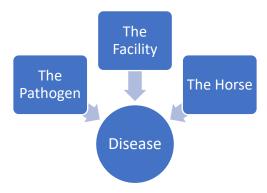
Elm Creek Equine Veterinary Services: Farm Biosecurity Worksheet

Barn:	Manager:	Γ	Date:	
	·			

Factors that Influence the Spread of Disease:



Disease occurs when factors from the host (the horse), the environment (the facility), and the pathogen all line up.

Biosecurity protocols aim to control the spread of disease by influencing all three factors towards high-health.

Part 1: The Pathogen

It is important to identify the specific diseases that your horses are at risk for. This table subjectively indicates the risk level for various diseases in Manitoba based on the equine population factors.

This table outlines the risk factor of each disease based on the facility. No risk is scored at 0 with high risk 3. Chose the scenarios that best suit what your facility is and total your risk factor for each pathogen. Your facility may be multi-use, therefore more than one scenario applies. In this case, sum your totals and use that as your risk level (several low to medium risk factors may push you into a high-risk category).	Exhibition Centre or Racetrack	Public Boarding Barn- Scenario 1	Public Boarding Barn- Scenario 2	Public Boarding Barn- Scenario 3	Public Boarding Barn- Scenario 4	Private Barn- Scenario 1	Private Barn Scenario 2	Pregnant and Foaling Mares Present	Horses aged 6-24 months present	Rescue/ Auction Horses Present	Horses on extended outdoor board	Quarantine Facility for Imported Horses (indoor care, adult horse)	Total Risk Factor
Equine Herpes Virus (Rhino)	3	3	3	3	3	1	3	2	3	3	1	3	
Equine Influenza Virus (Flu)	3	3	3	3	3	1	3	2	3	3	1	3	
Strangles	3	2	3	3	3	1	3	1	1	3	1	3	
West Nile	1	3	3	3	3	3	3	3	3	3	3	1	
WEE/EEE	1	3	3	3	3	3	3	3	3	3	3	1	
Lyme Disease	1	1	1	1	1	1	1	1	1	1	3	1	
EIA	1	1	2	2	2	1	1	1	1	3	3	1	
Rabies	1	2	2	2	2	2	2	2	2	2	3	1	
Salmonella	3	1	1	2	2	1	1	1	2	3	1	2	
Potomac Horse Fever	0	1	1	1	1	1	1	1	1	1	2	0	
Corona Virus	1	1	1	1	1	1	1	2	2	1	3	1	
Cryptosporidium	1	1	1	1	1	1	1	2	2	2	1	1	
Rota Virus	1	1	1	1	1	1	1	2	2	2	1	1	
Rhodococcus equi	2	1	1	1	1	1	1	1	2	2	1	1	

The Scenarios:

Public Boarding Barn 1: The Discipline Specific and Local Barn

- These adult horses have a similar lifestyle. They board at a barn with similar aged horses that all travel to local events (comprised of groups of horses from within Manitoba).

Public Boarding Barn 2: The Discipline Specific and Not-Local Barn

- These adult horses have a similar lifestyle. They board at a barn with similar aged horses, however, these horses travel to events out of province or even out of the country.

Public Boarding Barn 3: The Non-Discipline Specific, but Local Barn

- These horses have variable lifestyles. Some may haul to shows or events, but often of different disciplines. Some may haul to other facilities of varying biosecurity programs or of mixed age horses. For the most part, horses are not travelling outside of Manitoba and are not interacting with or sharing airspace with horses that are outside of Manitoba. Often some yearlings and two-year old horses are present here.

Public Boarding Barn 4: The Non-Discipline Specific and Not Local Traffic-Only Barn.

These horses also have variable lifestyles. Some may haul to shows or events, but often of different disciplines. Some may haul to other facilities of varying biosecurity programs or of mixed age horses. This is a barn that may be used for layovers of horses that are hauling across the country. Horses of mixed ages may be present here.

Private Barn 1: The Private Barn that Does Not Haul to Shows, Events or Clinics

- This is a private barn with little turn-over of horses. These horses do not attend shows, clinics or events where they may be housed in stalls outside of their own stalls. New horses are only introduced occasionally, (approximately 1 every 4-5 years).

Private Barn 2: The Private Barn that Hauls to Shows, Events, or Clinics.

