

Feedlot Biosecurity-Security in the Real World

(Includes applications to cow-calf operations)

Dee Griffin DVM, MS

University of Nebraska-Lincoln, Great Plains Veterinary Educational Center, Clay Center, NE 68933

Abstract

Biosecurity and security are different production issues, but both are important and must be properly addressed to protect the health of livestock in an operation. The introduction of disease causing organisms (pathogens) into a livestock operation can either be intentional, as would be the situation with bioterrorism, or unintentional, as is often the case with improper biosecurity application procedures. The biosecurity and security activities will have unique standard operating procedures (SOP) and good management practices (GMP). The security and biosecurity SOP and GMP standards can vary between operations depending on the type and class of cattle raised or produced by the operation, and the operation's biosecurity goals and objectives. The security and biosecurity SOP and GMP outlined in this paper are generic and may not match the needs of different cattle operations. It will be important to evaluate the specific biosecurity and security needs of each production location and make adjustments in the generic checklists included in this paper. The biosecurity and security needs of each production location should be reevaluated on a regularly scheduled basis.

Introduction

Teaching livestock operation personnel the techniques needed to evaluate and apply biosecurity and security procedures is a goal of this paper. Many of the techniques used in beef quality assurance (BQA) programs apply to biosecurity and security issues. Three phrases for the BQA program apply equally well to a cattle operation's biosecurity and security efforts. They are "Build on what you know", "there are no most valuable players" and "figure out what can go wrong – figure out how to prevent it from going wrong – figure out how to monitor your operations efforts." Additionally, the Hazard Analysis Critical Control Points (HACCP) production safety system, used as an adjunct in the BQA program, has great potential in security and biosecurity concerns of livestock operations. A central objective in the HACCP system is to prevent, eliminate, or reduce to an acceptable level a production safety concern. In

livestock biosecurity and security programs the prevention, reduction or elimination applies to disease transmission. SOP-GMP, communication and training checklists will be the tools used in this paper to help accomplish the biosecurity and security objectives.

Biosecurity

The goal of biosecurity is to prevent, minimize or control cross-contamination of body fluids (feces, urine, saliva, etc) between animals, animals to feed and animals to equipment that may directly or indirectly contact animals. Biosecurity management and practices are designed to prevent the spread of disease by minimizing the movement of biologic organisms (viruses, bacteria, rodents, etc) onto and within an operation. Biosecurity can be very difficult to maintain because the interrelationships between management, biologic organisms and biosecurity are very complex. While developing and maintaining biosecurity is difficult, it is the cheapest, most effective means of disease control available and no disease prevention program will work without it.

Security

In this paper the security goal addressed will be to prevent intentional introduction of pathogen(s) into an operation. Security can be compromised three ways: intruders breaking in, intruders using false identification and disgruntled employees sabotaging an operation. Beef operations will have different levels of security risks. Developing a security management strategy involves evaluating potential risks, outlining steps to manage the identified risks, and instituting a security plan based on the risk assessment.

Infectious Diseases Can Be Spread Between Operations By:

- The introduction of diseased cattle or healthy cattle incubating disease,
- Introduction of healthy cattle who have recovered from disease but are now carriers,

- Vehicles, equipment, clothing and shoes of visitors or employees who move between herds,
- Contact with inanimate objects that are contaminated with disease organisms,
- Carcasses of dead cattle that have not been disposed of properly,
- Feedstuffs, especially high risk feedstuff which could be contaminated with feces,
- Impure water (surface drainage water, etc),
- Manure handling and aerosolized manure and dust,
- Non-livestock (horses, dogs, cats, coyotes, raccoons, other wildlife, rodents, birds and insects).

Develop A Biosecurity-Security Resource Group

An important first step is to develop a biosecurity-security resource group / team. The group should include people important to the success of the operation such as operation supervisors, the veterinarian, the nutritionist, extension specialists, suppliers and others that may have special knowledge in control of biologic organisms. Biosecurity-security plans should be developed to meet the specific needs of each operation. The group should be formally identified, and asked to regularly (scheduled) review the operation's biosecurity-security measures.

