General Prevention Practices for Beef and Dairy Producers[1]

Breaking the Chain of Disease Transmission on the Dairy Farm[2]

Minimizing or preventing disease entry and spread on farms is the goal of an effective Biological Risk Management plan. To accomplish this, there are several general management practices that every farm could implement with minimal cost. If done properly, they can help prevent and control a variety of diseases. It is important to consult your herd veterinarian and seek his/her input while implementing disease control strategies. By working together, you will be able to identify and implement steps to "fit" your operation.

The following management recommendations address disease prevention and control without requiring you to know details about specific diseases. Simple and basic considerations include knowing what is in the area of your farm perimeter (e.g. farms, visitors, neighboring livestock and wildlife), individual animal identification, animal health protocols, recognizing and dealing with sick animals, isolation/quarantine, supply handling and neonatal management.

Farm Entrance and Perimeter

- Limit access to your farm.
  - The entrance to your farm is a major control point.
  - Have only one gated entrance to the animal areas on your farm to better control and monitor all visitors and vehicles arriving at your farm.
  - Lock gates to prevent unwanted human or animal entry.
- Maintain fences to keep your animals in and others out.
- Limit contact between your animals and others that may present a risk of disease.
  - Coordinate with neighbors to avoid fence line contact between herds.
  - Minimize contact between domestic animals, wildlife and birds.
  - Keep cats and dogs from roaming between farms.
- Minimize visitors and traffic on your farm.
- Post signs at the farm entrance to inform visitors of procedures to follow on your farm.
  - Stay off this farm unless given permission to enter.
  - Check-in with farm personnel upon arrival. (Direct visitors to "where" they should check-in).
  - Follow farm biosecurity procedures.
  - Wear protective clothing (coveralls, boots) while on this farm. (Be sure to guide visitors to where protective clothing is located).
- Delivery vehicles and personnel should follow your established farm biosecurity guidelines regarding parking, driving and animal contact.
  - Inspect delivery vehicles for cleanliness prior to entering and provide a wheel well, tire and undercarriage wash station in case they are soiled.
  - Require feed deliveries to your farm be the first delivery of the day.
  - Require that all other deliveries be left at the perimeter of the farm.
  - To prevent vehicle entry, animal load out and delivery should occur at the perimeter of the farm.
  - Require delivery personnel to follow farm biosecurity procedures like all other visitors.

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[1] SOURCE: Center for Food Security and Public Health, Iowa State University.

[2] PRESENTED BY: Chuck Schwartau, University of Minnesota Extension, Rochester; Jim Salfer, University of Minnesota Extension, St. Cloud.

- Take measures to prevent runoff from other operations from entering your operation.
  - Exposing your cattle to contaminated water or waste from other operations can introduce disease.
  - Restrict animal access by fencing off water or waste from neighboring operations that accumulates from run-off following rainfall.

People and Vehicles

- For the safety of your animals and the people who handle them, require that all individuals wash hands with soap and warm water before AND after animal contact.

Employees

- Require that employees who have contact with livestock at other locations (including their own home) use the same biosecurity measures as visitors on your farm.

- Educate yourself and train your employees to recognize and report diseases.
  - When all employees know what to look for regarding sick animals, a reporting system allows those in charge to make treatment decisions or decide if the herd veterinarian should be contacted.
  - Early identification of serious diseases can help minimize the risk of disease spread on your farm.
  - If unusual illness or signs are noticed, contact your herd veterinarian immediately.

- Maintain a written Biological Risk Management Plan and have regularly scheduled meetings to educate and update those involved.
  - This is critical to make sure everyone is current on your operation's practices and provides the opportunity to make changes if needed.

Neighbors

- Take steps to prevent disease spread from your neighbors' operation to yours.
  - Do not share equipment or vehicles between farms.
  - If equipment must be shared, all manure and bedding should be removed, the equipment washed with warm water and soap, rinsed, disinfected and rinsed again before using it with animals from your farm.
  - Always wear clean clothes or coveralls, gloves, hats, boots, etc. when coming in contact with animals.
  - Wash and disinfect boots, change gloves, hats, and clothes or coveralls before returning to your farm.

Visitors and Vehicles

- Post warning signs telling visitors to only enter your farm with permission.

