Johne's disease FAQs

1. **What is Johne's disease?**

Johne's disease is a chronic, debilitating and irreversible disease of cattle and all other ruminants that primarily affects the lining of the small intestine, reducing its capacity to absorb both fluid and nutrients. While only a small proportion of cattle will remain in the herd long enough to progress to the classic clinical signs of wasting or scour, it is likely that a much larger proportion of the herd are subclinically infected which may present as increased cell counts, reduced milk yield, and increased susceptibility to other diseases such as lameness and mastitis.

2. **What causes Johne's disease?**

Johne's disease is caused by a bacterium known as *Mycobacterium avium* subspecies *paratuberculosis* (commonly known as MAP).

3. **Where does Johne's disease come from?**

The bacteria that cause Johne's can be shed in the faeces, colostrum or milk of infected animals, and is able to survive in the environment for a considerable period of time. Johne's disease is, however, most commonly introduced to a herd through purchasing infected replacement stock (including bulls). Importing slurry from other herds which may be infected, including stock from grazing off farm, and swapping colostrum between herds can also pose a risk of introducing the disease into a herd.

4. **How is Johne's disease transmitted and spread?**

Most infections are acquired in the first few days of a calf's life. Calves are usually infected by ingesting faeces contaminated with MAP, most commonly through dirty bedding, udders, teats or buckets. Other potential infection routes include through contaminated milk or colostrum if the dam is affected, or directly from the cow to the calf across the placenta during pregnancy. However, these two routes are less common.

5. **What are the clinical signs of Johne's disease?**

The bacteria causes chronic inflammation of the intestines characterised by diarrhoea, unthrifty animals and wasting despite good appetite and normal body temperature. The disease gradually becomes more and more severe, leading to malnutrition, debilitation and eventually death. In sheep, goats and other ruminants, diarrhoea may not be present. Due to ongoing

control strategies, we rarely see overt clinical signs other than increases in other infectious diseases, such as lameness and mastitis, and impacts on fertility and milk production. Infected cows often test positive and are managed out of the herd before clinical signs are apparent.

6. How is Johne's disease diagnosed?

Johne's testing most commonly involves screening for antibodies to MAP in individual milk or blood samples; or bacterial DNA in faeces. Although testing can be carried out at a herd level on a bulk milk sample, it is not sensitive enough to detect animals in the early stages of infection and cannot give you any information about the infection status of individual animals and so it is not recommended.

From April 2025, all dairy farms must declare their most recent herd Average Test Value (ATV) for Johne's disease annually which requires a **minimum** of a randomised 60 cow sample (See NJMP/Phase III FAQs, question 11).

7. How soon after calving can I do a Johne's test?

You should wait a minimum of seven days after calving before doing any milk testing, including Johne's disease.

8. When is the biggest risk period for animals becoming infected?

Animals are usually infected as young calves. Around 80% of infections occur in the first month of life, with the biggest risk period thought to be the first few days of life. Resistance to new infection increases as the animal gets older, and new infections in adult animals are relatively rare.

9. Is the disease more likely to affect adult or young animals?

It is common for calves to be infected in the days after birth, but as Johne's progresses very slowly, it is uncommon to see clinical signs before cows are three years old. Cows are likely to test positive before you start to see clinical signs.

10. If cows are most often infected as calves, why aren't clinical signs seen until later in life?

Despite picking up the infection when they are young, cows can be infected for a variable length of time, often years, without showing any signs of disease or being a source of disease to other animals. At a certain point, the immune response of the cattle towards the bacteria can change and they will start to show outward signs of the disease. At this point, they also become infectious to other animals.

11. What effect does Johne's disease have on productivity?

There are physical and economic implications of Johne's disease, especially within the dairy industry. Cattle that test positive for Johne's disease are twice as likely to have a milk cell count higher than 200,000 cell/ml and are much more likely to have yields well below their expected production. Infected cattle are also more likely to have episodes of lameness and often have reduced fertility.