Biosecurity Has Three Major Components:

1. Isolation
2. Traffic Control
3. Sanitation

These three components when effectively managed meet the principle biosecurity objective of preventing or minimizing cross-contamination of body fluids (feces, urine, saliva, respiratory secretions, etc) between animals, animals to feed and animals to equipment.

Isolation refers to the prevention of contact between animals within a controlled environment. Important first steps in disease control include demanding a valid health certificate on all purchased cattle and minimizing commingling and movement of cattle. This includes all new purchases as well as commingling between established groups of cattle. Even in feedlot operations that have high cattle turn, keeping feeding groups from mixing is an important biosecurity measure. Isolate feedlot hospital cattle and return them to their home pen as soon as possible. Long acting therapies have improved our ability to minimize movement of infectious organisms between groups. Operations that background or develop ranch replacement livestock should separate cattle by age and/or production groups. Facilities should be cleaned-up and disinfected appropriately between each group of cattle handled. Specific

isolation management procedures may need to be adjusted to meet the needs of different ages of cattle handled or to control targeted diseases.

Traffic control includes traffic onto an operation and traffic patterns within an operation. Generally beef operations have been open to vehicle traffic and visitors. Of all the possible breakdowns in biosecurity, the introduction of new cattle and traffic pose the greatest risk to cattle health. Properly managing these two factors should be a top priority on an operation. It is important to understand traffic includes more than vehicles. All animals and people must be considered. Animals other than cattle include dogs, cats, horses, raccoons, coyotes, rodents and birds. The degree of control will be dictated by the biology and ecology of the infectious organism being addressed and the control must be equally applied. Seasonal bird migration patterns may need to be considered.

Traffic controls must make sense relative to the disease control objectives of an operation. For example, stopping a cattle-hauling truck from driving onto an operation, as a biosecurity measure for controlling BVD, is not likely to be beneficial. Purchasing cattle from herds that have a verifiable quality vaccination program would be more important in maximizing biosecurity. However, it would be important for the truck-trailer to have been adequately cleaned before hauling the cattle. Traffic control can be built into the facilities design. An example would be placing cattle loading and unloading facilities and dead animal pick up areas on the perimeter of the operation.

Traffic control within the operation should be designed to stop or minimize contamination of cattle, feed, feeding handling equipment and equipment used on cattle. Pit silos should not be accessible to non-feed handling equipment, such as loaders used outside the feeding area or vehicles that travel outside the feed mixing and handling facility. No one (manager, nutritionist, veterinarian, banker ... no one) should be allowed to drive onto the surface of a trench silo. The only equipment allowed should be the loader used for handling the feedstuff. In large pits it may be acceptable to allow feed trucks to enter provided they are loaded at a safe buffer-zone away from the working pit surface (example might be at least 100 feet away from the working face of the stored feed). If possible, separate equipment should be used for handling feedstuffs and manure.

Vehicles and employees should not travel from the dead cattle area without cleaning and disinfecting. The dead animal removal area should be placed in a location that allows rendering trucks access without cross-contaminating healthy cattle. Vehicle cleaning areas are becoming more common in commercial feedlots. Unfortunately they are frequently only used for trucks and heavy equipment. Management should consider extending a decontamination policy to other vehicles

(especially tires) that are used across biosecurity control areas on the operation. Truck scales might be a target to consider. Cattle hauling trucks, dead animal removal trucks and feed delivery trucks frequently use the same scale. There is potential for feces spilled from a cattle hauling truck and/or dead animal juices spilled from a dead animal removal truck onto a scale to be picked up on the tires of a feed delivery truck, then tracked to a feed storage area. At the very least cleaning the scale surface if contaminated would be appropriate. Issues such as these should be discussed among the biosecurity-security team.

