for various scenarios</li> </ul>		
<ul style="list-style-type: none"> <li>Encouraged county/parish participation in Extension workshops on threatening plant diseases, pest management, crop scouting, and plant biosecurity</li> </ul>		
<ul style="list-style-type: none"> <li>With other local producers, organized training opportunities for first responders on agroterrorism and emergency response strategies for agricultural operation</li> </ul>		
<ul style="list-style-type: none"> <li>Work with the local media to begin a preparedness awareness campaign that encourages citizen involvement in monitoring and reporting suspicious activity in rural areas</li> </ul>		
<b>Step 11: Use Risk Assessment Checklist to Identify Mitigation Activities</b>		
<ul style="list-style-type: none"> <li>Used checklist to identify vulnerable and potentially hazardous situations in need of mitigation</li> </ul>		
<ul style="list-style-type: none"> <li>As appropriate, consulted Extension professional on recommended plant and livestock biosecurity mitigation activities</li> </ul>		
<ul style="list-style-type: none"> <li>As appropriate, consulted emergency management professionals on recommended mitigation efforts to reduce vulnerability to agroterrorism</li> </ul>		
<ul style="list-style-type: none"> <li>Established mitigation priorities and created a “to do” list with target dates</li> </ul>		
<ul style="list-style-type: none"> <li>Updated and reviewed mitigation priority list at least annually</li> </ul>		
<b>Step 12: Assemble Your Plan in a Notebook for Emergency Responders</b>		
<ul style="list-style-type: none"> <li>Organized a three-ring binder with recommended documents and forms</li> </ul>		
<ul style="list-style-type: none"> <li>Placed binder in “emergency mailbox” for first responders</li> </ul>		
<ul style="list-style-type: none"> <li>Added risk assessment checklist, emergency procedures, records of preparedness drills and employee training, and visitor log to personal copy of emergency notebook</li> </ul>		
<ul style="list-style-type: none"> <li>Ensured that family members and employees know location(s) of binder copy(ies)</li> </ul>		



## Suggested Readings on Preparedness

For additional information on preparedness planning, EDEN suggests the following readings:

### ***Arkansas Farm Biosecurity Plan***

University of Arkansas (2003)

Retrieved from U of A Division of Agriculture Cooperative Extension Service at  
[http://www.uaex.edu/biosecurity/producer/farm\\_plan/default.asp](http://www.uaex.edu/biosecurity/producer/farm_plan/default.asp)

### ***Emergency Management Guide for Business & Industry: A Step-by-Step Approach to Emergency Planning, Response and Recovery for Companies of All Sizes***

Federal Emergency Management Agency (January 2004)

Available online from FEMA at [www.fema.gov/pdf/library/bizindst.pdf](http://www.fema.gov/pdf/library/bizindst.pdf)

### ***Emergency Preparedness Checklist***

Federal Emergency Management Agency and American Red Cross (April 1997)

Available online from FEMA <http://www.fema.gov/rrr/emprep.shtm>

### ***Farm and Ranch Biosecurity***

University of Nebraska, Iowa State University, and Kansas State University (2004)

Retrieved from <http://www.farmandranchbiosecurity.com/1024.htm>

### ***Rural Security Planning: Protecting Family, Friends, and Farm***

Purdue University Cooperative Extension Service (May 2004)

Document Number PPP-64

The booklet may be downloaded for free as a PDF from Purdue at:

<http://www.btny.purdue.edu/Pubs/PPP/PPP-64.pdf> or order a hard copy for a nominal fee from Purdue University's Media Distribution Center. Phone (765) 494-6794 or over the Internet at [btny.purdue.edu/ppp](http://btny.purdue.edu/ppp)

## References and Acknowledgments

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- Federal Emergency Management Agency (January 2004). *Emergency Management Guide for Business and Industry*. Retrieved from FEMA at <http://www.fema.gov/pdf/library/bizindst.pdf>
- Federal Emergency Management Agency (January 2004). *Fire and Emergency Services Preparedness Guide for the Homeland Security Advisory System*. Retrieved from FEMA at <http://www.usfa.fema.gov/fire-service/cipc/cipc-jobaid.shtm>
- Purdue University Cooperative Extension Service (May 2004). *Rural Security Planning: Protecting Family, Friends, and Farm*. Document Number PPP-64.
- University of Arkansas (2003) Arkansas Farm Biosecurity Plan. Retrieved from University of Arkansas, Division of Agriculture Cooperative Extension Service at [http://www.uaex.edu/biosecurity/producer/farm\\_plan/default.asp](http://www.uaex.edu/biosecurity/producer/farm_plan/default.asp)
- University of Nebraska, Iowa State University, and Kansas State University (2004). Farm and ranch biosecurity. Retrieved from <http://www.farmandranchbiosecurity.com/1024.htm>
- U.S. Department of the Interior, U.S. Geological Survey (March 2003). *Geographic Information Systems*. Retrieved from USGS at [http://erg.usgs.gov/isb/pubs/gis\\_poster/index.html](http://erg.usgs.gov/isb/pubs/gis_poster/index.html)

Risk assessment checklist adapted from biosecurity materials by:

- Canadian Food Inspection Agency
- Cornell University
- New Jersey Department of Agriculture
- University of Arkansas Division of Agriculture Extension Service
- University of Minnesota College of Veterinary Medicine
- University of Nebraska
- Virginia Tech/Virginia Cooperative Extension
- Western Australia Department of Agriculture

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