

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here

Health Quiz

NADIS Pig Health – February 2009

Coccidiosis in Piglets

Scouring in suckling piglets remains a major problem in many farms and can be caused by a wide range of infectious, environmental and managerial factors. Probably the most common cause of scour in piglets from 10-20 days old is Coccidiosis. With an accurate diagnosis, it is possible to introduce a wholly effective control programme.

Background

Coccidiosis in the pig is caused by a parasite called *Isospora suis*. There are a range of other coccidia (*Eimeria* sp), often found in the pig, but these are generally thought to be harmless although in rare cases can cause disease in young adults.

The parasite has a direct lifecycle between pigs (i.e. there is no intermediate host) with oocysts shed from an infected individual into the environment, in which they undergo a temperature dependant maturation process, before infecting other animals orally. The organism then colonises the small intestine, developing through a number of stages and causing gut damage leading to scour. This process takes several days and, as such, Coccidiosis does not occur below 5 days of age, and most typically is not seen until 10 days old.

Hygiene is a vital factor in any disease process and its control; as an enteric disease of baby pigs, an outbreak of coccidiosis signifies a breakdown in the hygiene standards.

The disease is seen in both indoor and outdoor production systems – in the latter case either in summer where sows have udders that are heavily contaminated from wallowing or in wet weather where beds are not renewed between batches.

Clinical Signs

Scouring will be seen in all or part of the litter from about 7-10 days of age. The scour will usually be yellow and creamy and careful observations may reveal blood flecks. Death is a rare consequence of uncomplicated Coccidiosis although, where *E coli* or Rotavirus become involved, mortality can rise to as high as 30%.

Loss of condition will be apparent in affected individuals and the overall consequence will be reduced weaning weights – herd average weight at

Mark White BVSc DPM MRCVS



Fig 1: Typical creamy coccidial scour



Fig 2: Loss of condition in pigs affected with coccidiosis



Fig 3: Piglet with typical coccidial perineal staining

25 day weaning can drop by 1kg per pig during an outbreak – and gut damage at weaning that may trigger secondary post weaning enteritis. The reduced weaning weights will have implications on overall growth to slaughter. (see graph 1.)

Response to treatment in an affected individual with antibiotics is generally very poor and, in many cases, the scour will stop spontaneously at weaning – suggesting that the gut damage induces a milk intolerance.

In many affected herds, one or two pigs in the litter may show early and mild signs of scour at 7 days of age, with the rest of the litter becoming affected 5-7 days later, as the young pigs act as generators of the parasite.

There is growing circumstantial evidence that sub-clinical disease exists on many farms in which scour is rarely seen but weaning weights are impaired.

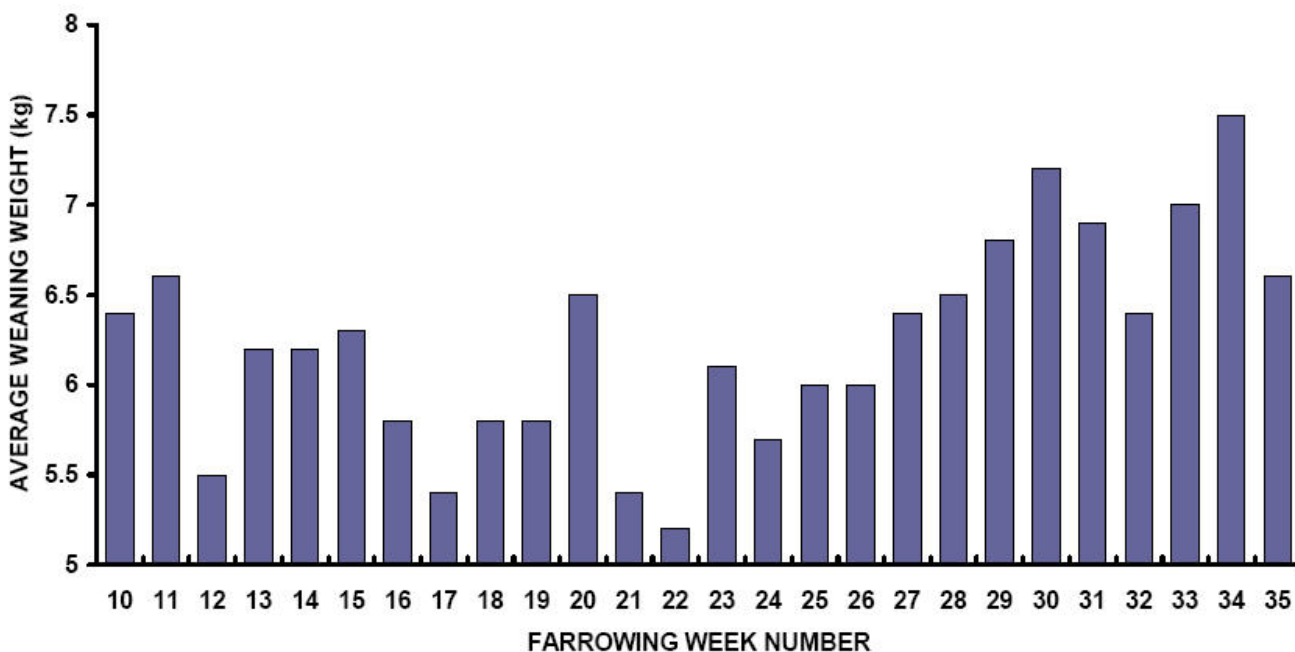
Whilst scour typical of coccidiosis is not seen after weaning, there is growing evidence that, separate to the effect of the disease on weaning weights and subsequent performance, sub clinical coccidiosis does occur after weaning and can be responsible for post-weaning fading (fig 4). This condition can occur independent of clinical disease before weaning, although investigations suggest that where post