Sanitation addresses the disinfection of materials, people and equipment entering the operation and the cleanliness of the people and equipment on the operation. The inability to sanitize or disinfect organic matter is an important concept to get across to operation personnel. Equally important is for management to understand things that are hard to clean won't get cleaned. It is disheartening to watch operation employees, on a daily basis, trying to clean a processing or hospital facility with a water hose that puts out less pressure than a used six-pack of beer. Management has the responsibility to provide the tools for their people to do an acceptable job. Electric power washers that generate 1300 PSI cost less than \$150. Having a number of these strategically located around an operation could be an inexpensive biosecurity investment.

The first objective of sanitation is to prevent fecal contaminants from entering the oral cavity of cattle (fecal – oral cross contamination). Equipment used that may contact cattle's oral cavity or cattle feed should be a special target. The first objective in sanitation is to remove organic matter, especially feces. Blood, saliva, and urine from sick or dead cattle should also be targeted. All equipment that handles feed or is introduced into the mouth of cattle should be cleaned, including disinfection as appropriate, after use. Loaders used for manure or dead cattle handling must be cleaned thoroughly before use with feedstuffs. It would be best if different equipment could be used. The use of oral dosing devices should be questioned relative to the value of the product used. Consider minimizing the use of oral equipment and instruments such as balling guns, drench equipment, and tubes. If used at processing and treatment, thoroughly clean and disinfect between animals. Store cleaned equipment in clean, dry areas. Avoid storage in tanks or containers containing disinfectants, as these tanks rapidly become contaminated with organic matter that destroys the sanitation properties of the disinfectant.

Specific Biosecurity Information Is Important

It is helpful for the biosecurity resource group to evaluate each item identified by seven criteria. These include risk assessment, training required, isolation

required, traffic control required, sanitation required, action trigger and emergency procedures for a suspect situation. It may also be useful to include explanatory comments with the biosecurity item assessed. Below are several diseases in which this system has been applied. The same seven criteria may be applied to non-disease biosecurity and security issues.

Biosecurity – Specific Disease Control and Identification

Bovine Spongiform Encephalopathy (BSE) – Mad Cow Disease

Risk:

The risk is very low in feeder cattle. The source is incoming feed ingredients, which is highly regulated.

Training:

Provide employee education to understand and identify the symptoms of central nervous system (CNS) disorders. Symptoms may include behavioral changes, seizures, tremors, and partial or complete loss of muscle coordination. Veterinarians should sample as appropriate to meet USDA-APHIS targets.

Isolation:

Special traffic control is not needed. CNS diseases are not easily transmitted, but caution should always be exercised when dealing with animals exhibiting CNS signs. Remember rabies is a CNS disease and is transmissible to humans.

Traffic Control:

Special traffic control is not needed. CNS diseases are not easily transmitted.

Sanitation:

Employees should AVOID contact with excretions and secretions from all cattle with CNS disease (think rabies).

Action Trigger:

CNS symptoms.

Emergency Procedures for Suspect Situation:

None, but notify management for all CNS cases. Necropsy all cattle that die from CNS disease (the veterinarian will sample as appropriate).

Comments:

BSE is not an issue for feeder cattle, but important in herd replacement livestock development. Focus on prevention. Do not feed ruminant derived proteins. Questions have been raised about feeding beef tallow. Know your suppliers and ask for signed letter of FDA compliance. Ingredient testing and on-site inspection is possible but not practical.

Food and Mouth Disease (FMD):

Risk:

The risk in the USA is very low. The FMD risk in feeder cattle is associated with visitors with a history of foreign travel.

Training:

Provide employee education to understand and identify FMD symptoms. Be observant for any unusual situations such as strangers lurking around, loose pigs, etc. FMD symptoms include blisters or ulcers in the mouth and between the toes. Cattle will salivate, appear depressed and move stiffly. The disease spreads very rapidly so expect several cattle to exhibit the same symptoms either at the start or within 24 hours.

