



MANITOBA
BEEF PRODUCERS™

BEEF CATTLE BIOSECURITY GUIDEBOOK

FOR MANITOBA'S BEEF PRODUCERS



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WHAT IS BIOSECURITY?

BIOSECURITY IS THE EXCLUSION, ERADICATION OR EFFECTIVE MANAGEMENT OF RISKS POSED BY PESTS AND DISEASES TO THE ECONOMY, ENVIRONMENT AND HUMAN HEALTH.

IMPORTANCE OF BIOSECURITY

Beef producers have the responsibility to prevent and mitigate diseases from entering or spreading to operations that contain livestock. There are various tools and risk management practices that beef producers can apply to keep livestock healthy.

Biosecurity is an important on-farm practice for beef producers to use on an ongoing basis. Biosecurity provides the tools necessary to manage and minimize animal movement risks (e.g. commingling and high risk susceptible animals), manage the movement of people and equipment, manage animal health practices such as nutrient management, and educate and document the activities of the operation.

Biosecurity is emerging as one of the most important issues facing trade and the international business community. There is a growing need for countries to establish biosecurity systems, either to meet obligations under international agreements (for example, in the environmental sector) or to take advantage of opportunities (for example, in the trade sector). Implementing biosecurity practices in the beef sector is a long-term approach that will require changes to on-farm behavior but will provide long-term benefits for both producers and consumers in terms of reduced disease incidents.

WHY HAVE A BIOSECURITY PLAN?

1. To prevent economic loss caused by production loss.
2. To keep borders open and trade flowing.
3. To protect the livestock industry from negative public perception.
4. To prevent or minimize an interruption in the beef cattle chain.
5. To create awareness of potential disease risk and begin prevention measures.

CANADIAN BEEF CATTLE ON-FARM BIOSECURITY STANDARD

The Canadian Cattlemen's Association (CCA), along with consultation from provincial beef organizations and the Canadian Food Inspection Agency (CFIA), developed a biosecurity standard which outlines the general practices and guidelines to implement biosecurity to control and reduce the risk and impacts of diseases in herds.

The beef biosecurity standard is voluntary, cost effective, and designed for on-farm application in operations of all types and sizes across Canada. The basics of the biosecurity standard are found in this producer guidebook.

DETERMINING DISEASE RISK

Producers must make a decision on the level of risk they are willing to accept. Producers should estimate the potential impact of a disease on their herd, the level of risk incurred, and the financial impacts of that risk.

There are various levels of biosecurity producers can implement:

- Maintain a closed herd.
- No cattle leaving and re-entering the herd (e.g. shows and fairs).
- No new incoming animals, but re-entry of cattle allowed.
- Incoming animals allowed only with isolation and information on where the animal has come from, previous medical records, and similar herd health management plans.
- Incoming animals with isolation, but no previous medical records or locations.
- Incoming animals without isolation and unknown information and medical records.

The most stringent of these measures are not practical for all producers. For example, it is impossible to operate a feedlot as a closed herd. Each producer will have their own methods to mitigate disease risk, however, the implementation of a biosecurity program and herd health program is imperative to disease prevention.

Refer to Appendix I for a sample of a Risk Factor Checklist

Producers also need to take into account that a biosecurity failure will impact more than just their own operation. As those in the Canadian beef industry well know, biosecurity concerns can close borders, halt trade, and severely damage the industry as a whole. It is the responsibility of individual producers to not only protect their own ranch, but also the surrounding operations and the overall livelihood as well.

COMMON SOURCES OF DISEASE TRANSMITTERS IN MANITOBA:

1. Locations where cattle from several owners are mixed, such as auction marts and community pastures, can be significant catalysts for the spread of production limiting diseases.
2. Forages and water can serve as sources of salmonella or E. coli.
3. Feed concentrates like corn and barley can be sources for bacteria (e.g. salmonella).
4. Elk and white-tailed deer can be sources of spreading disease to cattle herds (e.g. tuberculosis).
5. Coyotes can spread salmonellosis, leptospirosis, and neospora caninum.
6. Rodents can serve as a transmitter of salmonella and E. coli.
7. Ticks and biting flies can transfer anaplasmosis and other blood-borne diseases.
8. Stray animals (domestic and other) can transmit diseases.
9. Cattle shows like 4-H shows, fairs and exhibitions can be sources for disease spread.

In order to protect the health and safety of animals and humans, the Canadian Food Inspection Agency (CFIA) is responsible for major diseases that threaten trade through a monitored system of disease protocols. This includes the spread of diseases common in Canada, as well as to prevent the spread of a foreign disease outbreak. The CFIA maintains a tiered system of reporting diseases found in cattle herds.



REPORTING LIVESTOCK CASES

Source: Canadian Food Inspection Agency | Date accessed: July 8, 2012

Federally Reportable Diseases must be **immediately** reported to the Canadian Food Inspection Agency. These diseases pose a significant health and economic/trade risk. The CFIA maintains up-to-date information on the number of confirmed cases of federally reportable disease. This includes the date the case was confirmed a reportable disease, the province the disease was confirmed in, and the animal type infected.

Refer to Appendix II for a listing of all federally reportable diseases for cattle in Canada

Immediately Notifiable Diseases are diseases exotic to Canada for which there are no control or eradication programs. Only laboratories are required to contact the CFIA regarding the suspicion of one of these diseases. For a list of immediately notifiable diseases, visit the CFIA's website www.inspection.gc.ca.

