LIVESTOCK ISOLATION AND QUARANTINE AREAS BIOSECURITY TIP SHEET



Bringing new animals into a herd or flock can also bring disease. Healthy looking animals may be carrying a disease your own herd or flock has never seen. Animals from your herd or flock that were off-farm and return can also bring disease. Separating new animals and watching them for sickness can prevent disease from entering your operation. This is called quarantine. Separating sick animals in your herd or flock from healthy animals can prevent disease spread. This is called isolation. Isolation and quarantine will be listed as I/Q in this Tip Sheet.

Consider this....you buy some breeding age animals. Upon arrival, you unload them into the pen next to your young stock. Two days later, one of the newly purchased animals has a fever, runny nose, and is coughing. All of your young stock have been exposed because they share a fence line. If the new animals had been quarantined (kept separate) from your home herd, only the new animals would be at risk of disease. Quarantine helps protect your whole herd.

ISOLATION – WHEN SHOULD IT BE USED?

Animals that are sick should be isolated from healthy animals in a separate area. For example, you isolate a piglet with diarrhea or lamb that is coughing to protect the other animals in your herd or flock.

QUARANTINE - WHEN SHOULD IT BE USED?

Newly purchased animals, and those returning from fairs, shows, or for breeding should be quarantined. These animals are not known to be sick. They should be separated for a period of time before contacting your "home" herd/flock. Watch them for signs of disease. If an animal in quarantine becomes sick, it only exposes the animals it already contacted. This prevents disease exposure to the rest of your animals. Livestock brought into the United States are quarantined to prevent introducing diseases.

I/Q AREAS - WHAT SHOULD THEY LOOK LIKE?

Isolation and quarantine areas can look the same. They have two different purposes, but they have very similar goals and management. They require planning to set up. Protecting your herd/flock may also require investing

in extra equipment or extra labor to clean and disinfect. Research shows preventing a disease from entering or spreading saves money in the long run.

- Because you may have both sick and new or returning animals at the same time, it is best to have two separate areas one for isolation and one for quarantine.
- If space allows, I/Q areas should be in separate buildings, pastures, or dry lots from the rest of your herd or flock. The goal is to not share air space or fence lines.
- If it is not possible to keep isolation, quarantine, and the home herd/flock in separate areas, create a buffer zone of at least 6 feet between the I/Q areas and healthy livestock. The greater the distance between areas, the better. This buffer zone will help prevent I/Q animals from coming into close contact with any other livestock, outside animals, or wildlife.

ISOLATION:

SICK AND SEPARATE

QUARANTINE:

NEW, RETURNING, NOT SICK, AND SEPARATE

Isolation means for sick and separate while quarantine means for new, returning, not sick and separate.

Source: CFSPH, Iowa State University

- In a pasture or dry lot, there should be a double fence between I/Q animals and other animals on the farm. The distance between fences should be at least 6 feet, but the greater the distance, the better.
- I/Q areas should have a clean, dry area for animals to rest. Surfaces should be easy to clean and disinfect between groups of animals. For animals raised on dirt/soil, change the bedding and let the area sit empty between groups.
- Control the movement of people in and out of the I/Q areas. Workers should, at a minimum, change clothing and boots, and wash hands before leaving I/Q areas.
- The guarantine time period is based on the diseases of concern for your herd/flock. It could last 21-30 days or longer. Work with your veterinarian to develop a plan.



Cattle are within one pen and there is a second fence to prevent contact. Source: URUS/PEAK

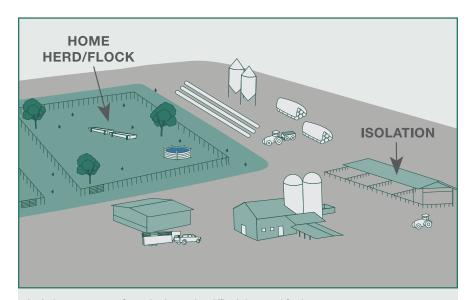
EQUIPMENT AND SUPPLIES FOR I/Q AREAS

Equipment and supplies should not be shared between areas. Isolation, quarantine, and the home herd/flock should all have their own items. This includes caretaker clothing and footwear, feed and water buckets, and treatment equipment. Also separate animal handling equipment such as halters, lead ropes, sorting panels, and cleaning and disinfection supplies.

- If separate items for each area is not possible, shared equipment and supplies must be thoroughly cleaned and properly disinfected between uses to prevent disease spread.
- In the case of milking animals, quarantined animals should be milked last, after isolation animals. Take steps to clean equipment between groups to prevent spread from the sick animals to the guarantined animals.

