

Significant rise in calf growth rates following proactive rearing approach

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Optimising calf growth rates through proactive management, particularly in light of the serious financial pressures currently facing the dairy industry, has never been more important. That's according to vet Andrew Groves of Rathfriland Veterinary Clinic in County Down. "With milk prices at least 30% down on last year, essential reinvestment in facilities has halted," he says. "Where cow numbers have increased in recent years, overstocked calf housing occurs on too many farms".

"Such intensification threatens a consequent rise in coccidiosis, a major cause of poor growth rates in calves. The knock on effect being heifers taking longer to reach calving or killing weight in the case of beef animals."

For Andrew's father, dairy farmer Alexander Groves, losing more than 10% of calves to coccidiosis in one year led him to rethink his calf rearing strategy and potentially save thousands of pounds each year.

"We rear our own dairy replacements, running a Holstein bull with the cows and an Aberdeen Angus with heifers," Mr Groves senior explains. "Beef calves are finished at around 26 months. We always had the occasional calf suffering from scours or simply not thriving as well as the others, which we treated as we saw them. But it was when we lost so many calves in one year that we realised there was a serious problem. Initially suspecting an outbreak of cryptosporidium, Andrew took faecal samples for testing, and they actually came back positive for this and coccidiosis."

After consulting with Andrew and his feed merchant, Mr Groves started feeding a decoquinatate medicated starter feed daily from a week old to three months of age, at which point calves are gradually weaned onto rearer mix over ten days to avoid any check in growth rates. Since adopting this regime, calf mortality from coccidiosis has reduced to zero, with no signs of ill thrift associated with subclinical disease.

According to Alexander Groves, growth rates have significantly improved, with beef calves finishing on average up to three weeks earlier than prior to using the decoquinatate, with carcass weights up to 10% heavier. "We have also observed dairy heifers thriving from the outset, feeding more aggressively and reaching 380kg target service weight at 13-14 months, a good month earlier than previously.

"Heifers are mature and well-grown by the time of calving at 24 months. First lactations are on average 5% higher than before. We also expect that calving heifers earlier will lead to a longer productive life and up to 20% higher overall lifetime yields. This means our replacement rate will also be reduced," he adds.

Coccidiosis is a year-round disease, peaking in cattle between one to three months of age, although cattle of all ages can be affected. Adult animals rarely show signs of disease but commonly can have low level infection and serve as a source of infection for the young. It is caused by a parasitic protozoan, which irreversibly damages the calf's gut by invading and reproducing in the small and large intestine walls.

Coccidial oocysts (eggs) are shed from the dam in her faeces, picked up from the environment and swallowed by calves. Oocysts release the next parasitic stage (sporozoites) which enter the gut wall where they develop, multiply and burst out, destroying intestinal cells and eventually passing out in large numbers as fresh oocysts in the calf's faeces. This cell destruction impairs absorption of nutrients by the calf, suppressing growth. Healthy calves can tolerate low burdens and continuous low level exposure allows a level of immunity to develop, but higher infection pressures result in subclinical or clinical disease.

The coccidian life cycle in calves takes three to four weeks. Initial sub-clinical signs - weight loss, listlessness, reduced feed conversion ratio, decreased immunity to other disease - occur as the parasite multiplies in the small intestine. After 10-15 days coccidia enter the large intestine, leading to signs including bloody diarrhoea, straining and discomfort, before being excreted in faeces from days 15-20.

According to vet Andrew Groves, coccidiosis can occur on even the cleanest and most well managed farms. Being a disease of intensification, he adds that it is exacerbated by overstocking. "Key risk factors augmenting its incidence include dirty troughs and water bowls, inadequate bedding, wet and churned up dirty pasture, mixing various ages of stock, lack of stock rotation at pasture, stress (from weaning, transporting or handling) and introducing bought in animals," he explains.

"Focusing on prevention largely through management is a more economical and effective approach than treatment of clinical cases, coccidiosis being hard to control once a problem develops on farm. Once the gut is damaged depending on the severity it may never recover.

"Calves with coccidiosis become susceptible to secondary disease due to impaired immune function caused by the coccidian. It effectively opens the gate to bacterial infections. In my father's case, the Cryptosporidium outbreak we initially diagnosed was secondary to the underlying coccidiosis infection," he adds.



Andrew Groves believes many farmers are aware of the risk of coccidiosis but he is unsure how many realise it is worth preventing. "With coccidiosis it's not only calf mortality but the loss of revenue associated with slower growth rates that greatly impact on the farm business".

"The disease can be compared to an iceberg, with the visible part being the clinical signs and the much larger invisible part being the sub-clinical signs. On dairy farms, anything that holds back heifers and subsequently increases age at first calving will have a severe effect on margins."

According to vet Colin Penny from Zoetis, the use of decoquinatate as introduced by Mr Groves is sound pre-emptive husbandry. "The treatment acts at the beginning of the coccidian life cycle and inhibits the excretion of oocysts into the environment. Because it is used every day in the feed, the treatment has a daily non-antibiotic effect with the added benefit of no meat withdrawal period. Decoquinatate also allows some natural immunity to build up in the animal."

French trials on Charolais bulls aged eight to 10 months entering fattening units have shown that a 28 day decoquinatate treatment improves both performance and health [ref 1]. Feed conversion ratio was improved by 0.16 and average daily live-weight gain by +84g/day throughout the trial period. These results were seen even when both groups were excreting only small numbers of coccidial oocytes.

A second trial involving 8.5 month old Limousin bulls found the use of decoquinatate at a daily dose of 0.5mg/kg bodyweight per head per day for 28 days improved live weight gain of bulls during the fattening period [ref 2]. Carcase weights of the decoquinatate treated group were 22kg higher than the control group, with no evidence of clinical coccidiosis during the trial. Mr Penny advises farmers to consult with both vet and feed supplier to achieve correct prescription dose rates.

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- 1 Peyrin et al, 2008. Effects of decoquinatate on charolais bull's growth: field trial. *World Buiatric Congress*. Budapest.
 - 2 Richard & Labar, 2008. Utilization of a supplemented decoquinatate feed for young limousin bulls. *World Buiatric Congress*. Budapest.