Annually Notifiable Diseases are diseases present in Canada, but are not classified as reportable or immediately notifiable. Canada must submit an annual report to the World Organization for Animal Health indicating their presence within Canada. For a list of annually notifiable diseases visit the CFIA's website www.inspection.gc.ca.



IMPLEMENTING DISEASE PREVENTION MEASURES

Once you have created a risk factor checklist with your veterinarian, it is important to start implementing management practices to protect the health of your livestock herd. Running a closed herd is the best option to avoid bringing a disease into your herd. However, this is very difficult in the beef industry so there are other biosecurity measures producers can take.

COMMINGLING

Commingling is very common in Manitoba's beef sector and producers must be aware that this could be a significant disease risk for herds. Producers should take the necessary precautions in their on-farm biosecurity program to minimize the disease risks associated with commingling.

Commingling of animals occurs in community pastures, at livestock fairs, auction marts and feedlots. Controlling contact with other cattle is difficult in a pasture-based production system. However, there are steps producers can take when commingling their animals to avoid disease spread:

- Providing a buffer between adjoining herds.
- If your herd is inadvertently mixed with cattle from another herd, separate them as quickly as possible.
- Limit the number of sources from which your animals are commingled.
- Know the health status and biosecurity of farms you are sending your animals to or buying from.
- Isolating new purchases and testing for diseases.
- Purchase groups of animals during a short period of time to limit the amount of movement in and out of your farm.



INCOMING ANIMALS

Running a closed herd is the best option to avoid bringing a disease into your herd. However, this is very difficult in the beef industry so there are other measures producers can take to avoid the risk of incoming animals. The most important thing when bringing in animals is to know where they are coming from. Buy replacements from a credible source or from a producer who has similar health and biosecurity protocols. Ensure the incoming cattle are vaccinated.

Guidelines to follow for incoming animals:

Request information

Know the disease status and health of animals prior to entry (e.g. exposure to other animals, vaccinations applied). Ask questions about the disease status in the herd, especially about information on reproductive loss and chronic respiratory and diarrhea problems.

Purchasing cattle

When purchasing cattle, producers should buy bred cows only at the farm gate or through production/dispersal sales. Never bring in a suckling calf to foster onto a cow that has lost a calf. This can increase the risk for scours and pneumonia, as well as other infections. Producers should avoid purchasing older bulls and bring in only virgin bulls to the herd.

Minimize movement of a high risk animal

Animals that have unknown health status, sick or recently recovered, or at higher risk of infection should have fewer movements and fewer contacts with other animals to avoid increased stress.

Isolation

Incoming animals should be separated from the herd for at least two weeks to allow for adequate observation to determine animal health. Producers should monitor for the presence of disease and ensure all vaccinations are complete. This includes cattle that have been at a show or sale facility which have been brought back to the farm. If cattle are coming from auction marts and assembly points, the risk factor increases when cattle are commingled and stressed. Plan your on-farm approach carefully. Quarantine, vaccinate and medicate as required. Bring the health status up to your herd level before introducing to your herd.

Minimize contact with other species

As much as possible, avoid direct and indirect contact with animals of other species; some diseases can be spread between species.

Consult your veterinarian

If you bring cattle into your operation which have come from a herd with a similar herd health management plan, disease risk and exposure will be lower. If you bring in cattle from an unknown herd or from an area with known disease prevalence, consult your veterinarian for relevant testing and vaccinations.



TRANSPORTATION

Vehicles can potentially transmit diseases and pathogens through organic material and on the surfaces of tires. Producers should avoid using dirty trucks and trailers for transport. Producers can apply appropriate downtime with trucks and vehicles, and implement sanitation measures to wash and disinfect all vehicles before use.

Producers should increase the monitoring of animals after transport when clean trucks are not available through isolation of incoming animals from the herd.

Suggested truck cleaning protocol:

- Use cleaning equipment, such as pressure washers with detergent or a disinfectant.
- Clean boxes with detergent or disinfectant before transporting animals.
- Talk to your veterinarian for the best disinfectant to use on trucks for transport.

PEOPLE AND VISITORS

It is important to know who is on your land!

Producers must ensure adequate sanitation protocols are used for visitors and those individuals coming in contact with animals in order to minimize disease spread. This includes dedicated clothing and footwear to wear at each site. Producers can also implement other basic biosecurity measures for when visitors access their land.

- A disinfectant foot bath should be placed at the entrance of a pen or barn, and must be kept fresh and well stocked with a disinfectant.
- Keep visitors away from direct contact with your cattle; stay out of pens as much as possible.
- Provide clean coveralls and washable/disposable boots for visitors.
- Make sure service providers such as veterinarians, sales representatives and inspectors do a thorough clean up before coming onto your farm.
- Ensure visitors use proper hand washing between the handling of cattle.
- Do not let visitors park in areas which could be accessed by your animals or close to areas which could be accessed by animals.



Biosecurity for Private Land

Producers should keep a visitor logbook to track who enters their land and from where. Producers should post biosecurity signs or signs restricting access to land in order to minimize the risk of disease transfer. Producers should also require visitors to report before accessing land and cattle.