CARING FOR ANIMALS IN I/Q AREAS

- Ideally, have one person care for I/Q animals. This person should not have contact with other animals on the operation.
- If the same person cares for other animals, I/Q chores should be last, after all other animals.
- Quarantined animals should be observed at least daily for any signs of illness. Isolated animals may need to be checked more often.
- Talk with your veterinarian about a health plan for animals in I/Q. Giving vaccines, treating for parasites, and testing for diseases may improve animal health.



Isolation area away from the home herd/flock is cared for last. Source: CFSPH, Iowa State University

- Provide plenty of space, feed, water, quiet handling, and comfortable temperatures for animals in I/Q.
- Soiled bedding and litter from I/Q areas should be handled as contaminated. Keep it away from healthy animals. Options are listed in the Tip Sheet: Manure, Litter and Bedding Management at cfsph.iastate.edu/biosecurity. Follow local and state regulations when disposing of bedding and litter.

ASSESSMENT CHECKLIST

Use the following checklist to determine areas where you are doing well and others that need to improve.

YES	NO	After answering, pick one or two "No" answers and make an improvement plan with the resources below.
		Do your animals have a clean, dry place to rest?
		Do animal caretakers check animals often for signs of disease?
		Do you have a separate area to isolate sick animals?
		Do animal caretakers work with the healthiest and youngest animals first, then older animals, then sick animals last?
		Are new or returning animals separated (quarantined) from all other livestock for a period of time before mixing with your home herd/flock?
		Is separate feed and water equipment used for new or returning animals?

MORE RESOURCES:

Biosecurity in Small-scale U.S. Livestock Operations. U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service.

Healthy Farms Healthy Agriculture: Isolation. Healthy Farms Healthy Agriculture.

Quarantine and Isolation. Scotland's Healthy Animals.

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CLEANING AND DISINFECTION BIOSECURITY TIP SHEET



Cleaning and disinfection – also known as C&D – is a key part of any biosecurity plan. C&D reduces then kills disease causing germs, which helps to stop or reduce the spread of disease on your operation or to other locations.

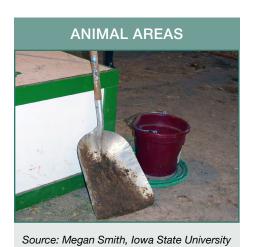
WHAT IS THE DIFFERENCE BETWEEN CLEANING AND DISINFECTION?

Cleaning removes soil and organic material from surfaces. This should always be the first step. Sanitizers kill some, but not all germs. Disinfectants kill most germs on surfaces; some have cleaning properties, others have a cleaning agent added. Some products could be used for both steps.

WHERE SHOULD C&D BE USED?

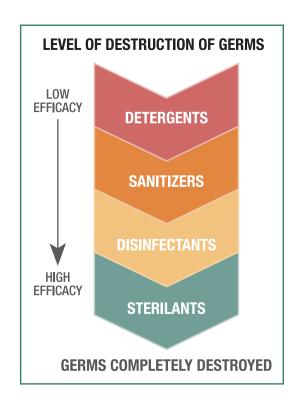
Cleaning and disinfection should be done for animal areas and items that contact animals. This includes pens, stalls or cages, footwear, and any equipment used in the care, handling or transport of animals or carcasses.

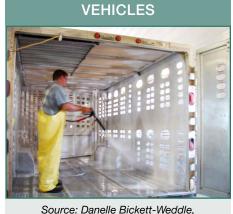
- Animal Areas: C&D should be used for any buildings, pens, and enclosures where animals are housed. With dirt floors, take care to clean the area well by removing all manure from the area.
- Equipment: Clean and disinfect any equipment used with animals, especially animals that are ill. This also includes tools used for the C&D process.
- **Vehicles:** Vehicles used for animal transport (e.g., trailers) can transfer diseases to other animals and locations. C&D vehicles between uses and before leaving your operation. Vehicles should also be cleaned, especially tires and wheel wells, upon return to your operation. It is also important to C&D any heavy machinery, such as tractors or skid steers, used in animal areas. These on-site vehicles can easily become contaminated and when moved can spread diseases to other locations on or off your farm/ranch.





Source: Steve Goff, USDA





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• **Footwear:** C&D footwear after leaving animal areas, especially where sick animals are kept (e.g., isolation areas). Have boot cleaning areas near exit points to make this easier to do. Wash and scrub boots to remove visible manure or mud **before** applying the disinfectant.

Boot baths are often used when entering and exiting an area. However, boot baths should **not** be used as the only method of disinfection.

