

FAQs

Botulism is a disease caused by the toxin produced by the bacterium, *Clostridium botulinum*. Botulism can affect cattle, sheep, pigs, horses, goats and poultry. It occurs as an occasional problem in all states of Australia but is a major disease of cattle in the extensive grazing areas of northern Australia particularly under protein and phosphorus deficient conditions.

What causes the disease?

Botulism is caused by the bacterium *Clostridium botulinum*. There are four groups of this bacterium and these produce seven different types of toxin identified as A through to G. Toxin types C and D (Type B can also kill) commonly cause death in Australian sheep and cattle.

How does the animal become infected?

Toxin may be present in material eaten by the animal, or formed in the animal's gut following the ingestion of bacterial spores.

What are bacterial spores?

Like all clostridial bacteria, *C.botulinum* survives in the environment as a durable spore. Under favourable conditions such as in decaying dead animals, decaying vegetable matter, mouldy grain, wet hay or in the animal's gut the spore germinates and the bacteria multiply. The toxin is produced at this stage.

How does the toxin work?

The toxin enters the animal's bloodstream and causes paralysis of the motor nerves, which are the nerves responsible for movement. Paralysis starts in the rear legs of the animal and works forward. This is called ascending motor paralysis. The affected animal therefore first appears to be unsteady on its feet before going down and being unable to rise. Finally, the toxin affects the muscles responsible for breathing and the animal dies within 2 or 3 days.

What causes a botulism outbreak?

In southern Australia, most outbreaks are the result of animals ingesting toxin in wet hay, decaying vegetation or decaying carcasses. In northern Australia, cattle commonly suffer from phosphorus and protein deficiency. This can result in a depraved appetite, also called pica, which causes animals to eat things other than their usual diet, such as bones, which may contain the toxin. Outbreaks may also occur when stock are fed silage or hay which inadvertently contains dead, decaying animals in which the toxin is present.

What are the signs of a botulism outbreak?

The clinical signs of botulism may occur suddenly if enough toxin is ingested. The consumption of small amounts of toxin, or of spores which later germinate and produce toxin, may delay the onset of symptoms. The first indication of botulism may be a number of animals dying suddenly. If affected animals are still alive and on their feet they may stagger, drool saliva and have trouble swallowing. "Downer" animals may lie on their side or sit with their head around on their flank.

Why is it important to prevent botulism?

Few cattle survive botulism and there is no effective treatment so an outbreak can lead to serious productivity and profitability losses.

How it is diagnosed?

Botulism is usually diagnosed on the basis of the clinical signs, which are rapid death and/or progressive paralysis. A blood test (botulism ELISA) is now available to assist in obtaining a diagnosis of botulism. Toxin may also be isolated from the gut contents. However, the toxin is powerful and small undetectable amounts may still cause the disease.

Is there an effective treatment?

There is no effective treatment for botulism.

Can botulism be controlled or prevented?

Pfizer has two vaccines available to prevent botulism. Longrange[®] Botulinum Vaccine is a single dose bivalent vaccine for the prevention of botulism in cattle and Ultravac[®] Botulinum Vaccine is a traditional bivalent vaccine for the prevention of botulism in cattle and sheep.

What vaccination programs are recommended?

Longrange[®] is recommended as the initial dose for calves or previously unvaccinated cattle. Thereafter annual booster doses of Longrange[®] or Ultravac[®] Botulinum Vaccine will maintain immunity. For sheep the recommended vaccination program is 2 doses of Ultravac[®] Botulinum Vaccine 4–6 weeks apart followed by an annual booster dose.

Ultravac[®] Botulinum Vaccine 2.5mL for cattle 1.0mL for sheep.