It is important for producers to assess the risk that each visitor poses to their operation and take the necessary precautions based on this risk. This includes asking each visitor questions about where they have been, previous farms visited, and whether they have been around farms or cattle that are experiencing a disease outbreak.

Consider asking visitors the following three questions:

1. Have you been outside of Canada in the last two weeks?
2. In the last two weeks, have you been on a ranch or farm and been exposed to cattle from outside of North America?
3. In the last six months, have you been exposed to a situation that involved a reportable animal disease?

Biosecurity for Public Lands

The ability to control the spread of disease through people and vehicles can be limited due to public access to Crown lands that have pastures with cattle herds. However, a key way to improve biosecurity on public lands is the implementation of an informed access policy at the provincial level. Informed access biosecurity measures can include:

- Members of the public wishing to access agricultural Crown land be required to provide notice to the lessee of their intention to access;
- The public wishing to access the land be required to obtain permission from the lessee prior to entering during periods where the land is in direct agricultural use; and
- Lessees of Crown land be granted the ability to discourage members of the public from entering pastures where there is high risk to public safety.

FACILITIES

Sanitation measures should be implemented for calving pens, barns and other facilities. Facilities should be maintained and cleaned on a regular basis to help reduce the possible transfer of a disease in a herd.

If a disease has been found within a herd, strict sanitation measures should be taken to ensure remnants of the disease are completely removed. All organic material (feces, urine, feed, bedding and body fluids) should be completely removed and the surfaces power washed. Special attention should be paid to gating, feeders, water storage areas and any other cracks or crevices where such material could be harbored and missed.

Once clean, an efficacious disinfectant should be applied throughout the pen area. Following cleaning, the facility must be allowed adequate downtime or drying time after disinfection. This is the most important step in the sanitation protocol for complete inactivation of the disease.

Suggested facility cleaning protocols:

- Use cleaning equipment such as pressure washers with detergent or a disinfectant.
- Clean barn/shed pens with detergent or disinfectant before reusing.
- Talk to your veterinarian for the best disinfectant to use on facilities.



EQUIPMENT AND TOOLS

Equipment and tools can act as disease carriers. Dedicate equipment for use. Specific equipment and tools should be used depending on the task, such as dehorning and castrating tools.

Avoid multi-use of the same equipment for things like handling feed/water and handling deadstock and manure. This can be difficult, as producers may not have dedicated equipment. Alternatives may be looked at according to your operation, along with appropriate cleaning protocols.

Avoid sharing equipment between ranches.

Suggested cleaning protocols:

- Use cleaning equipment, such as pressure washers with a detergent or disinfectant.
- Equipment/tools should then be washed, disinfected and allowed to dry prior to use with other animals. This is particularly important when dealing with infected or high risk animals.
- Equipment should be cleaned in order to remove organic matter, blood and manure between animals and disinfected between groups.
- Talk to your veterinarian about the best disinfectant to use.

OTHER ON-FARM ANIMALS

It is important to keep the cattle herd isolated from other animals and species. This is sometimes difficult as other domestic animals are often an integral part of ranch operations. Producers should therefore understand the risks of disease transmission and implement measures to avoid risk of disease spread from domestic animals.

Dogs may be employed on farms to help move cattle or used as guards from predators and other wildlife. Dogs can spread a number of diseases, most commonly neospora caninum, which causes abortions in cattle. Producers should keep dogs out of feed and calving pens, and avoid access to pastures during calving season. Alternatively, producers should monitor direct contact. Always ensure the dog is vaccinated against rabies. Ask your vet about adequate deworming for dogs and keep them from scavenging deadstock.

Cats are often used in barns to control rodents that spread common diseases like rabies. However, cats can also be a disease transmitter (e.g. toxoplasmosis). Neutering, vaccination and deworming should be considered where practical and should be discussed with your vet.



WILDLIFE

Wildlife can serve as a carrier for diseases common to cattle. Livestock should be managed to minimize direct contact and commingling with wildlife. This can be done through additional monitoring or the use of fences and guardian dogs.

Coyotes are well-adapted to populated areas and commonly attack livestock. How deadstock is handled may enhance a farm's coyote population and encourage depredation of livestock. Coyotes may carry disease-causing agents, such as salmonella and neospora caninum. In high populations with predation, producers can utilize provincial predator control programs to remove problem predators. Producers can help avoid predator contact with cattle herds by maintaining fences in areas where livestock are pastured or housed.

Deer are a common carrier of disease to the farm. Deer can carry bovine tuberculosis, Johne's disease, and chronic wasting disease. Pastures and water sources shared between deer and livestock should be avoided. In Manitoba, wildlife can be common carriers of bovine tuberculosis and deer liver flukes. Wildlife carriers of tuberculosis, such as elk and white-tailed deer, are most commonly found in and around Riding Mountain National Park.

To evaluate your farm and decrease the risk of your livestock contracting diseases from deer, producers should do the following:

- In areas with high populations of elk and white-tailed deer use necessary best management practices (BMPs). For example, this can include assessing the risk of using bale grazing and swath grazing in these areas.
- The use of guardian dogs can help deter wildlife from entering the pasture.

PEST CONTROL

Rodents, insects and flies often come into close contact with cattle and can transmit disease or infection to the herd. Rodents and carrion birds can also spread disease. Monitor for signs of rodents and use appropriate controls where possible.

