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## Coronavirus in Calves

### General

Outbreaks of calf coronavirus diarrhoea are similar to, or more severe than, rotavirus infection. Nowadays, fortunately, coronavirus infection is much less common than rotavirus.

### What is it and how does it affect calves?

- Coronavirus is a virus, that infects and destroys mature cells from the tip of the 'villi', which are the tiny, finger like projections on the surface of the small intestine that help absorb nutrients.
- Absorption of milk and electrolytes is reduced and the damage to the intestinal cells means that fluid is lost from the intestine, further compounding the dehydration. It is this dehydration that generally kills the calf.
- Scouring continues until the villi inside the small intestine are again covered with mature cells that allow normal digestive-absorptive processes to resume.

### What are the signs?

Coronavirus infections cause diarrhoea in calves between 5 and 20 days old.

- Profuse watery to mucoid, undigested milk-curd scours +/- blood
- Straining to pass faeces
- Hanging back from the feeder/reluctance to come in and feed
- Reluctant to drink, fussing with teat, coming off teat
- Wet tail and faecally stained tail
- Lose weight
- Uncommon- mild pneumonia (more commonly seen in northern hemisphere)

### Diagnosis

- Calf side test- Rainbow-6 can be used to confirm the diagnosis

### Treatment

- Treatment with large volumes of electrolytes is labour intensive and time consuming- and not always effective particularly with younger calves. Even if the animals do recover, they will still shed large numbers of virus particles into the environment, potentially infecting healthy calves. Recovered calves may have slower growth rates and be more susceptible to other diseases.
- Feed large volumes of electrolytes but don't stop feeding milk as it is important to keep the calf's energy levels up.
- As a general rule, calves in the sick pen need as much electrolytes as you have time to get into them.
- While only small numbers of calves are infected isolate the calves being careful to disinfect any equipment used with sick calves. Don't go straight from the pens with sick calves to pens with healthy calves – clean boots and overalls.
- Spray pens with a virucide if sick calves have been removed. This should help protect the remaining calves in that pen.

### Prevention

- Cows can be vaccinated against this bacterium and pass the antibodies into the colostrum. Ensuring the calf has good quality colostrum in the first 24hrs of life is essential for preventing the disease in calves.

**Reference:**

Parkinson, T. J., Vermunt, J. J., & Malmo, J. (2019). Diseases of cattle in Australasia: a comprehensive textbook. New Zealand Veterinary Association Foundation for Continuing Education. Massey University Press, Auckland, 0745, New Zealand.