- This is a private barn with little turn over of horses. These horses do attend shows, clinics, or events where they may be exposed to disease. New horses are rarely introduced (approximately 1 every 1-2 years).

 \rightarrow Using these scenarios, classify your program to the best of your ability and determine which infectious diseases you are at the highest risk for.

The three main syndromes of these infectious diseases include <u>respiratory disease</u>, <u>neurologic disease</u>, and <u>diarrhea</u>.

You will find that different scenarios tend to be highest risk for each of these syndromes, with the following generalizations holding true:

- → Travelling show horses tend to be at highest risk for respiratory disease.
- → Horses living outdoors tend to be at highest risk for insect-vector related disease, which tend to be neurologic in nature (there are some exceptions here)
- → Facilities foaling out mares tend to be at highest risk for diarrhea related syndromes, especially in their foals.
- → Strangles tends to be the most prevalent in auction horses or rescued horses.

It is important to know that diseases can spread in different ways. The most common ways for disease to spread include:

- → Direct Horse to Horse Contact
- → Aerosolization of Pathogen
- → Vector Transmission (insects, ticks, rodents, snails, etc).
- → Water borne transmission

Part 2: The Facility

It is important to understand what your environment and equine program will consist of, especially when designing a facility. This will help guide what steps to take to ensure your facility is up to par with the risk of disease from the infectious agents present in your environment.

This is the time to go through your facility and grade yourself on each aspect of building a biosecurity friendly facility. Give yourself the allocated points for each Yes and 0 points for each no.

Building Location: ____ My site is located at least 200 metres from other horses that are not in my biosecurity program. (1 point) ____ My site location is landscaped for adequate drainage and to prevent the accumulation of standing water. (2 points) Signage: ____ My barn has signs to prevent visitors from accessing the horses in their stalls or paddocks. Visitors are strongly encouraged to phone ahead and met at the facility entrance. (2 points) ____ My barn has written policies in place for travelling equine professionals such as vets, farriers, bodyworkers, and saddle fitters to ensure that clean clothes, footwear and appropriate hand washing and equipment cleaning is always in place. (2 points) ____ Disinfection protocols and horse-flow protocols are clearly posted for barn staff and boarders to observe. (2 points)

uilding and Fencing Materials:
_ My barn has an impermeable floor (concrete) with appropriate drainage to allow proper disinfection. . point)
_ My barn ceiling is enclosed – rafters are separated by an impermeable barrier (example, tin ceiling) point)
_ My barn walls are impermeable (sealed wood, puckboard, Truss-Core, etc). (1 point)
_ My stalls are impermeable (composite, puck board, concrete, etc). (1 point)
_ My barn has pest control measures to prevent birds and rodents from entering the barn (screens ver open doors, etc). (3 points)
encing and Stable Design
My fences are non-permeable (steel, wire, flex rail, or sealed wood, including the posts). (2 points)
There is at least 10 metres of space between paddocks of horses of different risk groups (travelling orses versus mares and foals). (3 points)
My paddocks are cleaned routinely and landscaped to prevent standing water. (3 points)
My horses do not have access to natural water sources such as swamps or dugouts. (3 points)
My barn has adequate air flow and ventilation using air exchangers and circulating fans. (3 points)
orse Flow
New horses are required proof of vaccination prior to arrival (5 points)
New horses are required to have a current Coggins test (within the last 6 months). (5 points)
New horses are quarantined at least 30 metres from other horses for at least two weeks after entry. aily temperatures are obtained, and veterinary advice is sought if the horse develops a fever. (5 points)
New horses are required to have a negative Strangles PCR or negative Strangles titre test (PCR referred). (3 points)
Travelling horses do not have nose-to-nose contact with non-travelling horses. The stabling ssignment prevents travelling horses from being stall-neighbors with young horses, broodmares, or on-travelling horses. (3 points)
Sick horses are identified and isolated immediately (neurologic disease, respiratory disease, fever, or arrhea. (5 points)
Mares and foals are housed completely separately from travelling horses (different barn if they are rought in overnight). (5 points)
Weanlings, yearlings and two-year old horses are housed separately from travelling horses and eparately from mares and foals (different barn if they are brought in overnight). (5 points)

Cleaning and Care Procedures:

Water buckets and feed pans are designated to individual horses or groups of horses. Feed pans, water buckets, or water troughs are not shared between horses of different statuses (young stock, pregnant mares, or travelling horses) (3 points)
Common use areas such as grooming stalls or wash-racks are cleaned and disinfected regularly (up to multiple times a day depending on use and risk factors). Disinfection protocol appropriate to the type of surface being cleaned is laminated and clearly posted, and staff are trained in disinfection protocols according to each type of surface (3 points)
Disease spread is limited by logical flow or employees doing chores. Employees begin with caring for the healthy horses, and then handle quarantined or sick horses last. Employees clean their boots, change their overalls, and wash hands/change gloves between each sick/quarantined horse and before handling the mares/foals or the young stock (clean boots, change overalls and wash hands/arms or change gloves between mares/foals and young stock as well). (4 points)
Disease spread is limited from controlling boarders or visitors traffic flow from farm area to farm area. We do not allow boarders or their friends to go from their riding horse to the quarantine area and back to their riding horse. (4 points)
Rodent/bird control is in use. (4 points)
Barns are thoroughly cleaned with detergent and disinfectant on a schedule appropriate to risk level: (No disinfection, 0 points), (Disinfection, but not on a regular schedule, 4 points), Disinfection on appropriate schedule, 8 points).
→ Low risk barns are scrubbed with detergent and disinfected twice a year. Common use areas are disinfected once a month.
→ Medium risk barns are scrubbed with detergent and thoroughly disinfected four to six times a year. Common use areas are disinfected once a week.
→ High risk barns are scrubbed with detergent monthly to weekly, with individual stalls cleaned and disinfected between each horse. Common use areas are cleaned and disinfected daily.
Disinfection protocol includes:
Removing all organic material and scrub surface with a detergent – 2 points
Rinsing the detergent with water – 2 points
Allowing the surface to dry completely – 2 points
Applying an appropriate disinfectant to the surface and allowing adequate contact time before rinsing thoroughly - 2 points.
Facility Score:/100
Results:

0-59: Your facility is at high risk for a disease outbreak if a pathogen is introduced. Upgrades and management changes are recommended. A comprehensive vaccination program is required. We do not

recommend that you accept high-risk horses such as travelling horses, auction horses, rescue horses, or young stock until biosecurity upgrades have been implemented.

61-80: Your facility likely has an adequate biosecurity program. Consider budgeting to enhance biosecurity protocols annually. We recommend a comprehensive vaccination program; however, your facility has implemented safeguard the spread of infectious disease.

81-100: You have created a facility and plan with good biosecurity. You are well prepared against infectious disease. We still recommend a vaccination program, but it can be targeted as appropriate for each class of horse as the risk of disease spread from horse-to-horse on your farm is low.

Part Three: The Horse

Preventing disease by focusing on the health of the horse is an important aspect to biosecurity. There are four main factors to optimize the immune system and reduce the spread of disease:

- Using an appropriately designed vaccination protocol or plasma therapy protocol.
- Use appropriate screening tests to limit bringing in chronic carriers.
- Reducing stress in your equine population
- Providing high quality nutrition

Vaccination Protocol:

- Refer to <u>Part One: The Pathogen</u> to identify which pathogens your horse population is most at risk for. We strongly advise vaccinating against any disease that scores a three or higher on our pathogen risk assessment form.
- Discuss with your barn veterinarian the appropriate vaccine type and frequency to use for each disease.
- Know the vaccination status of incoming horses prior to their arrival. If you have a barn that is at risk for respiratory diseases, ensure proof of recent vaccination prior to new arrivals coming.
- Ensure that weanlings have received the 2-3 dose series required to establish immunity!
- Ensure that all vaccine is purchased from a veterinarian (required for the vaccine's guarantee of safety and guarantee of efficacy). We strongly recommend that boarding barn managers do not administer vaccinations to horses that they do not own, for liability purposes. We do recommend that all vaccine is administered by a veterinarian, however, understand that this is not always feasible in large groups of horses.
- Rabies vaccination is only available if administered by a licensed veterinarian.

Infleunza and Rhino: Based on Risk factors present in Section 1.

<u>Weanlings:</u> 2 doses of Vetera 2xp or Vetera Gold spaced 3-4 weeks apart in horses over the age of 5 months.