Necessary vaccinations should be used and increased monitoring of livestock should be carried out if insects pose a disease risk. Keep grounds and feed bunks as dry as possible. Have an insect control program in practice. Pests can be vectors for diseases such as anaplasmosis and deer liver flukes, which have been found in Manitoba.

WATER

The water system can be a source of disease bacteria. Prevention and control measures can minimize, if not eliminate this risk. Sources of water that are susceptible to bacteria include surface water, groundwater aquifers and rainwater collection systems. Practical examples of beneficial management practices include keeping watering bowls, dugouts, etc. clean and clear of dead birds and rodents.

The main source of disease spread from water to cattle is through manure. Producers must be strictly cautious of keeping water sources free from manure contamination.

Producers can evaluate and manage any water accumulation that adult cows and calves are drinking, and producers must ensure that water sources, such as dugouts, are fenced off. Producers should contact Manitoba Conservation and Water Stewardship for a manure management plan.



DEADSTOCK

Producers can prevent the spread of disease from deadstock by using proper handling, storing and disposal methods. Producers are required to dispose of carcasses in a timely manner according to regulations. Producers should implement procedures for handling deadstock and proper storage methods. Deadstock should be kept in an enclosed area that prevents access by other animals and people.

Producers should use specific equipment, tools, and vehicles when handling or transporting deadstock. If this is not possible, producers should implement proper cleaning and sanitization methods to remove deadstock from the farm to avoid the spread of diseases.

Manitoba regulations for deadstock removal require proper disposal of livestock carcasses through rendering, composting, incineration or burial. Carcasses must be securely stored to avoid cross-contamination. Deadstock must be kept refrigerated or frozen if retained for more than 48 hours after death.

The Livestock Manure and Mortalities Management Regulation indicates the following procedures for deadstock removal (Source: Manitoba Agriculture, Food and Rural Initiatives. Date Accessed: July 20, 2010):

Burial Site

- The location selected for burial should be away from major traffic areas and out of public view. It should be accessible to the disposal delivery vehicle for direct deposit in pit. Areas with a high groundwater level or shallow aquifers shall be avoided.
- The burial site should be at least 100 metres from any surface water area.
- The site should be situated in clay-type soils to prevent leaching into water sources.
- Burial sites must be durable enough to prevent leaching of decomposition products that may cause pollution to surface water, groundwater or soil.
- Surface water runoff from precipitation should be directed away from the burial site.

Burial

- The pit should be dug to a suitable size, only wide enough to allow for dumping of the delivery vehicle without spillover.
- Physical handling of deadstock by the operator should be minimized.
- Prior to burial, a chemical such as lime could be spread over/under the carcasses in the pit to help promote degradation and prevent odours.
- The deadstock should be covered with a minimum of one metre of solid material.
- The cover material should be mounded over the pit in order to direct runoff away from the site and to minimize infiltration through the pit.

Maintenance

- The burial site should be inspected regularly to ensure other species have not accessed the site.
- As the mounded cover subsides, more solid material should be added to maintain the mound.



MANURE MANAGEMENT

A key biosecurity practice to limit the spread of bacteria found in manure is to ensure manure is kept out of water sources.

Producers must collect, store and spread manure in ways that minimize the risk of spreading disease bacteria. Manure can be a common source of disease bacteria and a transmitter. Bacteria in manure can be spread by direct contact, by air, on people, in transportation trucks or through other equipment and vehicles. Producers should have a manure management plan according to the provincial regulations.

VACCINATIONS

The regular use of needles can commonly spread disease from one animal to another. It is imperative producers use new, clean and sanitized needles when vaccinating their animals. This is of particular importance when vaccinating high risk or infected animals.

Medical equipment, such as needles, should be properly stored to avoid contamination from other sources, and should also be properly disposed of once used.

COMMUNICATION AND DISEASE RESPONSE PLAN

It is important to have a good working relationship with your veterinarian prior to problems developing.