- To disinfect correctly, boot baths must be properly maintained and used, which can be difficult to do. As a result, the use of boot baths may give a false sense of security. However, the action of stepping into the disinfectant solution does make people more aware of biosecurity.
- If boot baths are used, the disinfectant solution should be prepared at least daily. If traffic levels or dirt and debris levels are high, the solution should be prepared more frequently to make sure it is more effective.
- As with disinfection of surfaces, make sure boot surfaces are covered for the full contact time required (per the label instructions).



A person scrubbing their rubber boots. Source: Danelle Bickett-Weddle, Iowa State University

CLEAN AND DISINFECT PROPERLY

While most operations use some level of cleaning and disinfection, it is important to be sure you are doing it right. If not done properly, it can lead to a false sense of security and poor results in controlling disease organisms. Best practices involve both a cleaning step and a disinfecting step.

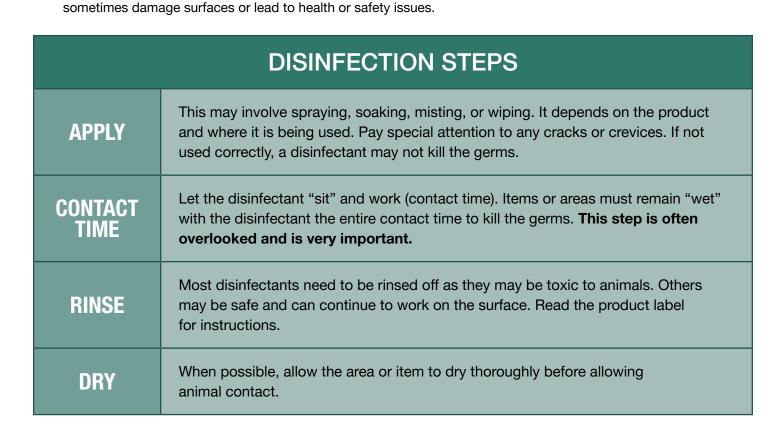
CLEANING STEPS			
DRY CLEAN	Remove all visible dirt, manure, or debris – also called organic material. Use shovels, manure forks, brooms, and brushes to remove as much as you can. This is an important step! When present, organic material can inactivate many disinfectants.		
WASH	Next, wash the item or area with a soap or detergent. Warm water (110 °F) is best and should be used if possible. Scrub items or areas with brushes to remove any dirt or debris. Pay special attention to corners or crevices. Presoaking or a degreaser may be needed to remove oils or body fluids.		
RINSE	After washing, rinse the item or area with clean water to remove residue. Soaps or detergents can inactivate some disinfectants.		
DRY	Allow the item or area to dry completely, or sit for 5–10 minutes at a minimum to allow water to drip off. Excess water can dilute the disinfectant when it is applied. The disinfectant might not work as well.		

DISINFECTION

- Read the label first: It lists many things including:
 - The germs the disinfectant will kill.
 - How to use the product. Does it require mixing or is it ready to use?
 - Does it include both a cleaner and a disinfectant?
 - The contact time needed to kill the germs.
 - Rinsing and drying steps.
 - Safety steps.
- Select the right disinfectant: Disinfectants vary in their ability to kill germs. Some products kill only a few kinds of organisms. Others can kill a wide range. Choose a product that kills the germs commonly seen on your operation. The Environmental Protection Agency (EPA) oversees disinfectant testing and quality in the United States. Only use EPA-registered products. The EPA number is listed on the product label.
 - product label.

 Prepare the disinfectant: It is important to read and follow the product label before preparing and using any disinfectant product.

 Some products are ready to use, others require dilution. Fresh solutions are best. Some disinfectant solutions may only be active on the day they are made. Always use the correct concentration for the task you are doing. Stronger solutions are not always better. Higher concentrations can





SAFETY WHEN USING DISINFECTANTS

Disinfectants are chemicals and most have some level of hazard. This can range from irritation of the skin, eyes or respiratory system to chemical burns. Read the product label for any hazards and recommended protection.

- Some items such as rubber gloves, aprons, or goggles should be worn when handling, mixing and applying disinfectants.
- Anyone who prepares or applies disinfectants should be trained on their safe use.
- Be aware of any physical hazards (e.g., slips, trips, or falls) when surfaces become slippery while doing C&D.
- Avoid any runoff of product into the environment (e.g., waterways or wetlands) or animal areas. Many chemical disinfectants are toxic to fish and other aquatic species. Some disinfectants are toxic to animals, even after dilution.



