



CID Lines

Dupont

Kemin

LUBING

WEDA

Neonatal diarrhoeas caused by E. coli

The occurrence of diarrhoeas in young pigs has increased with the intensification of farrowing and can typically be divided into:

- Neonatal diarrhoea (within a few days of birth).
- Young piglet diarrhoea (from one week of age to weaning).
- Post weaning diarrhoea.

The first two come within the definition of neonatal diarrhoeas. There are numerous causes of neonatal diarrhoeas including viruses, coccidia and bacteria and among this last group E. coli feature strongly.

Neonatal diarrhoea – aetiology

Neonatal diarrhoeas associated with E. coli occur between birth and four days of age and are typically produced by enterotoxigenic E. coli (often called ETEC) strains that produce one or more enterotoxins. These strains typically adhere to the mucosa (lining) of the small intestines by means of fimbrial adhesins where they then multiply, colonising the intestine and produce enterotoxins.

A key factor in the epidemiology of neonatal infections is that the newborn pig has no, or a very weakly established, gut flora so can not counter heavy infections and at birth is exposed to heavy bacterial challenge from the sow's skin and faeces and from the farrowing environment.

This last component of the bacterial challenge will depend on the effectiveness of between batch hygiene/disinfection measures, hygiene standards in the farrowing area and how good all-in, all-out management is in the farrowing areas which, in turn, is influenced by the ability to batch farrow with minimal age spread between litters in the same batch.

If the mother has not been exposed to pathogenic E. coli then the pigs will not benefit from specific antibodies in her colostrum (this can be countered by vaccination). If piglets do not get adequate colostrum they will be much more susceptible to infection.

The room temperature in the farrowing house is important – at temperatures <25°C intestinal peristaltic action is greatly reduced and this favours bacterial infection and hinders colostrum antibody uptake. Increased numbers of pathogenic E. coli are seen in the digestive tracts of piglets exposed to temperatures over 30°C.

Pathogenesis

Typically, when the right predisposing and host factors are present, pathogenic E. coli multiply in the piglet's intestine and cause diarrhoea via specific virulence factors.