

# **Unified Anthrax Recommendations for MB, MN, MT, ND, & SD.**

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The intent for this document is to provide basic unified recommendations for Minnesota, North Dakota, and South Dakota, Montana and Manitoba. They are not intended to supersede or replace existing regulations and policies. These recommendations are intended to educate the public and prevent cases of anthrax from occurring, and if they do occur offer recommendations to protect public and animal health. There are differences between US and Canadian policies. Consult your local authorities.

Public service messages should start at least 30 days prior to cattle being turned out onto range and pasture settings for the grazing season. Education efforts directed at practicing veterinarians should have also begun. Veterinarians should be educated in sample collection, submission, and correct vaccination and antibiotic treatment protocols. Diagnostic laboratories should be advised on appropriate “anthrax kits” used for collecting and transporting samples.

Spores are the main problem with anthrax. They remain viable in the soil for many years. There are three key areas to consider when preventing future anthrax outbreaks.

1. Vaccinate in endemic areas to prevent any more cases of anthrax.
2. Minimize spore production and spread by burning anthrax carcasses and blood contaminated soil as quickly as possible whenever possible.
3. Sporadic cases often go unobserved and unreported. Many of these cases can occur in wildlife. Extra effort in identifying sporadic cases is needed to reduce soil contamination.

At present, there is only one anthrax vaccine licensed in the United States and Canada. This non-encapsulated live anthrax spore vaccine is manufactured by the Colorado Serum Company ([www.colorado-serum.com](http://www.colorado-serum.com)).

Administration of this vaccine may be governed by local regulations.

### **Vaccination:**

As a preventative measure, animals in anthrax endemic areas should be vaccinated approximately four weeks prior to the time the disease usually appears. Immunity from vaccination appears to wane after approximately 6 months, so annual revaccination is necessary.

Colorado Serum’s recommended dose is one ml. injected subcutaneously in the neck. Anecdotal evidence indicates that immunity can develop in five days. It is usually protective by 8-10 days. Colorado Serum also recommends a second “booster” vaccination two to three weeks after the first dose in heavily contaminated areas and for horses. Llamas and goats should get an initial half dose, repeated three weeks later by a full dose.

Colorado Serum Company has a package insert which mentions vaccinating horses in the brisket (pectorals) as an alternative, to help minimize the potential of an adverse local reaction. Anecdotal evidence from the field indicates that dividing the dose in half and giving a half dose on each side of the neck may also help minimize local injection site reactions in horses. The insert also states “Adverse reactions have been reported in young and miniature horses. Consult your veterinarian when considering vaccination of exotic or sensitive species, e.g.s llamas and other American camelidae, and immunologically immature or stressed animals.” Miniature horses and American camelids should be

considered as “vaccinate at your own risk”. If the risk of an adverse reaction in an animal is greater than the risk of contracting anthrax, it may be wise to recommend that the animal(s) be confined to an area where they are fed off the ground or on concrete to decrease the probability of ingesting anthrax spores from contaminated soil.

**All** herds with a history of anthrax infection within the past 10 years and those herds within six miles (ten kilometers) of those herds should be vaccinated or revaccinated for the prevention of anthrax for two primary reasons:

1. Not all herds or flocks affected with anthrax in the past will have been reported or dealt with properly, so viable anthrax spores may still be present to cause disease.
2. Delayed reporting of cases of anthrax allows contamination of insects’ mouth parts with anthrax organisms and thereby transport these spores to unvaccinated susceptible animals.

All susceptible animals in these herds should be vaccinated. Susceptible animals include cattle, horses, mules, sheep, goats and pigs. Off-label use of the vaccine should be considered for bison, and farmed elk and deer. Any off-label use of the vaccine must be discussed with your veterinarian.

According to the label, vaccinated animals should not be slaughtered for 42 days after last dose of anthrax vaccine. There is no withdrawal time for milk from vaccinated cows, i.e. their milk is safe to drink

### **(Re)vaccination:**

If anthrax is detected in a herd, the herd should be promptly moved to a new pasture away from the site(s) of the dead animals to prevent additional infections from the primary source in the pasture, and to prevent secondary cases due to animals’ curiosity exhibited by nuzzling the dead animals and licking any contaminated blood and fluids.

If animals have been previously vaccinated, revaccination options should be discussed with your veterinarian. If animals are unvaccinated, all susceptible animals must be vaccinated. A booster dose in two to three weeks is highly recommended.

During severe outbreak conditions in addition to vaccination, exposed susceptible animals may be treated first with antibiotics, and then vaccinated. This will help to stop any incubating infections. The decision to use antibiotics in conjunction with vaccination must be made in consultation with the owner, their veterinary practitioner and regulatory authorities.

Adjacent herds within six miles (ten km) of a prior case of anthrax should be strongly encouraged to vaccinate, especially in years with wet spring weather and/or flooding. This recommendation is based on the likelihood that the soil type, topography and other associated ecological factors may be similar and therefore conducive to the propagation of anthrax. Anthrax can skip neighbouring herds and spread to other more distant areas via sporadic unseen wildlife cases, portions of infected carcasses spread by scavengers, but especially on the mouthparts of biting flies.

### **Suspect cases:**

Any unexplained deaths of susceptible domestic and wild animals should be investigated promptly by an authorized veterinarian. Anthrax is a public health risk to people. If possible, do not move a carcass. Measures should be taken to prevent opening of the carcass (do not overlook scavengers). Anthrax is facultative anaerobe that will grow under both anaerobic and aerobic conditions, but will form spores when outside the carcass in the presence of oxygen.

