

Anthrax

Anthrax has killed 663 head (143 farms in 44 municipalities) in Saskatchewan and 134 head (20 farms in seven municipalities) in Manitoba in 2006, along with several bison on one farm in Alberta. Anthrax is a rapid, fatal disease that kills animals within hours, but it can be prevented. Most herbivores (including cattle, bison, sheep and horses) are susceptible; anthrax is less common in carnivores or pigs.

Cause

Anthrax is caused by bacteria (*Bacillus anthracis*). When exposed to air, the bacteria form inactive spores that can survive in the soil for years. Animals get infected when they consume infected soil, and die within hours. The bacteria continue to multiply, and the carcass bloats and decomposes very rapidly. As the carcass decomposes, the anthrax bacteria are exposed to air, revert to spores and remain dormant in the soil for many years until another animal consumes them. This can take several decades.

Symptoms.

Initially, animals appear weak, feverish, or excited followed by depression, difficulty breathing, lack of coordination and convulsions. There may be a bloody discharge, which can cause further soil contamination. But because the animals die quickly, dead cattle are usually the first symptom of anthrax.

Reportable Disease.

Anthrax is a reportable disease in Canada. If anthrax is suspected, producers should remove surviving animals from the pasture and notify their veterinarian. Do not move mortalities, do not call for deadstock pick-up, and try to prevent scavenging. The veterinarian will draw a blood sample from a dead animal rather than doing a post-mortem, since this could cause more soil contamination. If the sample tests positive for anthrax, the Canadian Food Inspection Agency will be notified, and several things will happen:

Quarantine: The CFIA will quarantine the premises.

Vaccination: Surviving cattle will be vaccinated. Immunity will develop in 8 to 14 days, and a booster vaccination is recommended after 3 weeks. Annual boosters are recommended for ten years on infected premises.

Antibiotic Treatment: Anthrax is fatal once clinical signs appear, but early antibiotic treatment (long acting penicillin) of survivors may prevent further deaths. Antibiotics counteract the live vaccine. If the animals have already been treated with antibiotics, the vaccination will be done 8 days after the last antibiotic treatment. The quarantine will be extended if animals are treated with antibiotics in the first 8 days after vaccination.

Carcass disposal: The CFIA will oversee carcass disposal. Carcasses are completely incinerated on site to kill the spores, and the ashes will be buried 6 to 8 feet

deep as a precaution. The quarantine will not be lifted unless the disposal is done properly.

Lifting the quarantine: The quarantine will remain in effect until 21 days after mortalities stop or 21 days after vaccination, whichever comes last.

Indemnity: The CFIA will pay up to \$500 per confirmed anthrax mortality (cattle) to cover the costs of the animal and carcass disposal, and pay for the initial vaccination (but not boosters) on infected premises.

The CFIA recommends that producers within 10 km (6 miles) of an outbreak also vaccinate their cattle, with annual boosters for three years. Concerned producers can obtain the vaccine through their veterinarian, who can order it from CDMV in Calgary (403-720-7055). The vaccine costs \$1.80 to \$2.30 per dose.

Anthrax Spread

Anthrax outbreaks usually occur near previous outbreaks, probably because animals die before they can travel very far. Anthrax is not believed to spread from animal to animal. Feed grown on infected soil may be a means of spreading spores, and should not be fed to unvaccinated cattle.

Climate conditions

Since anthrax is soil-borne, conditions that increase the risk of soil consumption will increase the risk of anthrax. Under drought conditions, animals graze closer to the ground and are more likely to consume soil. Several things may happen under very wet conditions. Firstly, if animals are crowded into drier spots during a severe flood, they may churn up the soil and consume spores. Secondly, water flowing over the ground surface can cause soil erosion and expose the spores. Thirdly, spores

are concentrated in low spots when the pooled water evaporates, and infect cattle that drink standing water. An extremely wet spring likely contributed to the large scale of the Saskatchewan outbreaks in 2006. Mechanical soil excavation has been linked to some anthrax cases. Anthrax is most common at 15.5°C (60°F) or higher; cases in Western Canada since 1999 have all occurred from July through mid-October, and have followed periods of hot and dry or hot and wet weather.

Danger to Humans

In rare cases, people can contract cutaneous anthrax if exposed to infected animals or tissues. Producers or veterinarians handling infected cattle or cattle products may be infected through a through cut or skin abrasion. Symptoms generally appear within 7 days of exposure. A raised itchy bump like an insect bite appears and develops into a painless ulcer (1-3 cm in diameter). A black spot appears in the center within 2 days, and adjacent lymph glands may swell. Immediately contact your doctor if this occurs. There is about 20% mortality if untreated; mortality rare if treated with antibiotics. The disease is not known to spread from person to person.

For more information

Please phone the Alberta Beef Producers office at **(403) 275-4400**