Isolation:

Isolate incoming cattle for 72 hours and observe for FMD symptoms. Optimally, isolate new cattle for two weeks. The cattle may be processed as needed, but processing facilities and equipment should be cleaned and sanitized after use with each set of new cattle.

Traffic Control:

People with a history of foreign travel should be kept away from livestock for one week. Wash and disinfect (bleach according to label directions) clothes after travel. Thoroughly clean and disinfect footwear worn during travel.

Sanitation:

Wash and sanitize processing equipment and facilities between each set of incoming cattle.

Action Trigger:

FMD symptoms (salivation, depression and stiff movement – with erosions or ulcers in the mouth or between the toes).

Emergency Procedures for Suspect Situation:

When the symptoms of FMD are found, notify a member of the Biosecurity Emergency Response and Security Team. They will contact the veterinarian and the operation's manager, which in turn will contact the state USDA-APHIS official. Stop all movement and handling of cattle immediately, including cattle on the outside of the operation. Stop all movement of people and vehicles in the vicinity of the suspect cattle. Clean and sanitize all facilities and equipment that may have been exposed to the cattle. Implement all controls as directed by the operation's veterinarian and state or USDA-APHIS official.

Comments:

FMD typically has a short, 72-hour incubation, but may be as long as twelve days. It is highly contagious and rapidly spread by animals and inanimate objects.

Salmonella:

Risk:

The risk is high in feeder cattle. Salmonella is spread via fecal-oral contamination. Proper sanitation and attention to avoiding fecal-oral contamination greatly reduces the risk.

Training:

Train employees to appreciate the risk to themselves and their family. Understand the importance of proper sanitation and attention to avoiding fecal-oral contamination. Provide employee education to identify symptoms of the disease.

Isolation:

Isolate, as much as possible, all cattle with symptoms of salmonella. This includes animals with severe depression and diarrhea. Avoid fecal-oral contamination in the hospital area by minimizing the use of oral instruments, such as balling guns, stomach tubes, and oral fluid pumps.

Traffic Control:

Restrict sick cattle movement within the hospital area. Restrict movement of people who work in the hospital area without sanitizing footwear.

Sanitation:

Do not let fecal material from salmonella suspects contaminate the oral cavity of other animals or humans. Clean and sanitize all oral instruments between uses. Clean and sanitize handling equipment and snakes after handling salmonella suspect cattle.

Action Trigger:

Salmonella symptoms (severe depression, high fever and diarrhea).

Emergency Procedures for Suspect Situation:

Notify a member of the Biosecurity Response Team that an animal has been identified exhibiting clinical symptoms of salmonellosis. They will communicate the need for intra-operation traffic control.

Comments:

Salmonella can kill anything from cattle to humans! Detailed attention to preventing fecal-oral contamination is the best defense.

Anaplasmosis

Risk:

The disease risk in feeder cattle is typically very low. Cattle less than 24 months of age are not likely to develop clinical infections. Calves may suffer mild infections. Yearlings may exhibit severe symptoms, but normally recover. In adult cattle the death rate can be high.

Training:

Provide employee education to understand and identify symptoms of the disease. It is important for employees to understand the importance of avoiding the transfer of blood between cattle during treatments. Anaplasmosis symptoms include depression, fever, rapid breathing and anemia. Early, the cattle's membranes may pale and later the membranes turn yellowish.

Isolation:

Special isolation is not needed. Anaplasmosis suspect cattle should be treated with a topical pesticide to decrease the likelihood of blood transfer between cattle by insects.

Traffic Control:

Special traffic control is not needed.

Sanitation:

Sanitize all equipment and instruments that may transfer blood between cattle. This includes needles, instruments, OB sleeves, nose tongs, oral speculums, etc. Use disinfectant sponges for needles and disinfectant buckets for other items.

Action Trigger:

Anaplasmosis symptoms (depression, fever, anemia, rapid breathing). A veterinarian should examine all suspect animals.

