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Field experience with Rotavirus type C and *Clostridium spp.*

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Farrowing house scours can be very challenging to control and treat. Scours that become severe enough will result in increased prewean mortality and decreased weaning weights. When neonatal scours do occur we follow 3 basic principles of control and prevention.

1. Decrease environmental exposure
2. Increase passive immunity from sow to piglet
3. Increase colostrum consumption to piglets

Decrease environmental exposure

Decreasing environmental exposure to piglets involves reducing virus and bacterial counts that the piglet gets exposed to from the sow and crate environment. We accomplish this by scraping the manure from sows out of the crates daily prior to farrowing and on those litters that are in the first 3 days of life. If there is minimal manure from sows that piglets come in contact with, it will not overload what their immune system can handle. It is also important to ensure that there are not any residual bacteria and viruses in the crate from previous litters that have been weaned. Thorough washing includes corners of crates, water cups, split suckle boxes, and mats. These are physical areas that are often highly contaminated and can leave behind unwanted pathogens from previous litters. Focusing on these high risk areas for sanitation can help decrease the level of exposure to newborn piglets.

Increase passive immunity from sow to piglet

Feedback is a practice that many producers use to boost immunity within the sow prior to farrowing so that anti-scour antibodies can be concentrated in colostrum for piglet consumption. Typically we feed back manure from gilts that have recently farrowed (0-3 days), piglet scours, and intestines of scouring litters to ensure that we have the farm-specific viruses and bacteria that we deal with in the farrowing house. The trouble that we can run into with feedback is that when scours improve, a farm becomes in short supply of material that contains the viruses and bacteria to boost immunity in sows. Because of this, farms can experience a rollercoaster ride where scours spike and then calm down because of good feedback and then lack of good material to feedback.

Increase colostrum consumption to piglets

The best feedback in the world will not make a difference if piglets do not get colostrum. They need colostrum early after birth to fight off the pathogen load they are exposed to at farrowing. There are many procedures that we promote in the farrowing house that increase the chance that each piglet receives adequate colostrum. The first and most important is spit suckling litters that have greater than 10 born alive. With the large litter size of newer genetics, it makes it increasingly difficult to ensure each piglet gets colostrum. Using the split suckle technique allows us to focus on the last pigs born in a litter and give them a chance to ingest the important colostrum. Split suckling involves taking a portion of the litter that has already nursed and is visually content and putting them into a warm box while the part of the litter that still seeks to nurse gets a chance to suckle colostrum. Leaving the largest pigs in a box for 45 minutes to an hour gives the smaller pigs in the litter a chance to nurse. Once we have identified that these pigs have gotten colostrum, all pigs will be put back onto the sow.

Another way to ensure that piglets get colostrum from their own mother is to limit crossfostering. Keeping litters intact will allow this to happen. If pigs get moved from their original mother before they are allowed to get colostrum it puts them at a severe disadvantage. Along with antibody immunity that is passed through colostrum, there is also passed an important white blood cell component that helps to fight off viruses like Rotavirus types: A, B and C. Another risk factor for pigs that get moved is that they may get moved to a sow that has no more colostrum. Limiting movement gives them a better chance of ingesting colostrum.

Case 1

2200 sow farm in Minnesota that battled scours off and on for 2 months. Piglets at day 2 to 5 would scour with minimal response to treatment. Diagnostics 2 months into outbreak revealed *Clostridium* perfringens type A,

Rotavirus types A and C, Hemagglutinating encephalomyelitis virus (HEV), and *Clostridium difficile*. Lesions in the intestines were consistent with an acute rotavirus infection and *Clostridium difficile* in the colon. Treatment with Gentamicin and oral Spectam were unrewarding. The farm tried decreasing environmental challenges for piglets by disinfecting the crates to remove any biofilm, bleaching mats, flaming crates and mats, and disinfecting rooms after weaning. Aggressive feedback was implemented which included feeding back intestines from scouring piglets, manure from farrowing gilts/sows, and scour in crates the same day as collected. This was given 2 times per week to groups 5, 4, and 3 weeks prefarrow. This fresh feedback was done multiple times to these groups in order to increase the chances that Rotavirus C was present in the feedback. Scours decreased as groups that farrowed had good material to feedback, however, as groups that farrowed had less scour, there was also less scour to feedback so the material to give to sows prefarrow was minimal, which in-turn, led to more scours.

Three months from start of scour outbreak, a new feedback protocol was implemented that involved freezing intestines confirmed positive for rotavirus type C. The farm stopped feeding back manure from gilts and intestines from piglets and only fed back ice cubes containing rotavirus C. Scours decreased and piglets responded better to treatment as these groups came into farrowing. The idea behind this was that Rotavirus was setting the pig up for other pathogens such as *Clostridium* spp and if Rotavirus could be controlled then it would make it easier to control the other secondary bacteria.

Case 2

2800 sow farm in Minnesota that had a 1 year history of scours that occurred at 2 to 5 days of age that intermittently responded to tylan 50 when injected to affected piglets. Pigs were diagnosed with *Escherichia coli*, Rotavirus types A, B, and C, *Clostridium* perfringens A, and 1 pig also had *Clostridium difficile* isolated from large intestine. Lesions were consistent with an acute rotavirus A and C infection in two pigs, *Clostiridium* perfringens in one pig and *Clostiridium difficile* in one pig. Mats were flamed and bleached between farrowing turns and no split suckle boxes were used for one turn of farrowing. Feedback previously was done 2 times per week to groups 6, 5 and 4 weeks prefarrow with manure from young parities and scours from litters. No change in scours was noted.

Feedback was changed to feeding back daily to targeted groups, with the addition of piglet intestines from scouring litters being added the same day as fed back. Scours decreased for a short period of time as those sows farrowed but did not go away completely. Four months later the farm re-broke with a severe scours. Various methods of boosting immunity through vaccination and feedback were implemented, all with limited success.

This sow farm was inducing sows on 114 to farrow on 115. Inducing was stopped 1 year after the initial break of scours. As sows and gilts farrowed on their own without induction, litters did not scour. Money spent on antibiotics to treat scours decreased singnificantly following the no induction protocol. It is unclear whether age of the piglet, gut maturity, or viability of the piglet played a role in the decrease in scour.

Farrowing house scours can be very challenging and costly to a farm. It is important to diagnose the infectious agent causing the scour and implement protocols to increase sow immunity, piglet consumption of colostrum, and decrease environmental stressors on the piglet in the first 3 days of life.