PARABAN
Knowledge exchange for control of Johne's Disease

Johne's Disease
Frequently Asked Questions

QMS QUALITY MEAT SCOTLAND

Twenty common questions arising from Paraban open days and workshops

Relating to overall MANAGEMENT

1. What's the single most effective thing I can do to begin my control of Johne's disease?
At the very least, use a combination of a) testing for Johne's status, b) removal of infected animals from the herd and c) improvement of calving hygiene. This is because the biggest route of transmission is calves ingesting the faeces of infected cows, even in small amounts. Herd screening enables you to identify positive adult animals earlier, before they start to show symptoms of disease and before they are most infectious. If allowed to calve, they should be calved well away from "clean" cows and their calves should not be kept as herd replacements.

Relating to TESTING

2. What is the relationship between the blood and the faecal test?
The faecal test identifies the presence of MAP bacteria in faeces (shedding). The blood test measures the body's antibody response to the presence of bacteria in the body. They basically measure different parts of the infection and disease process.

3. At what antibody titre level would you consider a cow to be infected with Johne's?
This is advised by the lab doing the test as different tests have different cut-offs. Currently the two labs are SAC and Biobest.

4. Is there any evidence to suggest that antibodies give some degree of protection?
No.

5. When you identify Johne's positive animals either in calf or with calf, when do you cull?
Early / mid gestation: Cull.

Mid / late gestation: Isolate cow for calving and until weaning. Cull the dam at weaning. The calf should not become part of the breeding herd.

Calf at foot: The dam should be isolated with the calf and culled once the calf is weaned. The calf should not become part of the breeding herd.

6. Why is there sometimes a mismatch between blood test positives and PCR positives?
PCR detects bacteria or parts of bacteria present in the faeces (i.e. animal is infectious). Blood tests measure antibody presence in the blood (i.e animal is infected). Infected animals may not yet be infectious and MAP bacteria can be intermittently present in faeces so can be missed on the PCR test. The antibody response is also variable (comes and goes) and indeed can be absent in the latter stages of infection because the immune system can be overwhelmed and "give up".

7. Does TB testing impact upon Johne's test results?
Yes, TB testing can result in a cross-reaction with antibodies to Johne's. Therefore it is recommended that animals are either sampled for Johne's disease prior to or on the first day of TB testing or that a period of 3 months elapses after TB testing before blood sampling for Johne's is carried out.

8. Is there a vaccine available? If so does vaccination affect blood results?
A vaccine is available in the UK for use in sheep and goats, under limited authorisation. However, its use is not advisable in cattle as it interferes with the blood test for both Johne's and TB, giving a false positive result. Antibodies are produced in response to vaccination but how long these last for remains unknown. Therefore animals that have been vaccinated may give a positive blood result and can't be differentiated from infected animals.

More questions and answers overleaf…please turn over

SRUC
The James Hutton Institute
University of Glasgow
The University of Edinburgh

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Relating to AGE

9. Is it possible to detect infected animals at one year old? If so, how beneficial is it to test at that age?
Paraban demonstrated that Johne's disease can be identified in 1 year old cattle. However, many animals will not produce antibodies until much older. So testing at this young age (normally you would test from 2years old) may be beneficial for farms that want to make rapid progress towards Johne's eradication and who are very aggressive in their test and cull approach. However it should be noted that animals may test negative at 1 year old, but subsequently test positive as they get older and more Johne's antibodies are produced.

10. Why do we seem to be picking up Johne's in younger cows now? Is this because of better tests?
It is probably because we are looking more closely.

11. Why is it that some animals show clinical signs of the disease in young to middle age whilst others are much older?
The onset of clinical Johne's can be extremely slow and it varies between individuals. The animal's immune system has a large part to play in the disease process and although the animal is likely to have picked infection up at an early age, the agent can take years to cause clinical disease. So although it is normal for the first signs of clinical disease to show in animals 3 -5 years of age, for other animals this can occur at 10 years and beyond.

Relating to GENETICS

12. Should family lines be culled?
Ideally yes, because it is believed that the calf of a diseased cow is likely to have been exposed to a high concentration of MAP at the period around and just after calving when the calf is most susceptible. The practicalities of culling family lines needs to be considered in context of maintenance of herd size and structure. Buying in replacements to maintain herd size from a source of unknown Johne's status may pose a higher risk.

13. Is there any resistance? Can we produce a 'resistant' cow?
At this time, we don't really know the answer to this question.

14. Is there any breed susceptibility?
Some individuals believe that there is but to our knowledge no scientific study has been carried out to prove this. It may be that, rather than being a breed susceptibility, some breeds have just been more exposed to infection and there has been increased awareness of positive cases due to increased vigilance in testing.

Relating to the ENVIRONMENT

15. Is it a huge risk to spread slurry from farms onto silage fields?
There would be an increased risk if the source of the slurry was a Johne's positive farm. However, if carried out properly, the ensiling process effectively kills MAP bacteria.

16. Can a timescale be put upon the safe grazing of a pasture which has had slurry applied?
No, MAP can survive for several years in cool damp climates and in certain soil conditions.

17. Is the environmental test available commercially?
Yes, it is currently available commercially from the James Hutton Institute. However costs are currently high because it is not performed as a routine test.

18. Is there any regional effect?
The disease seems to be uniformly widespread across Scotland and the rest of the UK.

Relating to TRANSMISSION

19. Is Johne's transmitted via semen?
Yes, this is possible; Research studies have shown that the MAP bacteria that causes Johne's disease can be shed in the semen of infected bulls, but whether this is sufficient to infect cows is currently unknown. Faecal contamination from infected purchased bulls remains the biggest potential source of infection into a herd.

20. Are wildlife able to transmit infection?
MAP bacteria have been isolated from a range of wild animals, which may therefore transmit the bacteria that causes infection to the environment. Deer and rabbits are the main wildlife species which are considered to be a potential reservoir. However, the biggest risk to cattle is thought to be other infected cattle.