Emergency Procedures for Suspect Situation:

None

Comments:

Not typically an issue for feedlot cattle, but may be important in replacement livestock development. Focus on prevention, by not transferring blood between cattle through needle use or palpation sleeves.

Leptospirosis – Red Water*Risk:*

The risk is low to high depending on the environment. Leptospirosis is transmitted through urine contamination, usually of water. Standing water in pens, especially in hot periods of the year, is frequently associated with symptoms of leptospirosis in feeder cattle.

Training:

Provide employee education to understand and identify symptoms of the disease. It is important for employees to understand types of conditions associated with transmission of the disease. Do not allow the collection of water where cattle would be tempted to drink. The noticeable symptoms are fever, labored breathing, appetite loss, extreme depression, weakness and exhaustion.

Isolation:

Special isolation is not needed. The water supply of cattle that leptospirosis suspects should be protected from urine contamination.

Traffic Control:

Special traffic control is not needed.

Sanitation:

Sanitize equipment and instruments contaminated by leptospirosis suspect urine.

Action Trigger:

Leptospirosis symptoms (depression, fever, anemia, rapid breathing, and red/dark urine). A veterinarian should examine all leptospirosis suspect cases.

Emergency Procedures for Suspect Situation:

Notify a member of the Biosecurity Response Team. They will discuss the environmental associations with leptospirosis and the appropriate corrections.

Comments:

Controlling standing water that cattle may drink will control the spread of leptospirosis.

Bovine Virus Diarrhea (BVD) – Carrier animals - as applies to herd replacements*Risk:*

Commonly, carrier animals are born as “persistently infected” (PI) with BVD. The risk of cattle becoming BVD carriers after birth is extremely low.

Training:

Provide employee education to understand and identify the symptoms of BVD. Symptoms may include non-responsive pneumonia or diarrhea. Other diseases to consider are salmonella or toxicosis due to oral or gastrointestinal irritants. BVD-PI animals most often become clinical cases when they develop the “mucosal” form of the disease. Oral erosions and ulcers may be noted and therefore could be confused with FMD.

Isolation:

Special traffic control is not needed. Clean and sanitize all working facilities and equipment after handling cattle with chronic diarrhea or severe illness. Prevent fecal-oral contamination.

Traffic Control:

Restrict the movement of sick cattle to within the hospital area. Restrict movement of people who work in the hospital area to the hospital area, unless sanitizing footwear.

Sanitation:

Do not let fecal material from scouring animals contaminate the oral cavity of other animals or humans. Clean and sanitize all oral instruments between uses. Clean and sanitize handling equipment and snakes after handling cattle with diarrhea.

Action Trigger:

BVD symptoms (diarrhea or non-responsive pneumonia with or without oral erosions and ulcers).

Emergency Procedures for Suspect Situation:

Bring all cases of severe diarrhea or cases with oral erosions/ulcers to the immediate attention of a member of the Biosecurity Emergency Response Team. The operation's veterinarian should be contacted. Necropsy all cattle that die from chronic diarrhea; sample as directed by the operation's veterinarian.

Comments:

BVD carriers (BVD-PI) are a concern in breeding herds and operations that raise herd replacements. Focus on proper vaccination in breeding replacement cattle. Typically, cattle that were not born as BVD carriers and that receive two to three modified live virus (MLV) BVD vaccinations before entering the breeding herd, with yearly boosters thereafter, will not be susceptible to giving birth to BVD carriers, provided they were not born as BVD carriers. Breeding replacements should be tested to confirm free status before entering the breeding herd.

Johne's Disease

Risk:

The risk is low in feeder cattle. Backgrounding operations that handle herd replacement cattle have an increased risk of infecting cattle with Johne's Disease. Clinical signs rarely develop in cattle less than two years of age.

Training:

Provide employee education to understand and identify symptoms of the disease. Symptoms include chronic diarrhea and weight loss. Include training that emphasizes the importance of minimizing fecal contamination and proper sanitation.