Broodmares: 1 dose of Vetera 2xp or Vetera Gold 3-4 weeks prior to foaling to protect the mare as

<u>Strangles:</u> Based on Risk factors present in Section 1.

→Not to be used in horses under the age of 1 year.

→Not to be used in pregnant mares.

well as produce better maternal antibodies in the colostrum.

<u>Travelling Adult Horses:</u> 1 dose of Vetera Gold once a year and 1 dose of Vetera 2xp 6 months later (March/September for many horses but this will depend on show schedule).

Use Flu-Avert two to three times a year for highrisk influenza horses (travelling frequently to mixed groups of horses with shared air space and high humidity- winter indoor shows!

Non Travelling Adult Horses- Used based on risk factors of environment/facility.

<u>Yearlings:</u> 1 dose of Vetera Gold once a year and 1 dose of Vetera 2xp 6 months later (March/September for many horses but this will depend on show schedule).

→Not to be used in horses with previous exposure to strangles, unless titre test performed.

→Strongly recommend a strangles titre prior to vaccination to limit the risk of hypersensitivity reactions.

Yearlings:

2 Doses of Pinnacle IN spaced 3-4 weeks apart.

Travelling Adult Horses:

1 dose of Pinnacle IN annually.

<u>Tetanus:</u> Required for all horses. Present in all environments in Manitoba.

Weanlings: Give 2 Doses of Vetera Gold or 2 Doses of Vetera EWT+WNV 3-4 weeks apart. Broodmares: Give 1 dose of Vetera Gold or 1 dose of Vetera EWT+WNV 3-4 weeks prior to foaling to protect the mare as well as provide the foal with good maternal antibodies from the colostrum.

<u>Youngstock and All Adult Horses:</u> Give 1 dose of Vetera Gold or Vetera EWT+WNV once a year.

Rabies: Recommended for all horses in Manitoba. Found infrequently in companion animals but regularly in wildlife. Possibility for transmission to humans and subsequent human fatality.

Weanlings: Give 1 Dose of ImRab LA.

<u>Broodmares:</u> Give 1 dose of ImRab LA 3-4 weeks prior to foaling to protect the mare as well as provide the foal with good maternal antibodies for colostrum.

<u>Youngstock and All Adult Horses:</u> Give 1 dose of ImRab LA once per year.

<u>West Nile Virus:</u> Recommended for all horses in Manitoba. Present in mosquito populations with highest incidence in late summer.

Weanlings: Give 2 Doses of Vetera Gold or 2 Doses of Vetera EWT+WNV 3-4 weeks apart.

Broodmares: Give 1 dose of Vetera Gold or 1 dose of Vetera EWT+WNV 3-4 weeks prior to foaling to protect the mare as well as provide the foal with good maternal antibodies from the colostrum.

<u>Youngstock and All Adult Horses:</u> Give 1 dose of Vetera Gold or Vetera EWT+WNV once a year.

<u>Lyme Disease:</u> Recommended for all horses in Oakbank, Selkirk, Anola, and Winkler, Morden or Manitou areas.

*This is an off-label use of a canine vaccine and horse owners are not protected by the manufacturer's guarantee of safety or efficacy in preventing Lyme Disease.

<u>Previously Unvaccinated Horses:</u> 2 doses of Recombitek Lyme 3-4 weeks apart. Recommend annual revaccination with a single dose of Recombitek Lyme.

<u>Potomac Horse Fever:</u> Recommended for horses with access to natural water sources such as dugouts, rivers, or ponds.

<u>Previously Unvaccinated Horses:</u> 2 doses of Potomovac 3-4 weeks apart.

Leptospirosis Vaccination:

Not yet available in Canada.

Recommend annual revaccination for horses	Rota Virus, Rhodococcus Equi, Coronavirus:
living in high risk areas.	These are diseases that often affect foals, causing
	severe diarrhea or pneumonia. Vaccinations are
*Combination vaccine with Rabies- must be	not available, however, specially formulated
administered by a licensed veterinarian.	plasma for transfusion of foals is available to
·	provide immunity for the first few years of life.
	Plasma therapy recommended where previous
	outbreaks have occurred in foal populations.

