International Pig Topics'
Pighealth BYTES
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006 – E. coli infections I

The causal agent

The group (genus) of Escherichia bacteria, which contains Escherichia or E. coli, was named after the German Theodor Escherich. The Escherichia are a genus in the Enterobacteriaceae family which includes other genera such as Salmonella, Proteus and Klebsiella.

The E. coil are Gram negative flagellated rod shaped bacteria that can be subdivided into serotypes on the basis of their O (somatic), K (capsular), H (flagellar) and F (fimbrial) antigens. On a farm the same strain or serotype of E. coli is often found infecting several consecutive batches of pigs.

Ecology

The primary habitat for E. coli is the gastrointestinal tract and pigs often have a complex gut microflora in terms of E. coli, many of which may not be associated with disease – in fact over two dozen different E. coli bacterial types have been found in a single pig. At any one time one of the E. coli strains present is the dominant one and over a period of time waves of dominant strains occur among the porcine gut's microflora.

When a pathogenic strain dominates disease may be seen. Another important aspect of the epidemiology of E. coli infections in pigs is the ability for E. coli to survive outside the pig in its surrounding environment. If conditions are right E. coli can survive in the environment for three months or longer. This can play a role in the spread of disease.

Virulence

The virulence factors associated in the manifestation of disease in E. coli are variable and involve things such as the ability to produce exotoxins, the ability to colonise the digestive tract the ability to resist various defence mechanism of the pig. A particular E. coli strain can have several virulence factors and the genetics of these resistance factors is the subject of much research.

E. coli related diseases

These fall into several categories, namely:

- Neonatal diarrhoeas.
- Post weaning diarrhoeas.
- Oedema disease.
- Systemic infections.
- Mastitis.
- Urinary tract infections.