A person wearing protective clothing while preparing disinfection solutions. Source: Don Rush, USDA

MORE TIPS FOR GOOD CLEANING AND DISINFECTION

- Have a system: For example, start at the top and work your way down,
 using small sections to make sure you cover all areas. This will help to make sure all areas are covered.
- Use special care for parts of any watering systems (e.g., water lines, dispensers, nipple drinkers, troughs), feeding equipment (e.g., feed lines, augers, hoppers), or other mechanical structures (e.g., fans, casings, motors, belts, curtains, ventilation pads, louvers) within an animal area.
- Equipment such as thermostats, scales, time clocks, electrical panels, switches, and light bulbs may need to be individually wiped, cleaned, and sanitized, to protect them from harmful effects of the disinfectant.

OTHER THINGS AFFECTING DISINFECTION

- **Dirt, manure, bedding, animal body fluids:** If organic material is present when a disinfectant is applied, 1) it may give disease organisms a place to "hide" from the disinfectants, and 2) it will inactivate many types of disinfectants.
- Surfaces: Smooth surfaces (e.g., metal) are easier to disinfect than rough or porous surfaces (e.g., wood, concrete). Some disinfectants can damage certain surfaces or metals.
- Water hardness and temperature: "Hard" water can make some disinfectants less effective.
- Other chemicals: Other chemicals (e.g., soaps, detergents) or the material itself being cleaned and disinfected (e.g., metals, rubber) can reduce how well a disinfectant works.



Manure on a slatted floor and metal rail around a cattle footbath. Source: Danelle Bickett-Weddle, Iowa State University

DISINFECTANT REGULATION

Disinfectants are regulated as "antimicrobial pesticides" by the U.S. Environmental Protection Agency (EPA). It is very important to use disinfectant products exactly as directed on the label. If the label directions are not carefully followed, the disinfectant may not work properly. **The person responsible for using the disinfectant incorrectly could also be punished.** There can also be risks of harm to humans, animals, and the environment.

ASSESSMENT CHECKLIST

Use the following checklist to determine areas where you are doing well and others that need to improve.

YES	NO	After answering, pick one or two "No" answers and make an improvement plan with the resources below.
		Do you thoroughly clean (remove any visible manure, dirt, bedding) and wash all objects before applying a disinfectant?
		Are disinfectants used according to the product label (storing, mixing, concentration, protective gear, rinsing, etc.)?
		Do you always allow a disinfectant contact time to "sit" and work?
		Are safety measures (e.g., avoiding runoff, wearing safety gear) taken during C&D?

MORE RESOURCES:

<u>Disinfection resources</u>. Center for Food Security and Public Health.

Cleaning and disinfection protocol. Center for Food Security and Public Health.

<u>Disinfection 101</u>. Center for Food Security and Public Health.

Reading a disinfectant product label. Center for Food Security and Public Health.

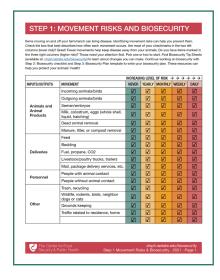
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VEHICLES AND EQUIPMENT BIOSECURITY TIP SHEET



Animal diseases can be spread by dirty or shared vehicles, equipment, and machinery. Have a plan to limit where these items travel on your farm. Make sure to clean them prior to use around your animals.



MOVEMENT RISKS AND BIOSECURITY

Raising animals requires moving things on and off your property. Biosecurity steps help protect your livestock when moving animals, people, vehicles, and other items. Start by reviewing what comes on and off your property. Use the Step 1: Movement Risks and Biosecurity checklist (as pictured at left) at: cfsph.iastate.edu/biosecurity.

Consider **how often** the movement occurs. For example, movements that happen weekly pose a greater risk than movements that happen yearly. Changing some deliveries to occur less often is one way to reduce risk.

Consider **what type** of movement occurs. Moving animals on to or off of your property poses a greater risk than mail or package delivery to the house. Making sure the livestock truck or trailer was cleaned and disinfected before loading your animals is one way to lower risk.

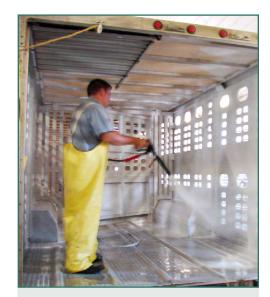
Consider **where else** vehicles or equipment have been before coming on to your property. Vehicles that have been to other animal operations and then come to your property can bring disease. Limit where they go on your farm to reduce risk. Some examples include:

- Animal delivery trucks or trailers
- Milk trucks or egg transport vehicles
- Dead animal or manure removal trucks
- Feed, bedding, fuel, or propane delivery trucks
- Mail or package delivery, drug and supply delivery, school buses
- Vehicles that belong to workers, family, friends, or other visitors
- Trash or recycling pick up
- Groundskeeping items such as skid loaders, mowers, tractors, etc.