Isolation:

Isolate all cattle with symptoms of Johne's Disease. Avoid fecal-oral contamination in the hospital area (minimize the use of oral instruments such as balling guns, stomach tubes, oral fluid pumps, etc).

Traffic Control:

Restrict movement of sick cattle to within the hospital area. Restrict movement of people who work in the hospital area to the hospital area unless sanitizing footwear.

Sanitation:

Do not let fecal material from Johne's Disease suspects contaminate the oral cavity of other animals. Clean and sanitize all oral instruments between uses. Clean and sanitize handling equipment and snakes after handling Johne's suspect cattle.

Action Trigger:

Johne's Disease symptoms (chronic diarrhea)

Emergency Procedures for Suspect Situation:

Notify a member of the Biosecurity Response Team that an animal has been identified exhibiting clinical symptoms of Johne's Disease. They will communicate the need for intra-operation traffic control. The case should be discussed with the operation's veterinarian.

Comments:

Johne's Disease has an extremely long incubation period. Most cattle that develop clinical signs were infected as calves, but older animals can become infected with Johne's Disease. Therefore detailed attention to preventing fecal-oral contamination is the best defense.

Bovine Enzootic Leukosis (EBL)

Risk:

The risk is low in feeder cattle but can be very important in herd replacement cattle. Transferring blood between cattle increases the risk of infecting cattle with bovine leukosis.

Training:

Train employees to understand this disease and to avoid transferring blood between cattle during examination or treatment. This includes needles, rectal sleeves, nose tongs, etc. Symptoms include swelling in the lower neck enlarged lymph nodes or tumors under the skin.

Isolation:

Special isolation is not needed.

Traffic Control:

Special traffic control is not needed.

Sanitation:

Strictly sanitize all equipment and instruments that may transfer blood between cattle. This includes needles, instruments, OB sleeves, nose tongs, oral speculums, etc. Use disinfectant sponges for needles and disinfectant buckets for other items.

Action Trigger:

Leukosis symptoms (swelling in the lower neck and enlarged lymph nodes or tumors under the skin).

Emergency Procedures for Suspect Situation:

Suspect cases should be discussed with the operation's veterinarian.

Comments:

Not typically an issue for feedlot cattle, but may be important in replacement livestock development. Focus on prevention by not transferring blood between cattle through needle use or palpation sleeves.

Abortion Diseases**Brucellosis (Bangs), Neospora caninum, IBR, BVD***Risk:**Training:*

Train employees to understand these diseases and the importance of personal protection and sanitation when working around abortion cases.

Isolation:

Isolate all cattle that abort until released by the operation's veterinarian.

Traffic Control:

Special traffic control is not needed. Isolation of the aborting animal is required and attention must be paid to preventing cross contamination of excretions and secretions from aborting animals to other cattle.

Sanitation:

Strictly sanitize all equipment and instruments that may transfer the biological organisms causing the abortion.

Action Trigger:

A single or multiple abortion(s).

Emergency Procedures for Suspect Situation:

Notify a member of the Biosecurity Emergency Response Team about the abortion case. Discuss the aborting animal with the operation's veterinarian.

Comments:

Brucellosis is virtually eradicated in the US but still should be considered. Brucellosis can cause a serious disease in humans called "undulant fever". It is important to protect yourself and others from abortion-associated fluids. Carnivores such as dogs and coyotes most commonly transfer Neospora. Therefore a strict control program is important to minimize cattle exposure to carnivores. There are other diseases that may be associated with abortion besides the ones

listed above, including IBR and BVD. Minimizing stress, avoiding commingling cattle, adequate nutrition and proper vaccination are important in controlling abortion diseases.

**Common Inherent Diseases In Feeder Cattle
IBR, BVD, PI3, BRSV, Pasteurella,
Mycoplasma, and Clostridia***Risk:*

Assume all cattle are exposed to these inherent diseases. Vaccines may be appropriate for control or to decrease the severity of these common diseases.