Facility Vaccination and Screening Program:

- → We recommend vaccinating with Flu/Rhino and Strangles (if indicated) 3-4 weeks prior to your first indoor event of the calendar year and again for Flu/Rhino in 6 months.
- → We recommend vaccinating with EWT+WNV and Rabies in April or May of each Calendar year.
- → We recommend pulling a Coggins Test within 6 months of your last show of the outdoor season, if possible.
- → We recommend Coggins testing and EVA testing all stallions 3-4 weeks prior to breeding season.

Month:	_		
Vaccinations:		 	
Target Horse Group:		 	
Month:	_		
Vaccinations:		 	
Target Horse Group:		 	
Month:	_		
Vaccinations:		 	
Target Horse Group:		 	
Month:			
Screening Tests:		 	
Target Horse Group:			

Screening Tests:

1) Coggins Testing:

This is a screening test used to detect chronic carriers of Equine Infectious Anemia. EIA is a disease spread from biting flies, sharing surgical instruments or needles, or through semen. Affected mares can pass the disease down to the next generation through her foal.

EIA is a reportable disease in Canada. The CFIA has made screening for the disease a process that is implemented by industry, rather than by government. This means that it is up to barn

owners, show organizers, and horse owners to request regular Coggins testing for appropriate disease surveillance, eradication, and the safety of our horse population for years to come.

We recommend that all boarding barn managers and show organizers require a Coggins test dated within six months of the show or from moving barns.

Through Coggins testing, the incidence of EIA has been greatly reduced over the last forty years.

Other recommendations regarding EIA include:

- → All facilities establish themselves as an EIA free facility by testing the entire group of horses once every five to seven years.
- → All horses pass a Coggins test prior to sale.

2) Strangles Testing:

Streptococcus equi equi is a bacterium that causes severe respiratory disease characterized by enlarged and abscessed lymph nodes, purulent nasal discharge, lethargy and fever. It is also linked to systemic illness such as "bastard strangles" or severe hypersensitivity reactions such as purpura hemorrhagica. Strangles often causes severe clinical signs, but some horses can recover from clinical signs but harbour the bacteria in their guttural pouches through the presence of guttural pouch chondroids (balls of dried up pus).

We recommend that high risk facilities implement a Strangles vaccination program. It is wise for barn owners to request Strangles testing for horses coming from high risk situations such as other barns with unknown biosecurity protocols, barns with a history of Strangles outbreaks, horses coming from auctions or rescues, or any horses coming from out of province regardless of health status or biosecurity protocol.

Strangles can be tested for using two tests:

- 1) Titre Testing (ELISA): This tests for an antibody response to Strangles. A completely negative response indicates no previous exposure to Strangles, either from vaccination or from infection.
 - a. This test cannot distinguish between vaccinated horses and previously exposed horses. It should not be used to screen for Strangles in horses that have been previously vaccinated.
- 2) PCR Testing: This tests for DNA from Streptococcus equi. A nasal swab or guttural pouch swab is obtained. This is an excellent test and only detects the actual presence of Streptococcus equi.

3) Equine Viral Arteritis Testing:

EVA is a disease that causes abortion storms in broodmares. This testing is strongly recommended for stallions prior to the beginning of each breeding season, especially if they are covering mares from outside farms. EVA will not be heavily discussed here; please contact us if you require an EVA program for your stallion and broodmares.

Stress Management:

Stress can decrease immune function in horses, just like other species. Decreasing the stress of each horse on your property can help to prevent horses from becoming sick and spreading disease, especially diseases like EHV that are always present in low levels but stress will cause virus replication and increased shedding.

Factors to help reduce stress:

- -Limit mixing of new horses
- -Ensure adequate space for horses in each paddock
- -Ensure access to clean, fresh water
- -Ensure access to shelter from the elements and bed appropriately (straw outside in the winter), and deep, comfortable bedding in each stall if they come inside.
- -Be aware of temperature shifts: if horses are coming in to a warm barn, change blankets from turnout appropriately. If you body clip or trace clip, be sure to blanket appropriately after to keep your horse from getting cold.
- -Ensure adequate turnout and socialization.
- -Ensure a forage first diet.

Nutrition:

Malnourished horses do not have an optimized immune system. Ensure that your nutrition is on point by following these guidelines. Be sure to work with your veterinarian or nutritionist to balance your diet appropriately.