LIMIT ACCESS TO ANIMAL AREAS

To protect your livestock, limit access of vehicles and equipment coming from off-site.

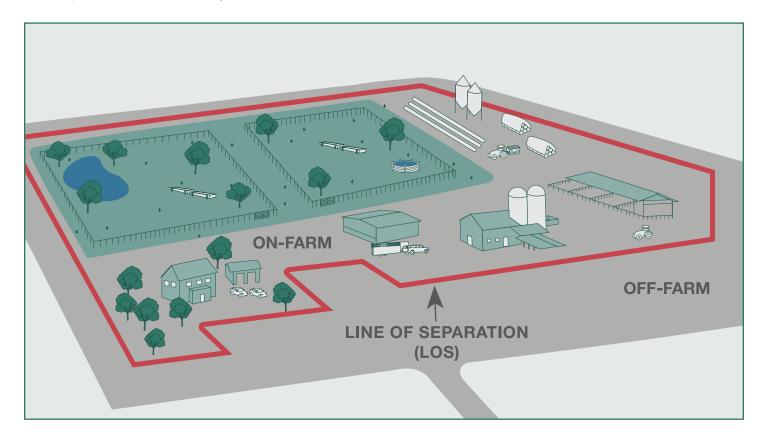
- Clearly mark points of entry to the operation with signs.
- Plan drive paths so that off-farm vehicles or equipment do not drive into animal areas.
- Only allow clean vehicles and equipment to enter your operation.
 - During an animal disease outbreak, vehicles and equipment used in animal areas should also be disinfected before entry.
- Set up a Line of Separation (LOS) for your animal areas.



Washing a trailer. Source: Danelle Bickett-Weddle, Iowa State University

LINE OF SEPARATION (LOS)

- The LOS divides off-farm movements from animal areas. The LOS might include the entire operation, just the animal housing areas, or be something in between.
- The on-farm area (inside the LOS) should include animals and their areas, feed, feeders and waterers. It should also include equipment used for daily tasks. All equipment within the LOS should remain inside the LOS.
- Learn more about setting up an LOS. Read the Biosecurity Tip Sheet: Protecting Your Herd/Flock available at: cfsph.iastate.edu/biosecurity.



VEHICLES

- Provide a parking area for personnel and visitors. The parking area should be located outside the LOS and away from animal areas.
- Limit entry of vehicles used for the removal of dead animals, manure, litter, and compost. These vehicles likely visit other farms and could carry disease. Storage and pick up of these waste materials should happen away from animal areas. These materials should be easy to access, without crossing the LOS. Manure or litter spreaders and other items kept on farm should be stored away from animal areas.
- Limit the sharing of animal transport vehicles (e.g., trailers). If shared, clean and disinfect them between uses.
- Dirty vehicle tires and wheel wells should be cleaned before crossing the LOS.



Truck used for dead animal removal. Source: Pam Zaabel, Iowa State University

EQUIPMENT AND MACHINERY

- Farm-dedicated equipment and machinery is ideal. Limit the entry of items that are shared with other sites. Any shared items should be cleaned and disinfected before crossing the LOS.
- Heavy machinery such as tractors or skid loaders used in animal areas get dirty. When moved, they can spread germs on farm and to other farms. Clean and disinfect before moving to other animal areas.

ASSESSMENT CHECKLIST

Use the following checklist to determine areas where you are doing well and others that need to improve.



Clean and disinfect heavy machinery. Source: Steve Goff, USDA

YES	NO	After answering, pick one or two "No" answers and make an improvement plan with the resources below.
		Can you limit entry of people and vehicles to your farm/ranch?
		Are signs posted at the entry points with biosecurity information?
		Do you have a parking area for vehicles that is away from animal areas?
		Can you limit entry of shared vehicles, machinery and equipment if they are dirty?
		If equipment is shared with other animal operations, is it cleaned and disinfected before entering your property?

MORE RESOURCES:

Biosecurity Tip Sheet: Cleaning and Disinfection. Center for Food Security and Public Health.

Setting up a Vehicle Cleaning and Disinfection Station video. Iowa Department of Agriculture and Land Stewardship

<u>Traffic Control</u>. Healthy Farms Healthy Agriculture.

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