12. Why can an animal's test status change?

Due to the way the test works, despite being infected with MAP, young animals are unlikely to test positive because of the way their immune system responds to the bacteria. As they get older, this response changes and the infected animal is more likely to test positive. This is usually around the same time that they start to show signs of the disease and start to pose a risk of infection to others.

13. Can it be prevented or is it a case of controlling the disease?

Johne's disease cannot be cured, so once a cow is infected, it is infected for life. Preventing calves from becoming infected and avoiding buying in infected stock is the best long-term way to control Johne's disease in a herd.

14. How can Johne's disease be controlled?

Risk management is an essential part of controlling Johne's disease on-farm. By understanding how animals can become infected, you can put measures in place that will work for the farms that you work with. Cows that have tested positive for Johne's disease should not be allowed to calve in the same place as cows that have never tested positive. Scrupulous cleanliness in calving pens is key. Farmers should also avoid pooling colostrum and ideally should not feed colostrum or milk from infected cows to calves unless it has been pasteurised. You can also advise your clients to use Johne's test results to make breeding decisions. Research has found that daughters born to cows who were test-negative for Johne's disease when they calved, but go onto test positive later, are more likely to become test-positive later than those born to cows who never test positive. Therefore, you may advise farmers not to breed replacements from cows that have tested positive, and to manage any daughters from test-positive cows as high risk as well. You could recommend a simple method like putting a red tag in the ears of cows that have tested positive, so the farmer can easily differentiate them and manage them differently.

15. How can I minimise the risk of Johne's disease entering farms that I work with?

Developing and implementing a Johne's Management Plan on your farms, which considers all the risks appropriate for your setup is vital. If your farm clients are purchasing stock, it is imperative that you review the overall status of the herd where they plan to buy from, as young animals may test negative for Johne's disease despite being infected.

16. Can I vaccinate against Johne's disease?

There is a special import vaccine against Johne's disease but it has limited efficacy. This is mainly because calves are usually infected in the first few days of life, meaning they are already infected by the time they get vaccinated. The vaccine does not prevent infection and it also can't stop an infected cow from shedding the bacteria in her faeces and infecting others in the herd. However, it does extend the time before an infected cow shows clinical signs, so she has a longer productive life. Vaccination shouldn't be used as the sole control method. You should only vaccinate if you have a clear exit strategy and understand the implications of vaccinating. Once a herd is vaccinated, it can become difficult to tell whether an animal is infected because the tests cannot tell the difference between antibodies from infection and antibodies from a vaccine.

17. Are larger herds more likely to have higher levels of infection?

There is currently no evidence that larger herds have greater levels of infection than smaller herds.

18. Are certain breeds more susceptible to Johne's disease than others?

There is no evidence that certain breeds are more likely to become infected with Johne's disease, but some breeds seem to have different progressions of the disease than others. For example, Holsteins have a lengthy period without clinical signs of weight loss and diarrhoea, though you may see impacts such as reduced milk yield or high cell count, and they may test positive one quarter, then negative the next and so on. This phase can often go on for years. By contrast, Channel Island breeds seem to go from testing negative to returning a high positive test and increasing antibody levels in a short period of time and show a more rapid progression of clinical signs. However, breed of cow does not represent a significant barrier to controlling Johne's disease on-farm.

19. What impact can TB testing have on the Johne's test and how much should I take this into account?

Although there has been some work looking at using the TB test as a 'primer' for increasing the sensitivity of the Johne's test, we still advise that the herds leave a minimum of 6 weeks after a TB test before doing any Johne's testing. This is achievable even if you are on 60 day TB testing.

20. How long should I wait after a TB test before I do my Johne's test?

Action Johne's advise that you wait a minimum of 6 weeks after your TB test before doing your Johne's test. Your milk recorder will be happy to move the date of your milk recording if necessary.