- → Feed high quality forage appropriate to your horse's age and lifestyle. Horses require between 11% and 16% crude protein. This should be met by your hay whenever possible. Test your hay and select it based on your horse's nutritional requirements depending on his stage of life, athletic requirement or metabolic status.
- → Feed enough protein. If you cannot find hay that is high enough in protein, supplement with a ration balancer such as Buckeye Grow N Win, or alternative high protein feed.
- → Feed mineral: Hoffman's or Calibre are two options that can be provided for horses to balance mineral
- → Have your nutritionist review your diet and ensure all nutrients including vitamins and minerals are balanced.

Further Reading

What to Do in Case of An Outbreak:

- 1) Contact Your Veterinarian
- 2) Isolation Protocol:
 - a. Horses showing clinical signs in one area
 - b. Horses exposed but not showing clinical signs in one area

- c. Horses not exposed in one area
- 3) Stop horse traffic:
 - a. Close the barn to horses coming and going until the outbreak is contained
 - b. Do not allow affected horses out of their quarantine zone.
 - c. Disinfect all areas of the facility before moving any not exposed horses into common use areas (wash rack, grooming stalls, indoor arena, etc).
 - d. Do not move any exposed or infected horses away from their guarantine zones.
- 4) Limit human traffic:
 - a. Do not allow boarders to move between quarantine zones.
 - b. Instruct staff on caring for horses beginning with non-exposed horses, then to exposed but not infected, and then to infected. A full change of clothes, boot disinfectant, and glove change is required before moving back to the non-exposed group of horses.
 - c. If necessary, reduce barn hours or close the barn to boarders until the outbreak is contained.
 - d. Advise farriers, veterinarians and other equine professionals on a need-to-know basis that your barn has tested positive for an infectious disease. This will help them plan their day in terms of biosecurity (they should be attending your barn last in the day before they go home for a full cleaning including vehicle wash).
 - e. Set up gloving stations, disposable coveralls, boot covers, hand wash stations and boot dips between all quarantine zones.
- 5) Test and Modify:
 - a. Instruct your owners that repeat testing may be needed to ensure that the outbreak is fully contained.
 - b. Look over your biosecurity protocol with your veterinarian and see if any modifications can be made to prevent this outbreak from happening again in the future.

The Disinfection Process:

- 1) Ensure all wood is sealed, or use composite or concrete materials.
- 2) Clean off all debris such as bedding, manure, spider webs, crusted on feed, etc.
- 3) Remove stall mats and clean each surface separately.
- 4) Remove stall accessories (fans, buckets, feed pans, etc) to be cleaned individually.
- 5) Using a detergent, scrub the stall thoroughly.
 - a. Low to moderate risk facilities can use a household detergent. We recommend TIDE Laundry Detergent with Bleach.
 - b. High risk facilities may benefit from investing in a commercial detergent such as Biosolve or Biofoam, depending on their cleaning requirements.
- 6) Rinse the detergent thoroughly with water
- 7) Allow the surface to dry completely before continuing
- 8) Apply a disinfectant at full strength. **We recommend Virkon or Prevail solution for broad spectrum use.**
- 9) Allow the full recommended contact time, which will vary depending on the chosen disinfectant. Be aware that some disinfectants may be corrosive to metals.

10) Thoroughly rinse the disinfectant off the surface. This will remove the killed organisms, reduce metal corrosion, and prevent chemical exposure to your horse.

The Horse Show or Event Packing List:

- Hand Sanitizer and Moisturizer (and Lip Balm!)
- Scrub Brushes for Stalls and Floors
- Detergent
- Disinfectant
- Spray Bottles or Pump Applicator
- Broom and Shovel
- Trash Bags
- Buckets and Sponges/Towels for Cleaning
- Buckets for Feed and Water
- Signage to prevent the public from touching your horse
- Thermometer for monitoring your horse's temperature
- Vaccination record (Flu/Rhino within six months)
- Coggins Test (within six months)

Don't forget to thoroughly disinfect trailers if they are being shared between horses of different farms!

Whenever possible, do not share anything.

Thank-you for working through this biosecurity protocol. Please retain a copy for your records and we will keep one on hand in the office to help schedule your annual veterinary requirements. If you need help understanding or implementing any of these protocols, please do not hesitate to contact us at Elm Creek Equine.

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