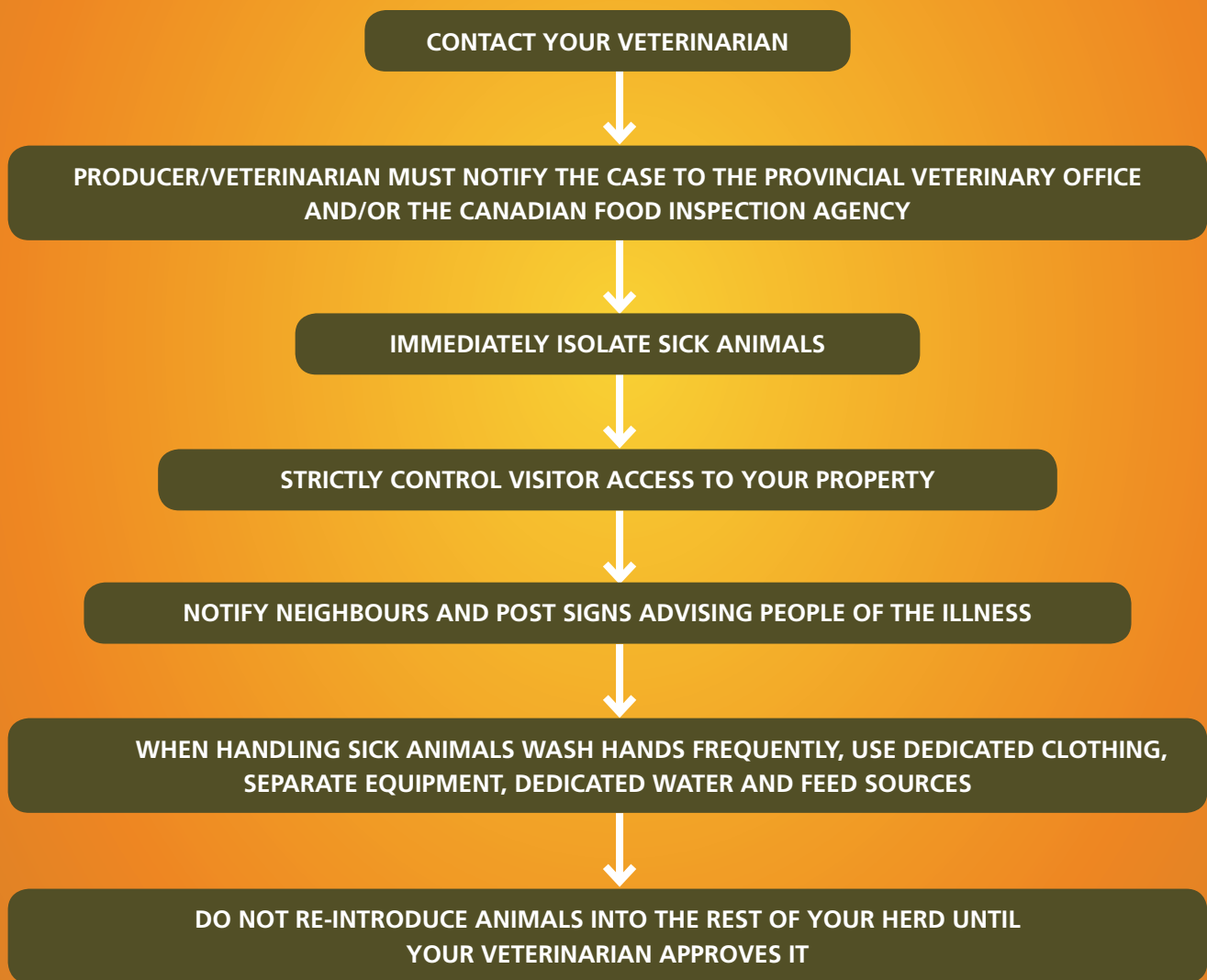
Producers should develop a disease response plan with their veterinarians to protect their property, facilities and animals.

- Create a list of emergency telephone numbers, including those of your employees, neighbours, veterinarian, regional CFIA veterinarian and provincial veterinarian offices.
- Together with your vet, develop animal health protocols for common diseases. This should include adequate animal health records.
- Perform regular safety checks on all facilities, vehicles and equipment on your farm.
- Document disease triggers for your response plan (e.g. animals showing unusual behavior or clinical signs, changes in production or changes in mortality rates).
- Document movements of animals, people and vehicles onto your farm.
- Review and update your response plan, supplies and information regularly.
- Train staff and employees on biosecurity practices and other beneficial management practices utilized on your farm.
- Maintain records, which can be incorporated into an on-farm food safety plan.

OTHER CONSIDERATIONS FOR IMPLEMENTING BIOSECURITY:

1. Consider precautions before granting access to your livestock (e.g. washing stations, foot baths, designated clothing, etc.).
2. Use signage. Signage should be used at the entrance of calving barns and pastures. This is especially important during calving season to avoid disease exposure and transmission. If access is provided, the producer should maintain an active visitor logbook, and implement the necessary biosecurity practices for visitors (refer to page 7 and 8).

WHAT TO DO IF YOU SUSPECT A DISEASE IN YOUR HERD



APPENDIX I: RISK FACTOR CHECKLIST

- ✓ How many locations within your operation adjoin areas that have cattle from another owner?
- ✓ Do employees have routine contact with cattle or other species outside your herd?
- ✓ Is your herd in a commingling site or community pasture?
- ✓ Do you purchase feed or feed supplements for your herd?
- ✓ Do you produce seed stock for other producers?
- ✓ Do you have background calves or run a yearling operation?
- ✓ Do you have streams or runoffs that flow into your ranch?
- ✓ Do you raise other species on your farm that may come into contact with your cattle?
- ✓ Do you regularly clean and sanitize equipment and tools?
- ✓ Do you use regularly cleaned trucks for movement of cattle?
- ✓ Do you use an isolation facility for incoming animals?
- ✓ Are incoming animals monitored for signs of disease?
- ✓ Are animals blood tested and/or vaccinated during isolation?
- ✓ Is your operation in close proximity to another livestock operation?
- ✓ Do you have control over who accesses your land containing livestock?
- ✓ Do you use fences or guardian dogs to avoid contact with other species (e.g. wildlife)?
- ✓ Do you have a veterinarian in close proximity to your operation?
- ✓ Do you have a record keeping book and herd health management plan?

Once a producer has answered the above questions, they can begin to implement their biosecurity practices.