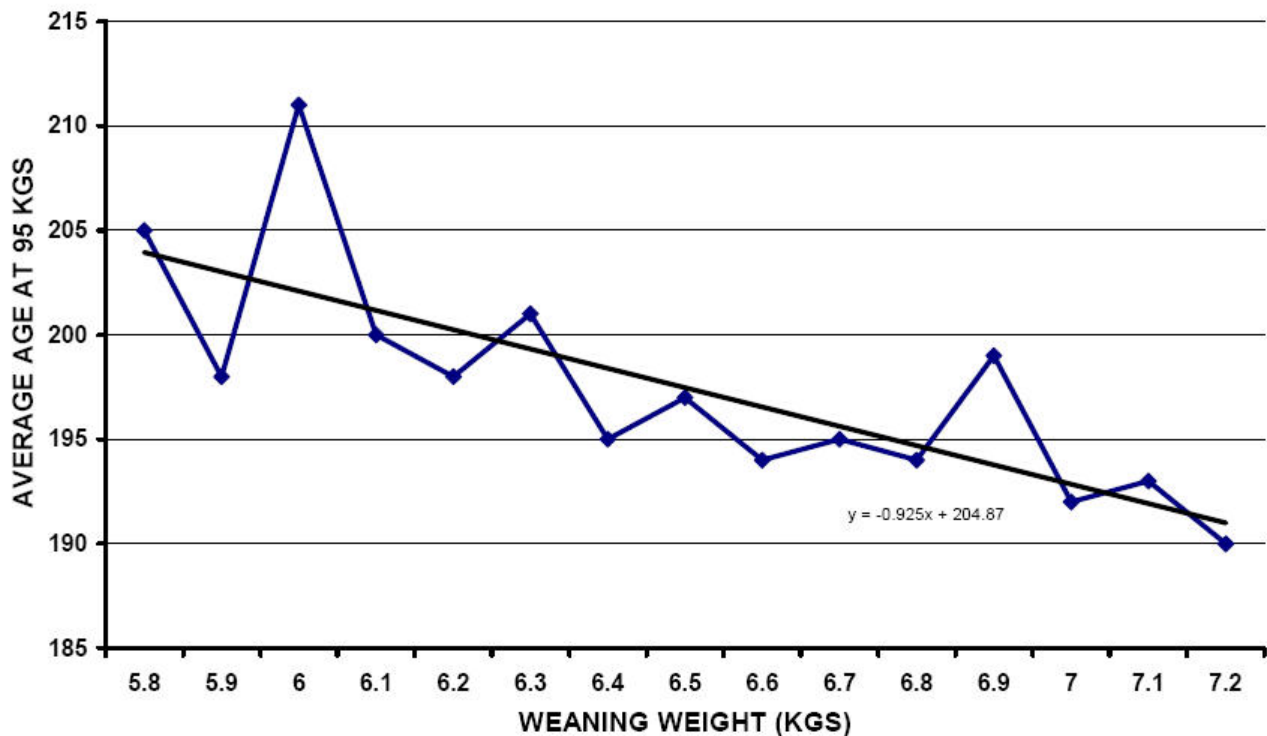
Fig 4: Fading post weaning can be due to sub-clinical coccidiosis

weaning fading associated with coccidiosis occurs, there is at least sub clinical infection in the baby pigs before weaning.

GRAPH I - WEANING PERFORMANCE OVER 6 MONTHS



Graph 1: Coccidiosis can have a dramatic effect on weaning weights and ultimately days to slaughter. This graph shows the decline in weaning weight in a 300-sow B/F farm as an outbreak of Coccidiosis, which started in early spring, progressed into summer. Treatment with Toltrazuril was started in week 27.



Graph 2 shows the subsequent effect on age to slaughter as weaning weight declines. In this herd a drop of 1kg/pig at weaning extended the growing period, to reach slaughter at 95kg, by 9 days.

Diagnosis

The clinical picture described will provide a strong indication of the role of coccidia although, because it is possible to have combined infection with other agents, a laboratory diagnosis is desirable.

