

Final Tool to Tackle Widespread *Mycoplasma bovis*

Mycoplasma bovis is more widespread than previously thought, affecting beef and dairy cattle across the country, according to results from a new surveillance programme. And it can be easily detected through bulk milk serology testing, which the results suggest may be more sensitive than other forms of testing.

“For a few years, I have suspected that *M. bovis* is more prevalent than expected,” explains Graeme Fowlie, director of Meadows Vets in Aberdeenshire. “And from working with vets across the country taking part in the surveillance programme, it’s become clear that that is the case.” The results, from vet practices across England, Scotland, Wales and Northern Ireland, show that *M. bovis* is present in every region, in both beef and dairy herds. “It is probably present in your area, so you should be aware of it.”

The disease causes pneumonia, mastitis, swelling, sore joints and otitis, and can also be responsible for a range of chronic underlying health issues, which have a significant impact on welfare and productivity.

As part of the surveillance programme, vets were offered free *M. bovis* tests, regardless of whether herds were exhibiting signs of disease or not. Of the 41 farms from across the UK taking part, 18 tested positive, six were inconclusive or void,

and 17 were negative. But the results also revealed that some types of analysis were more sensitive than others.

Of the 25 blood tests, 52% were positive while 20% were inconclusive and 28% were negative – despite the fact that eight of those negative / inconclusive results were from farms with symptomatic animals. An interesting result was that the five bulk milk serology tests all came back positive. The 11 PCR tests – mainly of bulk milk samples – failed to show a single positive result.

Ben Pedley, Farm Clinical Director at Willows Farm Vets, Cheshire, says: “In the past two years we have found *M. bovis* on a number of farms after PCR testing lung samples taken post-mortem from pneumonia cases. Since diagnosing the infection, calf pneumonia on these units has been greatly reduced via management changes including specific vaccination programmes for *Mycoplasma*.”

Meadows Vets have found similar results to this study, says Mr. Fowlie. “We have been using blood tests on calves over five months old to screen herds. Dairies could also be screened via bulk milk serology. Sick animals can be identified with PCR testing of either nasal swabs, post mortem material, joint fluid or milk samples.”

Since he started using these tests two years ago, he’s returned more positive samples than in the previous 20 years.



What is *Mycoplasma Bovis*?

The disease affects both young and adult cattle and poses a significant drain on beef and dairy farms as it causes pneumonia and mastitis, and other chronic underlying health conditions. Due to the nature of the disease, it is difficult to treat because it doesn't respond to most antibiotics.

This makes a vaccine the most effective method of controlling it, as in this case prevention is better than cure. In a comparative case-study, the multi-strain vaccine licensed under the Cascade system demonstrated significant reductions in both weaned calf mortality and antibiotic usage.

The vaccine is a tool in the box for prevention of *M. bovis*, but there are other strategies which can be used on farm. Focusing on good building design and husbandry will help to limit the risk of any disease – so farmers should ensure good ventilation in housing and minimise stresses at challenging times like weaning.

Having good biosecurity will also help. If buying in stock, producers should select the herd of origin carefully to ensure there's no history of clinical problems. They should buy as few animals as needed and from as few sources as possible. An antibody test could also be an option to check if stock are carriers before bringing them onto the farm.

It's also important to be aware of the clinical presentation of the disease, and to follow up with diagnostics if there's no response to control measures.

Study results

A study carried out in 2018 and 2019 looked at mortality and antimicrobial usage for 1582 calves born into eight herds in Scotland. It considered the efficacy of a new multi-strain vaccine imported from the US. Although the vaccine had proven effective after its introduction to the US market, this was the first time it was available in the UK.

Given the vaccine was new to the UK market, Mr. Fowlie at Meadows Vets organised a comparative case-study in Scottish dairy herds to see how it would work in a real farm environment. And the results were impressive: In total, weaned calf mortality fell from 5.8% pre-vaccination to 0.4% post-vaccination, whereas it remained relatively unchanged on control farms at 7.3–7.8%.

Due to inconsistent farm records, it was not possible to isolate mortality due to suspected pneumonia, so records for all mortality causes were used. Pre-weaning mortality increased slightly on treated farms, as one had an outbreak of cryptosporidium and two had problems with colostrum yield and quality. Overall calf mortality up to 200 days fell from 8.6% pre-vaccination to 4.3% afterwards, while it remained fairly static at 10.6–11.1% on control farms.

Antibiotic usage also dropped sharply among the trial farms, from an average of 116.9 PCU (population correction unit) per 100kg liveweight before vaccination to just 41.45 PCU/100kg afterwards. In contrast, usage on the control farms increased from 67.42 PCU/100kg to 78.99 over the same time period.

"We are suspicious some of these would have been false negative results when using traditional bacterial culture testing, which we know is less sensitive.

"One of the biggest problems with *M. bovis* is that it's very hard to treat – it doesn't respond to many common antibiotics, so prevention is much better than cure," says Mr. Fowlie. "That means screening herds via blood/bulk milk serology testing and PCR testing of sick animals/post-mortem samples to confirm the presence of the disease initially and have confidence in those results.

"It's then important to adopt stringent biosecurity measures with careful herd management changes and vaccination where appropriate. Vets can now prescribe a multi-strain vaccine in the UK under the Cascade system. When combined with appropriate testing, this will enable farmers to take a proactive and informed approach to disease management."

The surveillance programme will continue this winter, with further free testing available to vets across the UK. Please contact Kernfarm or Graeme Fowlie at Meadows Vets to authorise your samples. The support is available for samples sent to Axiom and Biobest in the UK only.



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