- Provide a phone number at the farm entrance for visitors to call and make an appointment.
  - Biosecurity measures can be explained at that time and posted near the phone number for all to see.

- Prevent off-farm vehicles from driving in areas where animals travel.
  - Require visitors and vehicles to park in designated areas at the entrance to your farm away from all animal areas.
  - Use only on-farm vehicles for transporting visitors within your operation.

- All visitors should be accompanied by someone from the farm at all times.

- Provide clean coveralls and disposable or disinfected rubber boots.
  - Post signs to direct visitors to a designated area where these are available.
  - Require that these items be worn by all visitors at all times while in animal areas.
  - Make sure boots are clean before entering animal areas; provide a well-maintained foot bath OR clean disposable boots and a receptacle near the entrance to the animal facility.
  - After exiting animal areas, wash and disinfect boots OR remove them and dispose of them properly.
  - When leaving your farm, visitors should remove all protective clothing and footwear provided by the farm and leave it in the designated area.
- Visitors should avoid livestock areas and restrict them from contacting or handling your animals (unless absolutely necessary).

Record Keeping

- Traffic on or off your farm should be closely monitored and recorded.
  - Maintain a log sheet to record all visitors and vehicles that enter your farm.
- Maintain thorough and accurate records of animal movement.
  - Document all animal movements, including the dates of introduction into the herd, where they came from and movements between separate units.
  - Each farm location must be treated as a separate unit or premises.

Animals

Animal Identification

- Individually identify every animal.
  - Individual animal identification is essential for proper record keeping (e.g. vaccinations, treatments, pregnancy status, etc.) which is an integral part of managing animals and minimizing disease risk on your farm.
  - If more than one person works on your operation, individual animal identification is imperative for proper communication of health status, treatment needs, antibiotic withdrawal/residue prevention status and location.

Animal Health

- Keep health records on every animal.
- Review and update your vaccination and treatment protocols with your veterinarian at least twice a year.
- Monitor and inspect animals at least daily for signs of illness.
  - Investigate all animals with unusual signs or those unresponsive to treatment, especially those that die suddenly.
- Clean equipment, boots and change clothing between animal groups with different health status.
- Promptly euthanize animals that are not going to recover.
  - Chronically infected animals can serve as an ongoing source for many disease causing organisms.
  - Properly dispose of the carcass (e.g. render, compost, bury or burn) according to local and state laws.
- Have your veterinarian necropsy animals that die from unknown causes.
  - This may help identify a potentially infectious disease before it becomes widespread on your farm.

- Promptly remove dead animals from your operation as they can serve as a reservoir for many disease organisms.
  - > Render, compost, bury or burn dead animals in a timely manner so predators, wild birds and other animals do not spread disease.

New Introductions and Returning Animals

- Limit the frequency and number of new introductions.
- Limit purchases to a few sources with known and trusted herd health programs.
  - > Obtain a complete herd health history prior to introducing new animals.
  - > Request copies of vaccination and treatment records for all purchased animals.
  - > Vaccinate newly acquired animals prior to receiving them.
- Handle all animals that temporarily leave your operation as new introductions when they return.
  - > Limit their contact with other animals during their time off your farm.
  - > Do not share stalls, tack, feed or water with animals from other operations.
  - > Do not share trailers, grooming supplies, reproductive equipment, needles or syringes with other farms.
  - > Prevent reproductive contact with animals from other herds.
- Place animal delivery and load out facilities on the perimeter of the farm.
- Quarantine all newly acquired animals or reintroduced animals.

Isolation and Quarantine

- Isolation of sick animals is necessary to minimize disease exposure of others in your herd and quarantine is required to prevent exposure of your herd to new or returning animals.
  - > In addition to being removed from all other animal areas, isolation and quarantine facilities should be separate from one another.
  - > Equipment (feed, treatment, milking) should not be shared between isolation and quarantine animals.
  - > If equipment must be shared, wash in warm water and soap to remove visible contamination, rinse, disinfect and rinse before removing from one location and moving it to another.
- Immediately isolate sick animals from the herd to minimize disease spread.
  - > Prevent direct contact between isolated animals and others.
  - > Prevent sharing ventilation, feed/water and equipment to minimize the risk of disease spread.
- Use separate facilities, equipment and staff to handle isolated livestock.
  - > If this is not possible, at a minimum, handle or visit the isolated animals LAST.
  - > Clean and disinfect all equipment, clothing, boots, etc. that come into contact with ill and isolated animals.
- Any animals that have recently been purchased or returned to the farm should be quarantined.
  - > New or returning animals (e.g. shows and competitions) can be infected with a disease without showing signs right away.
  - > Quarantine allows time for a disease to develop in the animal, without exposing your entire herd to the disease agent.
  - > Do not allow new additions and animals returning to share water, feed, facilities or bedding with your other animals.
  - > Ideally animals should be quarantined at a separate location (premises).