Despite the fact that carrier sows and affected piglets shed coccidial oocysts in their faeces, these are very difficult to detect and, even if found, do not necessarily mean that this is the cause. The only

reliable method of confirming the diagnosis is to sacrifice acutely affected, untreated typical individual pigs and examine the gut. Grossly they may be thickened and inflamed but histopathology is essential for confirmation.

On many farms, the response to treatment and control measures is used to support the diagnosis.

Control

Hygiene plays a major part in the control of Coccidiosis. The oocysts that are shed in the faeces, which develop into infective stages in the environment – provided the temperature exceeds 16°C - are very resistant to conventional disinfectants. Effective treatments are fire (flame gun) and limewashing – in the latter case, the lime must be allowed to cure for 3-4 days before stock are placed in the treated pen. A specific anti-coccidial disinfectant – Oocide: Dupont – is available; this is a 2 component product that, when mixed, gives off ammonia gas. There are obvious health and safety implications with its use and a treated room must obviously be empty of stock and sealed to prevent leakage into other rooms or stock areas. There are claims that some dry disinfectants have anticoccidial effects and may be useful adjuncts to treatment of the environment. Thorough washing of pens is vital and problems typically – though not exclusively – occur in continually occupied rooms and on certain type of floors where thorough

cleaning is difficult (solid, cracked concrete, moulded plastic slats).



Fig 5: Burning of old beds outdoors is considered an effective hygiene measure but environmental restrictions should be considered

In the outdoor herd, arcs must be moved between consecutive farrowings and where problems occur, boards should be avoided. Burning of bedding from

previous litters within a paddock forms an important component of disease control in outdoor herds (fig 5). However, environmental restrictions must be considered and the Environmental Agency contacted for individual farm circumstances. The provision of wallows in farrowing paddocks increases contamination of the udder and should be

discouraged (they will also encourage litter desertion in hot weather).

Immunity to the parasite appears to be poor and feedback is not a reliable method of control; it may in fact make matters worse by increasing the faecal output of oocysts from the sow.

Medication

Various treatments have been tried over the years with mixed success.

Medication of the sows' feed with an antibiotic with anti-coccidial activity (e.g. Ionophores) has been used but has poor efficacy and, under current regulations, they are not now permitted in sow feed.

Individual medication of each pig is the most effective method of control. Sulphonamides given at 3, 10 and 17 days have been effective but Toltrazuril (Baycox: Bayer) is the most effective.

Dosing of piglets with a single dose of Toltrazuril has twin effects if given at the correct time. Given before the life cycle has progressed to the point where significant gut damage occurs will prevent clinical disease; if given late enough in the life cycle, destruction of the organism appears to trigger an immune reaction thus protecting the pig from future infection. The optimum time for treatment seems to be 96 hours (give or take 12 hours) after the pig becomes first infected, which usually occurs soon after birth. In practice this means treating on day 4 or 5 of life depending on whether day of birth is classed as day 0 or day 1 respectively. When assessing the appropriate time for treatment, care must be taken over the recording of the birth date. If pigs born in the afternoon are not "booked in" until the following morning, they are already about 20 hours old.

Notwithstanding application at the optimum time, in heavily infected environments, a second dose of treatment may be needed at 10 days of age.

Where a 2 stage farrowing/lactation system applies (in which sow and litter are moved say 7 days after farrowing, such as to old fashioned "rearing sheds" or where multisuckling yards are used to extend the

sucking period for small/poor pigs) if challenge does not occur in the primary accommodation, but disease is seen 7-10 days after the move then treatment with Toltrazuril should occur 4 days after the move.

It should be noted that Toltrazuril has no activity against other agents that cause piglet scour (such as Rotavirus or E. coli) and as such its successful use can support provisional diagnosis of Coccidiosis.

It should also be noted that, in the UK (as indeed throughout the EU), Baycox has not been licensed for use in the pig and can only be used under specific veterinary direction. The medication is applied orally at a dose rate of 25 mg/pig, (20mg/kg) but can induce vomiting in up to 10% of individuals. Where vomiting is a problem, the product must be diluted with water or glycerol.

A licensed, pig specific suspension of Toltrazuril is due to be launched by Bayer in the spring after many years of off-label use but until such time there is a nominal 28 day meat withdrawal period.

Costs

The costs of coccidiosis are incurred by reduction in weaning weights and depression of performance after weaning. An extension of days to slaughter of 9 days (typically occurring when weaning weights are depressed by 1kg) would require an additional 12.5kg feed provision approx. (maintenance requirement for 9 days) at a cost of £2.50 per pig, assuming space is available to achieve constant slaughter weight. Loss of revenue for lighter pigs sold would offset the absence of extra feed costs.

Costs of off-licence Toltrazuril are less than 20p/piglet.

To test your knowledge and understanding of the control of this condition, try our instantly marked self assessments, by clicking here

Health Quiz

Copyright © NADIS 2009 www.nadis.org.uk

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.

NADIS is supported by BPEX, EBLEX, HCC, QMS, Merial Animal Health and Pfizer Animal Health.

