

Defining Sow Productivity

Issue 2: Clostridial
Enteritis in Piglets

Controlling Clostridial Enteritis

For years producers and veterinarians have known that clostridial enteritis is a significant threat to piglets, as death losses and reduced weaning weights inflict serious financial losses. What is not as well known is that the disease has changed over the years, as different forms of *Clostridium* pathogens have now emerged as major obstacles to productivity and profitability.

The primary cause of clostridial enteritis is the bacterial pathogen *Clostridium perfringens*. Historically, *C. perfringens* type C was the sole microbe of concern, and bacterins/toxoids were developed to control the pathogen. Unfortunately, most disease outbreaks are now caused by *C. perfringens* type A. Furthermore, a separate clostridial species, *C. difficile*, has also been increasingly implicated as a major primary pathogen in neonatal piglets.

Prevalence shifts

Surveys performed in recent years (2000-2001) by the Iowa State University Veterinary Diagnostic Laboratory have demonstrated a substantial decline in the frequency of *E. coli*, TGE, and *C. perfringens* type C in piglets under 1 week of age.¹ While these pathogens accounted for 70% of neonatal diarrhea cases in 1988, they were identified with only a small number of cases in 2001. With the declining frequency of these previously common enteric pathogens, clostridial enteritis caused by *C. perfringens* type A (or *C. difficile*) has become a much more serious concern. In fact, more recent ISU-VDL data from 2003-2004 showed that 30% of all

cases of neonatal diarrhea were associated with *C. perfringens* type A pathogens, compared to only 11% linked to type C.²

These survey results were confirmed by field reports at a recent expert-panel veterinarian teleconference.² Joseph Connor, DVM, of Carthage, Illinois, described significant problems with *C. perfringens* type A over the last 2 years. "It is clinical in about 10% of the herds we service," noted Connor. "The general scenario is that stresses either involving poor ventilation or sanitation result in an increase in pre-weaning mortality and a reduction in weaning weights, or an increase in weaning weight variability."

Disease features and detection

Clostridial organisms are very common in the normal pig-production environment, and spores of the causative bacteria are very resistant and durable.³ Clostridial enteritis typically affects piglets less than 1 week of age, often within 3 days of birth; but piglets 2 to 3 weeks of age may also be affected by a chronic form of disease. Clinical signs of clostridial enteritis in neonatal piglets include sudden death (often with a bright red anus) while other affected piglets will appear pale and very weak. Post-mortem evaluation of neonatal pigs might reveal intestines full of blood.

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While infection with *C. perfringens* type A usually causes less mortality than type C, high morbidity rates can be extremely costly due to reduced weaning weights. Further contributing to the dangerous role of type A disease is the fact it is less understood, unpredictable, and more difficult to identify in the field as a rapid, easy diagnostic test is lacking. These disease characteristics were echoed by Roy Schultz, DVM, Avoca, Iowa. "Sometimes I think producers don't realize they have *Clostridium* type A, and it can become a diagnostic nightmare because it is a normal gut inhabitant. What we normally thought was *E. coli* is actually *Clostridium*, causing low weaning weight in affected pigs."

BMD is the answer

One of the best ways to easily limit the economic damage of clostridial enteritis in neonatal pigs is by feeding BMD® to sows.⁴ BMD is the only product approved for the control of clostridial enteritis caused by *C. perfringens* in suckling piglets. Feeding BMD to sows from 2 weeks before farrowing through 3 weeks of lactation at 250 g/t can help minimize piglet mortality, reduce piglet morbidity, and moderate the growth inhibition that typically reduces weaning weights and increases variability.

While the effectiveness of BMD for controlling clinical clostridial disease is well documented, the benefits of BMD usage for sub-clinical situations has also been demonstrated. An extensive series of 12 studies involving 3137 sows was

recently reported.⁴ Herds in these studies were not experiencing enteritis problems at the time of the trial initiation but had a history of clinical clostridial enteritis. BMD inclusion in sow feeds at 250 g/t for 2 weeks before through 3 weeks after farrowing netted an 18% reduction in sow weight loss, a 3% improvement in piglet survivability, 0.2 more pigs weaned per sow, and 0.6 lb heavier pigs at weaning. Dr. Connor also confirmed field success of using BMD in sow feeds for clostridial control.² "Typically we use BMD pre-farrowing and through lactation as an adjunct to control. If we do this and watch for other stressors we can get satisfactory control."

These positive responses in both sow and piglet performance support the use of BMD in sow diets in herds with clinical or subclinical clostridial enteritis. In addition, reductions in *C. difficile*-associated neonatal enteritis and mortality in herds fed BMD have also been reported.⁵

REFERENCES:

1. Yaeger M. Clostridial enteritis: diagnosis, significance, control. *Proc Am Assoc Swine Vet* 2002; 261-264.
2. Alpharma Inc. *Defining Sow Productivity*. 2006.
3. Iowa State Univ. swine diseases, clostridial enteritis (www.vetmed.iastate.edu).
4. Wolff T. An overview of research on bacitracin methylene disalicylate (BMD®) in sow diets. *Proc Am Assoc Swine Vet* 2005; 101-105.
5. Post KW, et al. The emergence of *Clostridium difficile* as a cause of porcine neonatal enteritis. *Proc Am Assoc Swine Vet* 2001; 373-375.

Recommended 5-Step Control Program:

1. Consult a veterinarian for proper diagnosis.
2. Initiate or continue a bacterin/toxoid vaccination program for sows.
3. Feed BMD at 250 g/t of gestation feed starting 2 weeks prior to farrowing.
4. Wash sows and completely sanitize farrowing crates before introducing sows.
5. Continue feeding BMD at 250 g/t of lactation feed for up to 3 weeks after farrowing to protect baby pigs from the bacteria.

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