



Gut Health Issues not a Pretty Picture

By Geoff Geddes, for Swine Innovation Porc

If you think your job is tough, try sifting through a sick pig's fecal matter all day. Both literally and financially, it's not a pretty picture, as gut issues cost pork producers time, money and lost production. In any battle, the key to victory is knowledge of your opponent, and that was a focal point for the information session held by Swine Innovation Porc prior to the 2020 Banff Pork Seminar.

Arming producers with details of suckling pig diseases and what to watch for was Dr. John Harding, professor, Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine at the University of Saskatchewan.

"There are several diseases to be mindful of, and one of the most common on farm is Colibacillosis," said Dr. Harding. "It is caused by an enterotoxigenic strain of *E. coli* (ETEC) that causes watery diarrhea, severe dehydration and sometimes death in the first week of a pig's life."

ETEC may be the "bread and butter" disease for suckling pigs, but many others are worthy of mention.

Rotavirus

A common disease causing great concern today is Rotaviral diarrhea. This virus is probably present on most farms and is very resistant to the environment, so most pigs have likely been exposed to it at one time.

"It is sometimes hard to identify when Rotavirus is causing disease versus just being an innocent bystander in feces."

Though there are three different species – A, B and C – scientists generally agree that Rotavirus A can cause diarrhea and is therefore a critical species to monitor. To do so, they use staining for detection of the virus in lesional tissue.

PED/TGE

Unlike Rotavirus, PED (Porcine Epidemic Diarrhea) and TGE (Transmissible Gastroenteritis) viruses cause overwhelming diarrhea that leads to dehydration and often death.

"You can actually see through the wall of the intestine with these conditions, whereas with *E. coli* the wall is thick."

Clostridium

Two species of Clostridium affect young pigs: *C. perfringens* and *difficile*. These are common pathogens that may cause disease or just be part of the normal gut microbiota (the genetic material of all the microbes - bacteria, fungi, protozoa and viruses - that live on and inside the body). The most severe type is Clostridium *perfringens* type C, a rare strain that triggers bloody diarrhea in suckling piglets and a large number of fatalities. Clostridium *perfringens* type A is more often seen on farm and causes a yellow, pasty diarrhea.

"Clostridium *difficile* is a severe infection that leads to leaching of fluids out of all bodily tissues," said Dr. Harding. "Some pigs will actually drown in their own fluids."

“THE SILVER LINING TO [THE] PED [OUTBREAK] IS THAT WE LEARNED TO BE BETTER PRODUCERS WITH IMPROVED SANITATION AND OTHER THINGS...” - DR. JOHN HARDING

Coccidiosis

This is a parasite rather than a bacteria or virus, and requires consumption of egg in contaminated feces. There is no effective treatment, so the only recourse is applying antimicrobials to prevent infection in subsequent litters. While traditionally associated with poor sanitation such as farrowing crates with concrete floors, it often appears in clean conditions as well.

Post-weaning diarrhea

In addition to many of the same organisms that attack other stages of life, some diseases are more prevalent in the grow-finish barn.

“Weaning is a stressful time of life with changes in diet, location and physiology. The disease causing us the most trouble in weaned pigs is Colibacillosis, usually expressed in the first couple of weeks of life and marked by profuse watery diarrhea with rapid dehydration.”

Other grow-finish diarrheas

If you made a top ten list of “things you don’t want to find in the barn”, bloody diarrhea would be right up there. For purposes of analysis, however, Dr. Harding classifies grow-finish diarrhea based on the presence or absence of blood.

Spirochaetal Colitis

This type of diarrhea usually has one of two causes: *Brachyspira pilosicoli* and *B. murdochii*. Both cause mild, non-bloody diarrhea, but rarely require treatment as affected pigs retain decent appetites.

Porcine intestinal adenomatosis (PIA)

PIA causes what Harding calls “smoothy peanut butter” diarrhea and typically affects young grower pigs, sparking growth rate loss and a drop in feed consumption. The most severe cases can involve hose pipe gut and full erosion of the small intestine’s mucosa.

Enteric salmonella

This condition is zoonotic, in that it is caused by bacteria, viruses and parasites that can spread between animals and humans. Since it is stable and consistent in the environment, most farms likely have healthy carrier animals.

Porcine haemorrhagic enteropathy (PHE)

An acute form of ileitis, PHE causes bloody diarrhea and can kill pigs overnight, so should be treated as a medical emergency on farm.

Swine dysentery

In spotting this condition, producers should look for extremely red blood. Swine dysentery often includes severe bloody diarrhea and may be life threatening, requiring treatment with antibiotics.

“It’s very resistant to the environment, so once you have it on farm, you probably have it for life unless you take steps to eliminate it from the farm.”





Improving barn management factors like temperature and indoor air quality, mixing/stress, hygiene and clean out procedures can all help in preventing gut health issues in the herd. Photo: Public domain

Diagnosis

Solving the diarrhea mystery requires a holistic approach to diagnosis that answers some critical questions: What age does it affect? What does it look like? What is the prevalence? Is there blood present?

“To me, the best diagnosis is based on histopathology, where you sacrifice some infected animals, take sections of the intestine and examine them in the lab to see exactly what those organisms are doing to the tissue. Sometimes we just take a fecal sample and analyze that, but it’s not as effective.”

How do we control these diseases?

The best control method is prevention, so proper biosecurity is vital to keeping disease on the outside looking in.

“The silver lining to [the] PED [outbreak] is that we learned to be better producers with improved sanitation and other things that cause diarrhea.

There is a lot we can do with barn management that most producers attend to on a daily basis, but can always improve upon: temperature and indoor air quality, mixing/stress, hygiene and clean out procedures. It’s easy to become rushed and let some of these suffer, but they are all key preventative measures.”

Boosting immunity through vaccination can also help protect your herd. Keep in mind that any stress at the time of vaccination reduces effectiveness, and weaning or shortly thereafter – the most common period for vaccinating – is also the most stressful for your animals.

Antibiotics are a vital control tool, though producers are urged to use them only when necessary to avoid resistance issues.

In both grow-finish and nursery pigs, nutrition plays a fundamental role in disease prevention. Nutritionists should consider hypersensitivities, formulation, ingredient quality and, for post weaning diarrhea, acidification of the diet.

As technology continues to evolve, science is enhancing disease prevention through genetic modification, coding of genes for disease resilience, and manipulating the gut microbiome.

Learning all you can about suckling pig diseases is a crucial first step to control and prevention. Of course, you’ll never look at peanut butter the same way again, but it’s a small price to pay. ☺