Training:

Provide employee education to understand and identify symptoms of these diseases. Include training on health management of clinically affected cattle. Most cattlemen are familiar with the symptoms of these common inherent diseases. Specific questions should be directed to the operation's veterinarian.

Isolation:

Special isolation is not needed. Cross contamination of excretions and secretions from clinically ill cattle should be avoided.

Traffic Control:

Special traffic control is not needed, however a measure of common sense is required. Equipment, such as loaders used to move sick or dead animals, must be cleaned and sanitized before using around healthy cattle or feed supplies. The dead cattle pick up area should be located at the perimeter of the operation and rendering trucks should not be weighed across the truck scales used to weigh feed trucks.

Sanitation:

Clean and sanitize instruments, equipment and facilities after working with clinically ill or dead cattle.

Action Trigger:

Bovine respiratory disease symptoms, the hallmark of which includes depression and appetite loss.

Emergency Procedures for Suspect Situation:

A member of the Biosecurity Response Team should daily review the sick cattle pulls with the hospital supervisor.

Comments:

Minimizing stress by proper care and handling techniques improves the ability of cattle to resist infectious disease. The symptoms of these diseases may mimic the symptoms of other diseases that would be a biosecurity threat. Be on guard for any differences in the signs pre-

sented by an animal that may be an indication of a biosecurity threat. If in doubt, contact a member of the Biosecurity Response Team, who will then notify the operation's veterinarian. Review all cases with the operation's veterinarian.

Common Inherent Diseases That Cause Scours in Young Cattle

Rotavirus, Coronavirus, E. coli, Cryptosporidiosis, Coccidiosis and Clostridium perfringens

Risk:

Assume all young cattle are exposed to these common inherent diseases. Vaccines may be appropriate for control or to decrease the severity of these common diseases.

Training:

Provide employee education to understand and identify symptoms of these diseases. Include training on health management of clinically affected cattle and supportive therapy for severely dehydrated young cattle. They need to understand the importance of proper sanitation and attention to avoid fecal-oral contamination. Train employees to realize the their personal risk and the potential risk to their families from fecal-oral contamination.

Isolation:

Isolate, as much as possible, all cattle with symptoms of diarrhea. This includes animals with severe depression and diarrhea. Avoid fecal-oral contamination by minimizing the use of oral instruments such as balling guns, stomach tubes, and oral fluid pumps.

Traffic Control:

Restrict the movement around scouring young cattle.

Sanitation:

Do not let fecal material from scouring cattle contaminate the oral cavity of other animals or humans. Clean and sanitize all oral instruments between uses. Clean and sanitize equipment used to handle calves with diarrhea.

Action Trigger:

Symptoms of scours in young cattle.

Emergency Procedures for Suspect Situation:

Preventing fecal oral contamination between animals, especially true in the young animals.

Comments:

Review all cases.

Other diseases or situations to consider include tuberculosis (TB), staph and other mastitis, chronic wasting disease (CWD), and noxious weeds.

Biosecurity-Security Good Management Practices (GMP) Checklist

	ITEM	DATE
	<p><u>Establish goals and objectives for the biosecurity program</u> Target all activities that could allow cross-contamination between infected cattle and health cattle. These include: security, isolation, traffic control and sanitation.</p>	
	Personnel training	
	Startup training for all new personnel	
	All personnel training targeting a thorough understanding of disease transmission	
	Progressive topics coverage, new information and previous materials reviewed	
	Personnel taught security threat identification	
	Personnel taught proper security response procedures	
	Personnel taught proper biosecurity containment procedures	
	Personnel taught to identify biosecurity threats specific to there working area	
	Communication chain for security threats established and taught	
	Communication chain for biosecurity threats established and taught	
	Training regularly scheduled and outcome assessed	
	Premise security	
	All locks regularly checked (example, twice daily)	
	Perimeter buffer zone effectiveness regularly evaluated	

