

## **2005 Anthrax Outbreak in Manitoba**

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In 2005 between July and the end of September, a total of 26 cattle and 10 horses reportedly died of anthrax on 12 premises in south central Manitoba.

Canada experiences one or more anthrax outbreaks almost every year. Most of the outbreaks involve fewer than five farms, and cattle are usually the only species affected. The losses per farm are usually from one to three animals. The only exceptions to this rule in recent history are the 2005 outbreak in Manitoba, and the outbreaks in 1999 and 2000 in Alberta and Manitoba respectively. A feature common to all anthrax outbreaks—including the 2005 outbreak—is that the first affected farm often has the highest mortality. In Manitoba, ten dead cattle (approximately 28% of the total deaths) were reported on the first farm between July 22 and August 2. This common feature may be attributed to the producer practice of not seeking veterinary assistance until a number of animals die.

An outbreak in the U.S. began on July 18, 2005, when anthrax was diagnosed in a buffalo and beef herd. By the time the outbreak ended in September, approximately 500 cattle and bison had died on 125 premises in 24 counties of North and South Dakota. This was reported as the worst outbreak in livestock in North Dakota's history. During the same period, Minnesota reported anthrax on five farms with a total loss of 23 cattle, and there was also a single ranch in northeast Montana on which anthrax killed 37 cattle.

Unusually wet conditions in June, along with high heat and humidity in July, were contributing factors in the outbreaks in Manitoba and the Dakotas. There were no other factors connecting the Manitoba outbreak to anthrax outbreaks in the northern U.S.

Anthrax is a reportable disease in Canada under the *Health of Animals Act and Regulations*. Anyone suspecting the disease is required to report it to the Canadian Food Inspection Agency (CFIA). Anthrax is often referred to as an 'environmental disease' and bacterial spores are present in many areas of Canada. The spores remain viable in the soil until they are brought to the surface by excessive rainfall, flooding or excavations, at which time domestic or wild animals may become infected by grazing on contaminated pastures. Anthrax is also a zoonotic disease and people may become infected by direct infection from the environment or by handling material containing anthrax—cutaneous anthrax, which can result when open skin wounds are contaminated, or by consuming diseased animals or their tissues—gastrointestinal anthrax. Inhalation, the third form of anthrax is rare in field situations. In general, the risk of anthrax infection in people is low in most developed countries. In Canada, the last known human case of cutaneous anthrax was recorded in 2001 in a woman in British Columbia. The woman attended drum-making classes, where imported African goat hides, that were used in the process, were found to be contaminated with anthrax spores. Anthrax infection in humans can be treated with common antibiotics.

The CFIA's anthrax control program is based on World Health Organization (WHO) and World Organization for Animal Health (OIE) recommendations and guidelines for anthrax prevention, diagnosis, control, and surveillance.

Once anthrax is reported, the CFIA investigates and institutes control measures to prevent further cases on the affected premises and to prevent spread to other farms. These measures include:

- Separation of susceptible animals from the suspected source of the infection (contaminated pasture or feed) to prevent further cases on affected farms, and the quarantine of all susceptible animals on infected farms to prevent spread to other farms.

According to current knowledge, the incubation time for anthrax varies under field conditions and ranges from one to 14 days; however, in rare circumstances the incubation period can be longer. The OIE's Terrestrial Animal Health Code states that the incubation time for anthrax is 20 days. It is known that anthrax vaccination, depending on biological and environmental factors, becomes fully effective two to three weeks post initial vaccination. In light of the above, the duration of anthrax quarantine has been determined to be 21 days after all the animals in quarantine have been vaccinated, or 21 days after the last case of anthrax on the contaminated premises, whichever comes later.

- Disposal of diseased carcasses and any contaminated material by incineration or deep burial and disinfection of contaminated areas.
- Vaccination of susceptible animals on affected farms.

The vaccination of healthy animals may stop further mortalities within approximately eight days, and any sick animals should be identified, isolated, and treated with antibiotics. Antibiotic treatment is expected to reduce the efficacy of the live vaccine, so sick animals that recover should be vaccinated after the withdrawal time of the antibiotic product used.

Although many anthrax experts believe that only a single vaccination is necessary, the manufacturer of the currently available live, non encapsulated anthrax vaccine (Sterne) recommends a booster vaccination two to three weeks after the initial vaccination where the premises is considered to be highly contaminated.

In responding to an anthrax outbreak, many producers are faced with deciding whether to treat exposed susceptible animals with antibiotics, in addition to vaccination. Each decision will depend on the specific circumstances and should be made in consultation with the owner, the veterinary practitioner, and a CFIA veterinarian. While antibiotic intervention may minimize overall anthrax-related mortalities, a single treatment in the absence of suspected disease (clinical signs, fever) may not protect against infection, can interfere with vaccine efficacy, and will affect the vaccination timetable.

In those areas where anthrax is known to be a problem, it is advisable to re-vaccinate annually approximately 4 weeks prior to the time the disease usually appears.

The CFIA, as of December 1, 2005, will provide only an initial single vaccination at no charge to the owner and will strongly recommend that owners consider booster vaccination as per actual vaccine label recommendations and annually re-vaccinate their herds for at least three consecutive years following the outbreak.

- Tracing of any susceptible animals that have recently left the affected farm.
- Payment of limited indemnity to owners of disease animals (bison not included) to assist with disposal costs.

In any anthrax outbreak situation, the CFIA works closely with provincial animal health authorities and private veterinary practitioners to provide education and awareness to other livestock producers in the area regarding the prevention and control of anthrax. Owners of animals diagnosed with anthrax are advised to contact their family physician or public health officials for advice and any appropriate treatment.

The OIE, Terrestrial Animal Health Code - Anthrax, and WHO, Guidelines for the Surveillance and Control of Anthrax in Humans and Animals, can be viewed at:

[http://www.oie.int/eng/normes/mcode/en\\_chapitre\\_2.2.1.htm](http://www.oie.int/eng/normes/mcode/en_chapitre_2.2.1.htm)

<http://www.who.int/csr/resources/publications/anthrax/WHO EMC ZDI 98 6/en/>, respectively.

Additional information on the CFIA's anthrax control program as well as information on positive anthrax submissions reported in Canada in the last six years can be found at:

<http://www.inspection.gc.ca/english/anima/heasan/disemala/anthchar/statse.shtml>

Any questions or comments regarding anthrax program should be directed to the attention of Dr. Les Kumor at (613) 225 2342, ext. 3748 or [lkumor@inspection.gc.ca](mailto:lkumor@inspection.gc.ca).

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