APPENDIX II: FEDERALLY REPORTABLE DISEASES FOR CATTLE IN CANADA

REPORTABLE DISEASE	DESCRIPTION OF DISEASE
Anaplasmosis	Anaplasmosis is a disease caused by a parasite within red blood cells. It affects domestic and wild ruminants, and causes clinical signs in cattle.
Anthrax	Anthrax is a naturally occurring disease caused by a spore-forming bacterium that can have devastating effects on cattle, sheep, goats, horses and bison.
Bluetongue	Bluetongue is a viral disease of domestic and wild animals that can be transmitted by insects.
Bovine Spongiform Encephalopathy	BSE or “Mad Cow Disease” is a progressive, transmissible, and fatal disease affecting the nervous system of cattle. There is no treatment or vaccine currently available for the disease.
Bovine Tuberculosis	Tuberculosis is a contagious disease caused by an infection in the lymph nodes which is then spread to other organs like the lungs. This disease is transmissible between wildlife and cattle.
Brucellosis	Brucellosis is a disease that is chronic and contagious. The disease can affect many species of animals, particularly cattle, swine, bison, elk, deer, goats, sheep, horses and other ruminants.
Chronic Wasting Disease	Chronic wasting disease (CWD) is a progressive and fatal disease affecting the nervous system of wildlife (elk and deer) and is transmissible to cattle.
Contagious Bovine Pleuropneumonia	Contagious bovine pleuropneumonia (CBPP) is an infectious and highly contagious bacterial disease in cattle and water buffalo.
Bovine Cysticercosis	Bovine cysticercosis is a parasitic disease from the larvae of human tapeworm that affects the muscles of cattle.

REPORTABLE DISEASE	DESCRIPTION OF DISEASE
Foot-and-Mouth Disease	Foot-and-mouth disease is a severe, highly infectious viral disease of cattle and swine. Clinical signs include fever, blistering in and around the mouth and teats, and between hooves. This disease has significant economic and financial effects, such as border closures and elimination of entire herds. The disease is easily transmitted through aerosols, contaminated clothing/footwear, and other infected species.
Lumpy Skin Disease	Lumpy skin disease is a viral disease of cattle and can spread rapidly impacting trade and cattle production. The clinical signs include fever and eruptions of a large number of skin nodules of varying size. Jersey, Guernsey, Friesian and Ayrshire breeds of cattle are particularly susceptible to the disease.
Rabies	Rabies is a viral disease that attacks the central nervous system of warm-blooded animals, including humans. Once symptoms appear, rabies is always fatal in animals and people. In Canada, the animals that most often transmit rabies are foxes, skunks, bats and raccoons.
Rift Valley Fever	Rift Valley fever is an acute viral disease that affects cattle and humans. Clinical signs include fever, illness, abortions and a high mortality rate. Mosquitoes are a common carrier of the virus.
Vesicular Stomatitis	Vesicular stomatitis (VS) is a viral disease affecting cattle and other ruminants. It resembles foot-and-mouth disease and it can result in loss of animals and animal products.

APPENDIX III: COMMON DISEASES FOUND IN MANITOBA

ANAPLASMOSIS

What is anaplasmosis?

Anaplasmosis is an infectious disease and parasite of red blood cells that can be transmitted by biting insects/fly and the use of unclean needles and equipment. Anaplasmosis has been confirmed in the southeast corner of Manitoba, with the last known case in the RM of Stuartburn in 2009.

What are the clinical signs of anaplasmosis?

Clinical signs of anaplasmosis include fever, anaemia, weakness and respiratory distress. The illness is rare in animals under six months of age, mild from 6-12 months, and acute in 1-2 year old animals. Usually, these symptoms occur within 1-2 weeks of contracting the organism (e.g. through a tick bite). Anaplasmosis is initially diagnosed based on symptoms and clinical signs, and is then confirmed by tests conducted in labs.

How is anaplasmosis transmitted?

In cattle, a tick or biting fly transmits the disease from one infected animal to another. Ticks are biological vectors of the disease and easily transmit from one animal to another. Transmission also occurs through repeated use of needles and equipment, such as dehorning/castration instruments. Once the animal is infected, red blood cells multiply and spread throughout the animal.

Can we prevent anaplasmosis?

There is currently no prevention (vaccine) for anaplasmosis available in Canada. Once the disease is suspected, animals are put into quarantine and blood tests are conducted for confirmation. The best way to prevent the spread of anaplasmosis is to follow strict sanitation measures during vaccinations and procedures like dehorning and castration in order to stop the spread of the disease to healthy animals.

BOVINE TUBERCULOSIS

What is bovine tuberculosis?

Tuberculosis is a contagious disease that causes an infection in the lymph nodes which is then spread to other organs like the lungs. This disease affects practically all mammals, and before control measures were adopted, was one of the major diseases in humans and domestic animals.

What are the clinical signs of bovine tuberculosis?

The cattle experience weakness, loss of appetite, weight loss and fever. In the advanced stages of the disease, the animal can have an irregular cough.

How is bovine tuberculosis transmitted?

Infected animals with open lung lesions spread the disease through airborne transmission. When the animal coughs, the disease is released into the air and it infects other animals through inhalation. Bovine tuberculosis can also be spread through feed and water facilities.

In Manitoba, bovine tuberculosis is most commonly transmitted from elk and white-tailed deer to cattle around the Riding Mountain National Park area. However, without prevention and control measures, this disease can spread to other herds across the province.

Can we prevent bovine tuberculosis?

