

Coccidiosis in dairy calves hits future yield and fertility

By decreasing daily liveweight gain and feed efficiency, the disease can reduce lifetime performance, as **Rachael Porter** reports

Timing is everything when it comes to preventing coccidiosis in dairy heifers, says vet Steve Borsberry, from Warwick-based XL Vet Group member 608 Farm Vets.

"Tackling this disease is not only about reducing the cost of veterinary medicines and mortality rates. Decreased daily liveweight gains in a group of animals will have a catastrophic affect on farm profitability," he says.

It's a mistake to think that coccidiosis only affects calves reared in groups, he says: "It can occur in individually housed calves in hutches. Clinical signs of disease in a group of calves are often the tip of the iceberg with the majority of the group probably affected by subclinical disease."

Pathogenic coccidia invade and destroy the lining of the gut, which reduces nutrient absorption leading to reduced daily liveweight gain (DLWG) and feed efficiency. The effect on the gut lining can also reduce lifetime performance.

"A US study involving 795 calves from 21 dairy units, aged from birth to four months, showed that every day a calf was sick – with scours or respiratory infection –

her first-lactation milk yield dropped by 126kg," Mr Borsberry reports.

In order to calve at 24 months, an average DLWG of 0.7kg/day is required. A study at the Royal Veterinary College (RVC) found that the mean age at first calving was 26 months, but the range was between 21 and 51 months.

LIFETIME DAILY YIELD

Another study has shown that heifers calving between 23 and 25 months of age had a greater lifetime daily yield (11.8kg/day) compared with those calving for the first time at 30 months or later (9kg/day) and 70% calved three times compared with just 50% of later first-calving animals. Calving age also had an effect on calving interval, which was significant in the first and second lactations.

"So coccidiosis, and the resultant reduction in daily liveweight gain, can affect the future fertility of replacement heifers," Mr Borsberry points out.

The mortality rate in animals with coccidiosis is approximately 1% and high morbidity. With sub-clinical disease the intestinal dam-

animals and confirmed on finding coccidia in post-mortem samples.

TREATMENT

Targeted anti-coccidial therapy is used, including Diclazuril, given prior to risk period; Toltrazuril, given at start of perceived risk period; and Decoquinat, in-feed medication given during risk period.

PREVENTION/CONTROL

Improvement in management and husbandry is essential to ensure clinical disease does not occur. Isolate and treat infected animals and ensure that they have plenty of clean and dry bedding. Raise the height of feed and water troughs, where necessary, to prevent faecal contamination.



Calf in a group exhibiting clinical signs of coccidiosis

age can lead to susceptibility of other diseases, such as pneumonia, and the greater the number of diseases the greater negative effect on DLWG.

"Field trials have shown that 61% of the economic loss in calves caused by coccidia is due to the non-clinical cases," explains Mr Borsberry.

METAPHYLACTIC STUDY

Another study looked at the effects of metaphylactic treatment of subclinical coccidiosis using toltrazuril (Baycox) compared with non-treated controls. Treated heifers received their first service 24 days earlier than the non-treated controls. Treated heifers also had better conception rates to first service compared with the non-treated group (60% v 45%). The effect on second and subsequent services was similar, with the treated heifers having a conception rate of 75% compared with the non-treated controls 45%. The overall pregnancy rate was 95% for the treated compared with 85% for the non-treated controls.

"These effects are often 'accepted' by non-seasonal calving herds," says Mr Borsberry. "But if this occurred in a seasonal calving herd, where the breeding season is short – between just 10 and 12 weeks – a significant number of heifers would be barren and those that became pregnant would calve later in the calving period and thus have less opportunity to become pregnant for subsequent seasons."

He adds that one effect of disease that is often ignored is the impact it has on staff morale. "Time taken to treat clinical cases is rewarded by the calf surviving,

since mortality tends to be low at less than 1%. But batches of calves that are not thriving are a daily reminder that all is not well."

This is another reason why Mr Borsberry recommends metaphylactic treatments. "There is a cost to these, but it is small in comparison with groups of heifers not achieving reproductive targets and subsequent premature culling."

Using Decoquinat, in the form of licks or included in the ration, is a popular choice among dairy producers. "However, clinical cases can still occur in certain circumstances. Calves that have not been fully weaned will struggle to eat enough medicated creep feed to prevent the disease."

He adds that calves between three weeks and six months are most at risk of disease. "On units with a known problem with coccidiosis, it is essential to recognise at what stage clinical signs typically occur. It may be at change of housing, changes of feed or stress caused by temperature variations.

"A single oral dose of either Toltrazuril (Baycox) or Diclazuril (Vecoxan), seven days prior to the expected time of clinical signs or 14 days after a change in management, is my recommendation. However, this protocol should be reviewed frequently as the age at which the calves are affected may change. The challenge is to prevent disease and for the calves to build up immunity. Remember, once high numbers of oocysts are found in faeces, the intestine has already been damaged."

While multiple factors influence the reproductive efficiency of dairy cattle, there is little information about the effects that may be attributed to coccidiosis. "Gut damage from coccidiosis may contribute to increased sensitivity to other pathogens, negatively influencing general fertility," explains Mr Borsberry. "The damage may also lead to a long-term deficit in nutrient absorption, contributing to endocrinal-metabolic changes which, in conjunction with changes caused by the onset of puberty, may increase overall stress on heifers."

Coccidiosis facts

CAUSE

Protozoan parasite – coccidia, with *Eimeria bovis* and *Eimeria zuernii* being the most pathogenic species.

SYMPTOMS

Acute disease: diarrhoea, often blood/mucus-tinged, dehydration, anaemia, secondary bacterial infection and tenesmus (straining, which can lead to prolapsed rectum). Chronic disease: ill thrift, pasty scour, inappetence and reduced feed intakes, reduced performance and protracted period of recovery.

DIAGNOSIS

Presence of clinical findings typical of the disease in a group of calves. Large numbers of oocysts in faecal samples from affected