

# Definitive diagnosis of Cryptosporidiosis

Neonatal calf diarrhea also known as “scours” is a primary cause of illness and death in young, unweaned calves. Of the several viral, bacterial and protozoal intestinal pathogens associated with calf diarrhea, the most recognized pathogens include *Cryptosporidium* species, bovine coronavirus and bovine rotavirus group A<sup>1</sup>. Prevalence of infections by these pathogens varies due to geographic locations, production type (beef/dairy), age, and sensitivity and specificity of the diagnostic tests used for detection.

Although there are four *Cryptosporidium* species that are known to infect cattle (*Cryptosporidium parvum*, *Cryptosporidium bovis*, *Cryptosporidium andersoni*, and the *Cryptosporidium* deer-like genotype), occurrence of these infections is primarily age-related. *C. parvum* is the only zoonotic species in cattle and it accounts for about 85% of the *Cryptosporidium* infections in preweaned calves and only 1% in postweaned calves. *Cryptosporidium parvum* infections in calves usually occur between 3-21 days of age but seldom occur after 3 months of age. *C.bovis*, *C.andersoni* and the *Cryptosporidium* deer-like genotype are usually known to infect the postweaned calves and old cattle<sup>2</sup>.

TVMDL recommends 1-2 grams of fresh fecal/stool samples or fecal swabs to be collected during acute infection. Ideally, transport to the laboratory with cold packs in plastic leak-proof containers within 24 hours of collection<sup>3</sup>.

The **Calf Diarrhea Panel - Basic (qPCR)** can simultaneously detect three pathogens: *Cryptosporidium* species, bovine coronavirus and bovine rotavirus group A from bovine stool specimens.

The assay consists of a single protocol to detect these pathogens and also includes an internal positive control to monitor nucleic acid purification and amplification efficiency, enabling quick turnaround time. In addition, TVMDL professionals are available for interpretation and consultation on herd health diagnostics.

TVMDL also offers the ***Cryptosporidium* sp. (qPCR)** as another option for diagnostic testing.

For more information on diagnostic testing, contact one of the full-service laboratories, or visit our website.

#### References:

1) Foster DM, Smith GW: 2009, Pathophysiology of diarrhea in calves. *Vet Clin North Am Food Anim Pract* 25: 13-36, xi.

2) Thompson HP, Dooley JSG, Kenny J, McCoy M, Lowery CJ, Moore JE, Xiao L: 2007, Genotypes and subtypes of *Cryptosporidium* spp. in neonatal calves in Northern Ireland. *Parasitol Res* 100:619-624.

3) OIE Terrestrial Manual: 2008, Cryptosporidiosis. Chapter 2.9.4. 1192-1215.

4) Schroeder ME, Bounpheng MA, Rodgers S, Baker RJ, Black W, Naikare HK, Velayudhan BT, Sneed L, Szonyi B, Clavijo A: 2012, Development and performance evaluation of calf diarrhea pathogen nucleic acid purification and detection workflow. *Journal of Veterinary Diagnostic Investigation* 24(5) 945-953.