- Time spent in isolation and quarantine varies depending on the disease risk so this should be determined together with your herd veterinarian.
  - It is a good risk management plan to test for key diseases before taking animals out of isolation or quarantine to make sure they are not carrying diseases that could be introduced into your herd.
  - Work with your herd veterinarian to establish what tests are appropriate for your animals.

Neonatal Management

- Ensure adequate ingestion of disease-free colostrum within the first 6 hours of life.
  - Adequate ingestion of colostrum is the most important consideration for a calf's resistance to disease and all calves should receive colostrum within 6 hours of birth.
  - A calf's immune system depends on the antibodies in colostrum. After 6 hours of life, the calf's ability to absorb antibodies from colostrum diminishes.
  - Once a calf is born, cows begin to produce milk which will dilute colostrum and require the calf to consume more volume for maximum antibody absorption and immune function.

- Prevent contact of newborns with older animals and contaminated environments.
  - This will decrease disease exposure to the calf and give the colostrum the ability to provide protection.

Wildlife and Other Animals

- Prevent contact with free roaming animals (e.g. wildlife, cats, dogs, etc.).

- Control of wildlife may be difficult, but should be attempted.
  - Keep farm access routes, parking areas, yards and storage areas clean and tidy to avoid attraction of birds or rodents.

- Minimize bird contact and nesting in your operation.
  - Birds are disease carriers and while it is nearly impossible to eliminate them from animal housing areas, steps should be taken to discourage their nesting and roosting.
  - Contact your local extension office or herd veterinarian for approved control methods in your area.

- Maintain a rodent control program.
  - Rodents harbor many diseases that can affect cattle and can readily contaminate feed.
  - Contact your local extension office or herd veterinarian for approved control methods in your area.

- Secure all feed storage areas and clean up spilled feed to minimize access by pests.
  - These steps will help minimize the number of pests by limiting available food sources.

Supply Handling

- Always read and follow label directions for proper storage of vaccines and medications.
  - Sunlight deactivates some vaccines and can render antibiotics worthless, causing poor protection or response to treatment when used in your animals.
  - Vaccines and medicines that need to be refrigerated are susceptible to changes in temperature and may not work if they get too warm (greater than 46°F) or too cold/frozen (less than 36°F).
  - Products that do not require refrigeration should be properly stored in a cabinet or other enclosure to restrict access by unauthorized individuals and minimize environmental exposure (e.g. sunlight and temperature extremes).

- Monitor your supply refrigerator at least monthly to help ensure the products are adequately stored (36-46°F).

- Work with your veterinarian to teach proper procedures to all people who handle vaccines and medicines.
  - Restrict access to only trained personnel.
  - Training should include proper handling and administration of these products plus when to use them.
  - Improper handling and storage can cause contamination which could cause disease.
  - Improper use of vaccines and medicines can make them ineffective and some can even be harmful to the person.
  - Prudent antibiotic use helps maintain effectiveness in treating disease.
  - Improper use of antibiotics can lead to the development of resistance and illegal residues.

Cleaning and Disinfection

General Recommendations

- Thoroughly clean all objects to remove any visible debris (manure, dirt, bedding) before applying a disinfectant.
  - Most disinfectants are ineffective when dirt, manure and other debris are present.
  - These materials prevent the chemicals in the disinfectant from contacting and killing the disease causing agents.
- Use the proper concentration of any disinfectant (always mix according to the product label).
- Always allow a disinfection solution contact time to “sit” and work.
  - To be effective, disinfectants need time to kill the microorganisms present.
  - Refer to the product label to determine the amount of time recommended (usually at least 5 minutes).