There is no treatment for bovine tuberculosis and sometimes the disease can lie dormant for years without the cattle producing any clinical signs of the disease. Testing can be done before the animals are integrated into a herd but the disease may still be prevalent. Prevention methods include cleaning and disinfecting trucks and facilities before animals are brought onto the farm. Producers should also request records of herd health.

Bovine tuberculosis risk factors in Manitoba:

Bovine tuberculosis has been present in Manitoba for over 20 years, specifically around the Riding Mountain National Park area. Bovine TB continues to be prevalent in the Riding Mountain National Park area through its wildlife carriers, specifically elk and white-tailed deer. Since 1991, 45 elk and 11 white-tailed deer have tested positive for bovine tuberculosis in the Riding Mountain area. In addition, there have been seven positive cattle herds and one exposed herd. The last positive-tested beef cattle found in Manitoba occurred in 2008. The last positive case of TB in elk/white-tailed deer occurred in 2009 in the RM of Rosedale.

The CFIA requires that infected cattle, as well as exposed susceptible animals must be destroyed in order to eliminate the disease from the herd and neighbouring herds. Manitoba's beef producers in the TB eradication zone are still required to put their herds through quarantine and testing.

What are prevention measures for beef producers living in proximity to Riding Mountain?

- Minimize contact between your herd and wildlife.
- Carry out a risk assessment through MAFRI.
- Avoid bale grazing and swath grazing in order to minimize the easy access of forage for wildlife.
- Install barrier fences around hay storage sites.
- Use guardian dogs to protect livestock herds from animals entering the premise.

JOHNE'S DISEASE

What is Johne's disease?

Johne's disease is a chronic, contagious bacterial infection of the small intestine and digestive tracts. Johne's disease is a common disease in beef cattle and has been known to be found in approximately 29 per cent of Manitoba herds.

What are the clinical signs of Johne's disease?

Animals can be infected at any age, however, clinical signs rarely appear before two years of age and some will not show signs of infection for 10 years. Johne's disease progresses very slowly. Some cattle will show clinical signs of weight loss, even with good appetite and nutrition. Cattle infected with Johne's disease may have diarrhea that will be sporadic or severe.

Other clinical signs include bottle jaw, which is accumulated fluid under the jaw and results in the inability to absorb protein.

How is Johne's disease transmitted?

Johne's disease is most commonly spread through contaminated manure. The cattle ingest feed or water tainted with manure from infected stock and as a result the infection spreads throughout the digestive tracts.

Calves can become infected at the time they are born when calving takes place in a manure-filled calving pen with high concentrations of bacteria found in bedding or when the calf suckles. It only takes a small amount of Johne's disease bacteria to infect a calf.

Johne's disease bacteria can also be recycled from infected adult cows to calves through water. Johne's disease bacteria can survive for long period of time in water. The infected cows can transmit the bacteria to lagoons, which then spreads to the calves through drinking water or feed.

Johne's disease bacteria can also be spread in the colostrum and milk of infected cows and in the semen of infected bulls. Colostrum can become contaminated off the teats and udders when multiple cows calve in the same pen and when pens are not routinely cleaned.

Can we prevent Johne's disease?

There is no treatment for Johne's disease. The key to preventing, controlling and eliminating Johne's disease in a herd is following good biosecurity practices. Testing can also determine the extent of the infection in the herd. The most common test used in Manitoba is the Elisa test which can determine the level of immune response to the Johne's disease bacteria in milk or blood. However, it can only conclude 10 to 30 per cent of the actual infected animals.

Prevention methods should include protecting calves from ingesting manure from infected adults. This includes implementing strict sanitation methods to avoid the contamination of feed, water and calving pens.

BOVINE VIRAL DIARRHEA VIRUS (BVDV)

What is bovine viral diarrhea virus?

Bovine viral diarrhea virus (BVDV) is a contagious disease that affects the immune system of cattle and can be found at any age, including the fetus stage. BVDV is very difficult to control once the infection is present and most commonly occurs in feedlot operations.

What are the clinical signs of bovine viral diarrhea virus?

BVDV is associated with many fluctuating clinical signs, which makes it difficult to determine and control. Acute BVDV infections often result in fever, increased respiratory rate, diarrhea, and reduction of white blood cells. The infection generally only lasts for a short period of time, however, once the animal is infected, its immune cells reduce resistance to other diseases and infections, such as bovine respiratory disease (shipping fever), salmonella infections, arthritis, and pneumonia. BVDV can result in early embryonic death, abortion, premature births or the birth of very weak calves.

In some cases, BVDV can result in a severe, fatal disease called mucosal disease. Clinical signs include fever, low white blood cells, diarrhea, lack of appetite, dehydration and death.

How is bovine viral diarrhea virus transmitted?

BVDV can be transmitted from animal to animal through semen and embryo transfer, as well as through unclean hands, clothes, footwear and handling tools/equipment. Persistently infected or carrier animals are the main source of spreading the disease and should be eliminated from herds when possible.

Can we prevent bovine viral diarrhea virus?

All breeding cows and heifers should be vaccinated for BVDV pre-breeding to decrease the occurrence of fetal infection and birth of persistently infected calves. The animals should be vaccinated three to four weeks before entering the feedlot and a second dose should be given when they enter the feedlot.

