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**Health Quiz**

## **NADIS Pig Health – February 2008**

### **Colitis**

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Colitis in growing pigs is often referred to as grower scours. Its incidence increased dramatically in the early 1980's and there are suggestions that the incidence has further increased since the removal of antibiotic growth promoters (AGP's). It features frequently in NADIS reports of on farm problems and some degree of loose dung has become accepted by many farms as normal.

#### **What causes colitis?**

Colitis, technically, means inflammation of the colon (or large intestine), leading to dysfunction, and an increase in the water content of the faeces. It may only take an increase of 2% water in the faeces to change it from a solid stool to a runny scour.

There are a number of specific causes of colitis and scouring in growing pigs:-

- 1) Infection with *Brachyspira hyodysenteriae* = Swine Dysentery
- 2) Infection with *Brachyspira pilosicoli* = Spirochaetal colitis
- 3) Infection with *Salmonellae* (especially *Salmonella typhimurium*) or *Yersinia*
- 4) Infection with *Lawsonia intracellularis* = Ileitis (This is technically not true colitis – although the colon may be affected along with the lower small intestine, but the clinical signs may be indistinguishable).
- 5) Infection with *Trichuris suis* – the whipworm
- 6) Nutritional and digestive problems
- 7) Epidemic diarrhoea and TGE infection
- 8) Exotic infections such as Swine Fever virus

In addition, once primary gut damage has occurred with any of these processes further commensal organisms can take advantage of the altered condition of the gut e.g. *Balantidium coli*.

The nutritionally induced scours – that generally are only diagnosed by a failure to detect a specific infectious cause - may be the result of:-

- 1) Imbalance of cereals – high wheat inclusion
- 2) New crop cereals, especially barley
- 3) Excessive soya meal usage



**Fig 1: Mild colitis with perineal staining and loose faeces but no loss of condition.**



**Fig 2: Typical product of colitis**

- 4) Mannioc (topioca) inclusion
- 5) Rape meal use (especially above 5% of diet)
- 6) Excessive feed intake

In the case of the first 2 scenarios, the development of disease is believed to be associated with the presence of non-starch polysaccharides (e.g. xyloses and arabinoses) in the cereal. The molecules are not digestible by the pig unless chemically altered by heat (e.g. during pelleting). In the altered state, they act like a sponge in the small intestine only to shed the water under microbial attack in the colon, thus overloading the large intestine with water. The altered molecules act as a source of nutrients to the

large intestinal flora, which will proliferate and exacerbate the gut dysfunction.

Non-starch polysaccharides are present in high levels in newly harvested barley (decaying over the first 4-6 weeks in store) and in certain varieties of wheat (at a stable level).

### Clinical Signs

Typically, grower scours are recognised in pigs between 20 and 80kg, although the problem can be seen earlier and later in life.

The signs visible will depend on the causative factors, the degree of secondary invasion and the level of faecal recycling in the group and between groups.

The consistent sign is one of diarrhoea (scour) in a proportion of the animals which can contain blood and mucous, particularly seen with Swine Dysentery, Whipworm infection and occasionally with Spirochaetal colitis. Often the scour is just grey and watery.

Within a group, the consistency of the faeces will vary from solid stools, through "cowpats" to frank scour.

Severely affected individuals may show weight loss, hairy appearance, tucked in abdomen and general depression, although in many cases there is little clinical illness visible and the effects of the colitis may be only measurable by accurate routine batch or individual weighing of the pigs, demonstrating reduced growth rate.

### Diagnosis

Modern Polymerase Chain Reaction (PCR) tests are available to identify the different spirochaetes (*Brachyspira* sp) in faecal samples and *Salmonella* can easily be identified in faeces.

Ileitis and *Trichuris* are most reliably diagnosed at post mortem (both visually and by histopathology) – in growing pigs it can be difficult to identify worm eggs. PCR tests for *Lawsonia* in faeces are also available.

Viral causes of grower scours (TGE and PED) require specialist testing and blood testing to confirm.