Suspected cases of anthrax must be reported to your local veterinarian. In Canada, anthrax is a reportable disease under the Health of Animal Regulations, and all cases must be reported to the Canadian Food Inspection Agency (CFIA). The risk of a person contracting anthrax from an animal or animal carcass is low. Veterinarians have the highest risk of contracting the disease because of their contact with carcasses, especially if performing a necropsy. Any blood should be washed off using soap and water.

### **Samples to be taken:**

Contact your local veterinary diagnostic laboratory for assistance when submitting samples.

The preferred biological sample for anthrax is a blood sample. Any samples should only be collected by a veterinarian. If whole blood is not available there are a few other samples that can be taken. They include a blood soaked cotton swab or umbilical tape taken from blood-tinged fluids exuding from the anus, vulva, nostrils or mouth, and placed in a sterile, sealed tube or plastic bag; or exudate-contaminated soil placed in a sterile, sealed tube or plastic leak-proof container; or as a last resort a cotton swab soaked with fluid from the spleen if the animal has been eaten by predators or when a necropsy was performed. Recent reports indicate that anthrax has been isolated from nasal turbinates of animals dead in excess of three weeks. These samples should only be obtained by a trained individual practicing appropriate biosafety technique.

Submission of solid tissues from organs is strongly discouraged unless no other sample is available. Extreme care must be taken when submitting any sample that might potentially contain anthrax.

### **Quarantine:**

In the US each state has its own rules on quarantine of herds affected by anthrax. In Canada, CFIA determines the rules regarding the length of quarantine of herds affected by anthrax. Please contact your local authorities for quarantine information in your state or province.

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[skeller@nd.gov](mailto:skeller@nd.gov)  
[www.agdepartment.com/Programs/Livestock/BOAH/BOAH.html](http://www.agdepartment.com/Programs/Livestock/BOAH/BOAH.html)

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[www.aib.sd.gov](http://www.aib.sd.gov)

### **Carcass disposal:**

The preferred method of disposal is burning. The goal of burning is to destroy as many spores as possible to decrease the likelihood of disease propagation in later years. Carcasses should not be moved. Carcasses should be incinerated very close to their point of discovery; any contaminated soil should be placed on top of the carcass for burning. Directions for burning carcasses can be found at: [www.ag.ndsu.edu/pubs/animhealth.html](http://www.ag.ndsu.edu/pubs/animhealth.html). Deep burial will not destroy the spores. If there is going to be a delay in burning the carcass it can be sprayed with 5% formaldehyde to discourage scavengers from opening the carcass and thereby increase the risk of spore production.

Deep burial is allowed, but not recommended. If deep burial is the chosen method of disposal, do not cover the carcass with barn lime (calcium carbonate). A recent report in the Canadian Veterinary Journal indicated that excess calcium may actually enhance the survivability of anthrax spores that are buried deeply. If the decision has been made to bury the carcass deeply, a new EPA approved product called Peridox might be considered. Peridox is a hydrogen peroxide foam that will deactivate anthrax spores. At this writing, the use of Peridox is limited to federal on-scene coordinators, the US military, and persons trained and certified competent by the manufacturer, Clean Earth Technologies, [www.cleanearthtech.com/EDS.htm](http://www.cleanearthtech.com/EDS.htm).

If immediate burning or deep burial is not possible, your state or provincial CFIA veterinarian, in association with provincial authorities, can advise you on other appropriate procedures.

Each state and province has its own regulations, policies and procedures governing indemnity, if available. Please contact your state or provincial CFIA veterinarian for more details.

### **Information Sources:**

Clean Earth Technologies

[www.cleanearthtech.com/EDS.htm](http://www.cleanearthtech.com/EDS.htm)

Colorado Serum Company

[www.colorado-serum.com](http://www.colorado-serum.com)

North Dakota Information

[www.ag.ndsu.edu/pubs/animhealth.html](http://www.ag.ndsu.edu/pubs/animhealth.html)

[www.agdepartment.com/Programs/Livestock/BOAH/BOAH.html](http://www.agdepartment.com/Programs/Livestock/BOAH/BOAH.html)

South Dakota Information

[www.aib.sd.gov](http://www.aib.sd.gov)

<http://vetsci.sdstate.edu/vetext/>

Canadian Food Inspection Agency

<http://inspection.gc.ca/english/anima/disemala/anthchar/anthchare.shtml>

Office of Internationale Epizootics (OIE)

[www.oie.int/eng/normes/Mcode/en\\_index.htm](http://www.oie.int/eng/normes/Mcode/en_index.htm)

World Health Organization (WHO)

[www.who.int/csr/resources/publications/csrpublications/en/index1.html](http://www.who.int/csr/resources/publications/csrpublications/en/index1.html)

[www.who.int/csr/resources/publications/anthrax\\_webs.pdf](http://www.who.int/csr/resources/publications/anthrax_webs.pdf)

### **Maps:**

Manitoba

[www.gov.mb.ca/agriculture/livestock/anhealth/jaa02s00.html](http://www.gov.mb.ca/agriculture/livestock/anhealth/jaa02s00.html)

Minnesota

[www.bah.state.mn.us/diseases/anthrax/index.html](http://www.bah.state.mn.us/diseases/anthrax/index.html)

North Dakota

[www.agdepartment.com/Programs/Livestock/BOAH/Anthrax.htm](http://www.agdepartment.com/Programs/Livestock/BOAH/Anthrax.htm)

South Dakota

<http://aib.sd.gov/diseasecontrol.shtm#cattle>