It is important to implement biosecurity practices, particularly, segregating incoming animals to monitor and ensure all appropriate vaccinations are given.

BOVINE LEUKOSIS VIRUS

What is bovine leukosis virus?

Bovine leukosis virus is a blood-borne virus that causes cancer of the lymphatic system, ultimately leading to illness and death. It is common only in beef and dairy cattle.

What are the clinical signs of bovine leukosis virus?

Infection likely occurs in newborns, but less than one in 20 offspring of infected animals will show clinical signs of the disease in their lifetime. In the lymphosarcoma form of disease, infected animals develop tumours in the uterus, abomasum, or heart. In the leukemia form of the disease, which affects less than five per cent of cattle, the animal will have an abnormally high number of white blood cells in circulation.

Advanced stages of the disease can include weight loss, enlarged lymph nodes, paralysis in the hind legs and fever. Leukosis is a common cause for carcass condemnation at slaughter.

How is bovine leukosis virus transmitted?

The disease is blood borne and can be spread by direct transfer of blood from one animal to another by way of an insect vector (e.g. horseflies), contaminated needles, dehorner, or ear taggers. Congenital infection is seen in less than one in 10 calves born to positive dams. The virus is not transmitted by semen.

Can we prevent bovine leukosis virus?

Producers should test all incoming animals to ensure that they are not infected with the disease. Use needles and rectal sleeves a single time on only one cow. Disinfect surgical instruments, dehorner and ear taggers between animals. Use colostrum from only test-negative dams.

DEER LIVER FLUKES

What are deer liver flukes?

Deer liver flukes are parasitic flatworms found within the livers of infected deer and other ruminants.

What are the clinical signs of deer liver flukes in beef cattle?

Infected cattle often do not show clinical signs, but may have reduced average daily gain, lower feed conversion, reduced milk production, and lower weaning weights; these are the most common productivity losses. Cattle may experience loss of body condition over time, and as a result, sudden death through massive hemorrhage or blood loss may occur.

How are deer liver flukes transmitted?

Deer will pass the fluke eggs in feces. Since the eggs need moisture for development, shallow water and marshy areas are ideal for fluke development. When the eggs hatch, they enter snails, which then become an intermediate host. Further development of the larvae (young flukes) occurs in vegetation until ingested by cattle. The larvae then migrate from the intestine to the liver.

How to prevent deer liver flukes?

The best way to prevent deer liver flukes is to reduce the exposure to wet, marshy areas and snails. This can be difficult to control, so the next step would be to talk to your veterinarian about deworming programs and vaccination treatments.

The most common treatment for deer liver flukes is Facinex. However, this drug is not available for use in Canada. If you suspect deer liver flukes in your cattle, talk to your veterinarian who can prescribe a treatment.

Deer liver flukes risk factors in Manitoba

Deer liver flukes are common in the southeast corner of Manitoba. The last surveillance study conducted in Manitoba in 2005/2006 indicated out of 147 cases, 42 per cent were positive for liver flukes. The highest percentage was in the RM of Piney, however, some cases have appeared in St. Claude and the Interlake.

APPENDIX IV: IMPORTANT CONTACT INFORMATION FOR BEEF PRODUCERS IN MANITOBA

Canadian Food Inspection Agency (CFIA)	1-800-442-2342
Manitoba Agriculture Food and Rural Initiatives, Livestock Division	1-204-573-1563
Manitoba Agriculture Food and Rural Initiatives, Chief Veterinary Office (CVO)	1-204-945-7663
Manitoba Veterinarian Medical Association	1-866-338-6862

Local Veterinarian (fill in for your use)

Canadian Food Inspection Agency (CFIA) Regional Veterinarians	
Brandon 18th Street and Grand Valley Road Post Office Box 1000-C, R.R. #3 Brandon, Manitoba R7A 5Y3 Telephone: 204-726-7556 Fax: 204-726-7564	Carman 19 Main Street Post Office Box 569 Carman, Manitoba R0G 0J0 Telephone: 204-745-2292 Fax: 204-745-3729
Dauphin 302 Main Street South Dauphin, Manitoba R7N 1K7 Telephone: 204-622-4086 Fax: 204-622-4090	Emerson Post Office Box 146 Emerson, Manitoba R0A 0L0 Telephone: 204-373-2346 Fax: 204-373-2490
Portage la Prairie 309 Saskatchewan Avenue East Portage la Prairie, Manitoba R1N 0L6 Telephone: 204-239-8420 Fax: 204-239-8421	Steinbach 32 Provincial Trunk, Unit 2 Steinbach, Manitoba R5G 1X7 Telephone: 204-326-8331 Fax: 204-326-8334
Winnipeg District Office 2539 Main Street, Unit 1 Winnipeg, Manitoba R2V 4G4 Telephone: 204-983-2219 Fax: 204-983-8628	

APPENDIX V: VISITOR LOGBOOK SAMPLE

For biosecurity purposes, all visitor information is recorded at the earliest point of entering the premises.

DATE	NAME	COMPANY	CONTACT INFORMATION

OWN OR WORK WITH LIVESTOCK REGULARLY?	AREA OF PREMISES VISITED	THREE KEY QUESTIONS ANSWERED?	COMMENTS

NOTES



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154 Paramount Road

Winnipeg, MB R2X 2W3

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ManitobaBeef