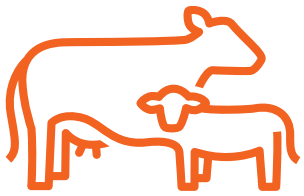
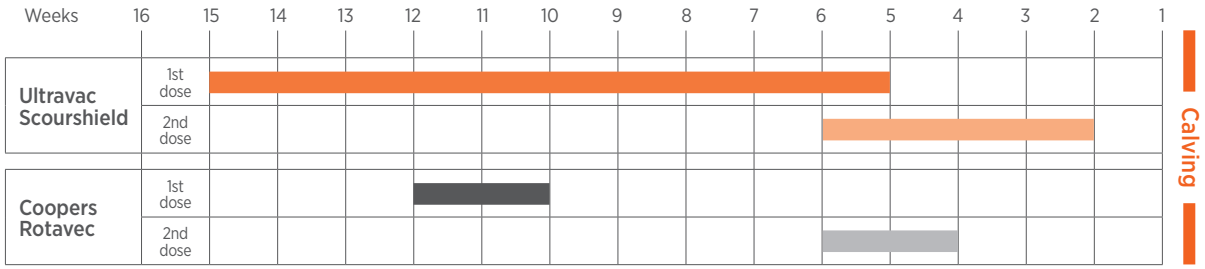
VETERINARY OPERATIONS

TECHNICAL INFORMATION UPDATE



Ultravac Scourshield®
– An easy choice for preventing calf scours

Advantages of Ultravac Scourshield over Bovilis® Rotavec Corona

Ultravac Scourshield	Rotavec Corona
Flexible Dosing Schedule **Primary vaccination** Wider inter-vaccination interval for primary course: 3-9 weeks. **Secondary vaccination** Can be given closer to calving to fit in with on farm management practices: 2-6 weeks prior to calving.	**Limited Flexibility** **Primary vaccination** Limited inter-vaccination interval for primary course: 4-6 weeks. **Secondary vaccination** Limited: 4-6 weeks prior to calving.
	
Flexible Administration Can be administered under the skin (subcutaneous; SC) or into the muscle (intramuscular; IM), whichever is more convenient. Studies have shown the vaccine to be effective via either route.	**Limited Flexibility** Can only be administered under the skin (SC).
Minimise Wastage: Long Broach Period Can be stored and used for up to 63 days (9 weeks) after opening. This supports the flexible dosing schedule and minimises wastage.	**Short Broach Period** Must be discarded within 12 hours of opening, meaning any unused product is wasted.
Tissue Friendly Formulated with an aqueous based adjuvant resulting is minimal reactivity.	**Greater Tissue Reactivity** Formulated using an oil based adjuvant, resulting in a greater risk of injection site reactions.

Is *Clostridium perfringens* a significant cause of calf scours in Australian dairy herds?

A recent study which investigated the prevalence of pathogens causing calf scours in Australian dairy herds identified rotavirus as the most common pathogen causing calf scours (79.9%) followed by *Cryptosporidium parvum* (58.5%), *Salmonella* spp. (23.8%), coronavirus (21.6%) and *E. coli* K99 (17.4%)[1].

Clostridium perfringens (types A-E) infections are important in cattle, for example type A may be involved in abomasitis in calves[2] and haemorrhagic bowel syndrome in adult cattle[3], and type D is responsible for enterotoxaemia (pulpy kidney) in older calves[2]. However, the diagnosis and clinical significance of *C. perfringens* infections as a cause of calf scours is not well understood. In a review of clostridial diseases of domestic animals[2], cases of scours in calves due to *C. perfringens* were reported. However the author of this review, as well as other researchers[3-5], would argue that finding *C. perfringens* or its various toxins in faeces does not mean that *C. perfringens* is the cause of the scour. *C. perfringens* is commonly found in the gut of healthy cattle, and therefore can be found in faecal samples from both healthy and scouring calves. This means that detecting these bacteria or their toxins in a stool sample from a scouring calf does not necessarily mean that *C. perfringens* is the cause of the scours. A 2008 study[5] (Table 1) found that there was no difference in the proportions of sick and healthy calves from which *C. perfringens* or its toxins were present.

Table 1. Faecal samples yielding *Clostridium perfringens* (Ferrerazi *et al.* (2008))

	***C. perfringens* toxins present**		
	Positive *(n, %)*	Negative *(n, %)*	Total
Scouring	17 (12.06%)	124 (87.94%)	141 (100%)
Not Scouring	17 (13.18%)	112 (86.82%)	129 (100%)
Total	34 (12.59%)	236 (87.41%)	270 (100%)

P = 0.7814 using the Chi-square test.

In the *Coopers National Calf Scours Survey*[6] the presence of *C. perfringens* in the faeces of 32% of calves with scours was reported. This does not prove that *C. perfringens* was the cause of scours in these calves, and in fact their results (Table 2) would demonstrate that most of the calves had another pathogen present in the stool at the time of sampling. From 146 calves with scours, the combined number of positive samples for the major scours pathogens (*Cryptosporidium,* Rotavirus, *E. Coli,* and Coronavirus) was 146 (i.e. one known scour-causing pathogen present per calf). These results would suggest that the additional positive samples indicating the presence of *C. perfringens* are probably an incidental finding and unlikely to be the cause of scours in these calves.

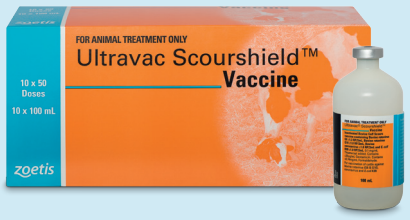
Table 2. Results of Rainbow 6 calf scours test kits in 146 calves[6]

	No. Positive Samples (by pathogen)	**% of Positive Samples** (146 tests)
Cryptosporidium	71	49%
Rotavirus	62	42%
E. coli	8	5%
Coronavirus	5	3%
C. perfringens	47	32%

Ultravac Scourshield:

- An aid in the prevention of calf scours – control calf scours before it controls the future of your calves, or your client's calves.
- The most flexible dosing schedule to conveniently fit in with farm management.
- The only vaccine with a 9 week broaching claim, minimising wastage.
- A tissue-friendly formulation.

Whilst *Clostridium perfringens* can be isolated in the faeces of both healthy and scouring calves, this bacteria has not been identified as a significant or common cause of calf scours in Australia.



References: 1. Izzo, M., P. Kirkland, V. Mohler, N. Perkins, A. Gunn, and J. House. 2011. Prevalence of major enteric pathogens in Australian dairy calves with diarrhoea. *Australian Veterinary Journal* 89(5):167-173. **2.** Songer, J.G., 1996. Clostridial enteric diseases of domestic animals. *Clinical microbiology reviews,* 9(2), p.216. **3.** Dennison AC, VanMetre DC, Callan RJ, *et al.* (2002). Hemorrhagic bowel syndrome in dairy cattle: 22 cases (1997-2000). *J Am Vet Med Assoc.* 221:686-689. **4.** Petit, L., Gibert, M. and Popoff, M.R., 1999. Clostridium *perfringens:* toxinotype and genotype. *Trends in microbiology,* 7(3), pp.104-110. **5.** Ferrarezi, M.C., Cardoso, T.C. and Dutra, I.S., 2008. Genotyping of Clostridium *perfringens* isolated from calves with neonatal diarrhea. *Anaerobe,* 14(6), pp.328-331. **6.** Coopers Animal Health, 2015. Tech Note: Clostridium *perfringens* and its impact on newborn calf health.

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