In many cases, colitis of nutritional origin is diagnosed by elimination of the known pathogens listed.

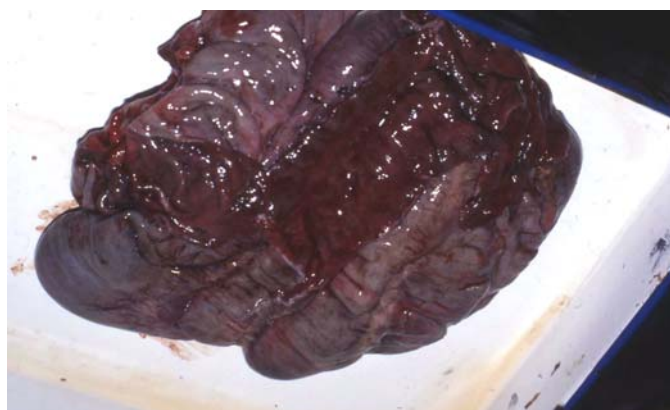
### Treatment

Clearly, treatment will depend on the specific cause of the diarrhoea:-

- a) Swine Dysentery and Spirochaetal colitis response most reliably to Denagard, Valnemulin, Lincomycin and Aivlosin.
- b) Salmonellas would only be treated if causing significant illness and loss of production and then with antibiotics as indicated by sensitivity tests.
- c) Ileitis responds rapidly to tylosin medication (along with tiamulin and lincomycin).
- d) *Trichuris suis* is treated with in-feed wormers such as fenbendazole or flubendazole or by injection with one of the ivermectins.
- e) Nutritionally induced colitis will respond to:-



**Fig 3: Severe colitis in young growers with obvious loss of body condition.**



**Fig 4: Haemorrhagic inflammation of the colon (large intestine) as a result of Swine Dysentery**

- i) a change of feed
- ii) a reduction in fed levels
- iii) a change from pellets to meal form

### Control

As with any enteric (gut) disturbance, the key to long term control lies with hygiene measures. Regular washing of pens between batches including disinfection, lime washing or burning is essential. Avoidance of scrape-through dunging areas is necessary, operating buildings on an all in all out basis.

Where a specific infectious cause is identified, strategic medication either continually or on a pulse basis may be necessary. ZnO can be effectively used but is only licensed for use in pigs up to 10 weeks old. Likewise, in an environment known to be contaminated with *Trichuris* eggs, strategic worming prior to clinical signs being seen is indicated. An orally applied live bacterial vaccine for weaned pigs is available against *Lawsonia* and is useful where this infection alone is involved.

With nutritional scouring, dietary manipulation, switching to use of meal feeding and inclusion of specific enzymes (polysaccharides) can be effective. Likewise, occasional antimicrobial medication can be useful to suppress secondary opportunist organisms on an empirical basis as advised/prescribed by the attendant veterinary surgeon.

The inclusion of organic acids in feed is becoming increasingly popular as part of *Salmonella* infection control but in many cases the cost benefit is poorly defined.

### Costs

The costs to a herd of clinical scour in growing pigs can be highly variable and difficult to quantify. Swine Dysentery is a persistent disease that even despite apparently effective medication – itself costing £1 to £2 per pig – can depress feed conversion efficiency of a herd by 0.5. For a 300 sow breeding feeder farm taking pigs to 100kg with long standing Swine Dysentery the total costs can be as high as £12/pig or more than £80,000/year making the herd completely unsustainable, requiring depopulation, cleaning and repopulation or mediated eradication.

In the mildest forms scour can impose an unmeasured penalty on efficiency of growth of 0.1 FCR and produce an uneven growth pattern throughout which can add £2/pig to cost of production.

Any control strategy, be it by medication, use of acids, vaccination or worming programme should only be undertaken once the actual cost of the disease to the farm is calculated, or at least estimated, and the causative agent(s) identified.

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NADIS Health Bulletins are designed to improve farm income, animal health and welfare by promoting disease control and prevention.

Discuss how health planning can improve the profitability of your farm with your veterinary surgeon.

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