	Posted security signs regularly checked and appropriateness re-evaluated	
	Segregated parking areas for visitors and for personnel in each area	
	Visitor log cross checked / validated with personnel assigned to visitors	
	Intruder prevention / control procedures and training in place	
	Isolation procedures	
	Valid health papers required for all incoming cattle	
	Seller, source and trucker tracking information filed on all incoming cattle	
	New cattle isolated for one week and evaluate for disease symptoms	
	Appropriate vaccination and treatment program(s) established	
	New cattle that require therapy are treated and returned to their group	
	Prevent cross-contamination between new cattle and established groups	
	Evaluate all cattle daily for signs of disease	
	Incoming feedstuffs inspected (sampled if appropriate) before receiving	
	Pesticides and medications stored in an area to prevent cross-contamination	
	Traffic control procedures	
	All visitors and customers travel only in operation vehicles	
	All support professionals travel only in operation vehicles	
	All deliveries supervised by operation personnel	
	All shipping and pick-ups supervised by operation personnel	
	Dead animal removal traffic pattern controlled to prevent cross-contamination	
	Traffic controlled around livestock handling and housing areas	
	Specific traffic control of hospitalized cattle to minimize cross-contamination	
	Traffic controlled around feedstuffs processing and storage areas	
	Traffic controlled around medication and pesticide storage areas	
	Traffic controlled around truck scales	
	Restrict personnel and visitor movement to prevent cross-contamination	
	Water supply protected and secure (fenced and locked) and checked daily	
	Pest control	
	Rodents	
	Birds	
	Carnivores (dogs, cats, coyotes, raccoons, etc)	
	Wildlife (deer, etc)	
	Sanitation procedures (CLEANLINESS STRESSED)	
	Clean and sanitize receiving and processing area between new cattle groups	
	Clean and sanitize hospital handling equipment between all sets of sick cattle	
	Clean all other cattle handling equipment between each group of cattle	
	Hospital use scheduled to minimize contact between cattle with different diseases	
	Waterers examined daily for contamination (feces, etc)	
	Feed bunks examined daily for contamination (feces, etc)	
	Prevent contamination of feeding equipment	
	Clean and sanitize feeding equipment that becomes contaminated	

	Protect feedstuffs from ALL contamination	
	Clean truck scale surface before feed deliveries (if manure contaminated)	
	Clean pens between sets of cattle	
	Remove loose, dry, manure (sponge layer) in pens monthly	
	Establish a “Security - Biosecurity Emergency Response Plan”	
	Establish a written emergency response plan for security threats	
	Outline specific security procedures to enforce	
	Establish a written emergency response plan for biosecurity threats	
	Outline specific disease containment procedures to enforce	
	Establish alternate delivery points for incoming cattle, feedstuffs and/or supplies	
	Regularly review the plan with all personnel	

Final word

Develop a biosecurity plan and comment to its implementation.

A commitment to biosecurity plan is a vital step toward control of infectious disease. Keeping pathogens out of a herd improves production efficiency, lowers costs and reduces risks to employees and family.

References

1. Carlson KR: Biosecurity – Profit for the Taking!, Good Management Practices for Controlling Infectious Diseases. Dairy Today Supplement, Agri-education, Inc, Dairy Quality Assurance Center, 1998.
2. Howard J, Smith RA: *Current Veterinary Therapy: Food Animal Practice*, 4th ed, WB Saunders, 1998.
3. Jeffrey JS: Biosecurity for Poultry Flocks, Extension Poultry Veterinarian, University of California-Davis, 1997.
4. McFarlane A: A Briefing on Biosecurity Procedures. Prairie Swine Centre Inc, 1999.
5. Smith BP: *Large Animal Internal Medicine*. Mosby, 1990.
6. Spencer J: Development of composting and management strategies for elimination of animal pathogens and assay systems to monitor effectiveness. Canadian Food Inspection Agency, 1996.
7. Wallace RL: Consider Biosecurity Steps When Expanding Herd. University of Illinois, College of Veterinary Medicine, 1996.