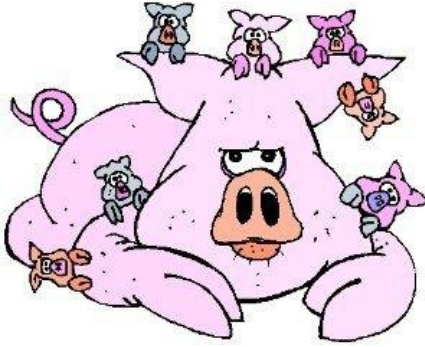


Piglet Scours – Could it be Clostridium?

Neonatal scours can have a number of causes including bacterial, viral and parasitic. Although one of the principal bacterial causes of piglet scours has, and continues to be;

Enterotoxigenic E. coli (ETEC), Clostridium is increasingly seen as a causative agent of piglet diarrhea.

Studies have shown that *Clostridium perfringens* types A and C as well as *Clostridium difficile* can be the causative agents of neonatal scours.



Clostridium perfringens type C

C. perfringens type C is the causative agent of necrotic enteritis and in acute cases, causes hemorrhagic diarrhea. Type C produces both alpha and beta toxins. The disease symptoms are usually seen in young piglets. Three days of age is the average age of emergence. Mortality in litters from non-immune sows can reach 100%.

Clostridium perfringens type A

Although previously considered to be part of the normal intestinal flora of swine, *C. perfringens* type A has more recently been shown to be involved in enteric disease under some conditions. Determination of the significance of the isolation of *C. perfringens* type A is often based upon clinical symptoms, histology, isolation of Clostridium in large numbers, particularly in the absence of other pathogens and detection of the toxins. Type A produces alpha toxin, but does not produce beta toxin. Some strains produce a powerful enterotoxin associated with sporulation.

The vegetative and sporulative forms have been shown to produce different disease symptoms. The sporulative form causes severe but transient, watery diarrhea. The vegetative form tends to result in creamy or pasty pale scours. Mortality rate in these piglets is low, but morbidity can be significant. (Diseases of Swine 8th Edition, 1999)

Clostridium difficile

C. difficile has been shown to be the causative agent of neonatal scours with increasing frequency as seen in a study by Yaeger *et al* from Iowa State University (J Vet Diagn Invest, July 2002). The study looked at pathogens present in 100 neonatal diarrhea cases. In this study, at least one toxin-positive animal was identified in 55% of the cases, demonstrating “the emergence of *C. difficile* as an important pathogen of neonatal swine”.

C. difficile is often not cultured due to its strict anaerobic requirements for growth, but may be a pathogen to consider when diagnostics rule out other enteric pathogens.

Testing Options

When *Clostridium perfringens* is suspected as a possible causative agent, submission of tied off loops of the small intestine are recommended for pathogen isolation. These can be submitted with rectal swabs to be screened for ETEC as well.

ELISA testing can be done on gut contents to determine if enterotoxin is present and the isolated organisms can be genotyped using PCR technology to provide a typing identification and confirm presence of toxin genes. Note that ELISA testing and PCR are often available through your regional laboratory.

Presence of toxins produced by *C. difficile* in gut contents or feces can be determined by ELISA testing. Once *C. difficile* has been implicated as a pathogen of concern, tied gut loops or live piglets should be sent to a regional laboratory equipped to perform the required anaerobic bacteriology. Indicate that *C. difficile* is suspected on the submission form.

Implications for Autogenous Bacterin Use

Use of a sow vaccination for control of *C. perfringens* type C infections in piglets is well accepted.

Confirmation of the presence of toxins and diagnostics to rule out other causative agents such as viruses and parasites helps to confirm that *C. perfringens* type A is the principle pathogen and improve the results seen with this bacterin.

We have experience in combining Clostridium bacterins to include *C. difficile*, *C. perfringens* and pathogenic *E. coli* strains that are impacting the herd.