



NATIONAL JOHNE'S MANAGEMENT PLAN PHASE II OF THE ACTION JOHNE'S INITIATIVE

The National Johne's Management Plan

1. This plan sets out the approach to be taken by the dairy industry of Great Britain to control and reduce the incidence of Johne's disease in the dairy herd through the Action Johne's Initiative. The plan has been developed by the Action Group on Johne's.
2. The Action Group on Johne's is the stakeholder forum for dairy industry organisations concerned with tackling Johne's disease. In addition to milk purchasers listed in annex I below the members of the Action Group include:

AHDB	NFUS
APHA	NMR
BCVA	Park Vet Group
CIS	RAFT Solutions
FUW	Red Tractor
MyHealthyHerd	SAC
NFU	West Ridge Vet Practice

BACKGROUND

The Disease

3. Johne's disease is a chronic, progressive intestinal disease caused by infection with *Mycobacterium avium* subspecies *paratuberculosis* (MAP).
4. Animals are usually infected as calves with approximately 80% of infections occurring within the first month of life. The calf may be infected while in the womb, by drinking infected colostrum and milk, or by ingesting faeces, with the latter being by far the most important. MAP may last for a year in slurry or on pastures. An infected cow can shed billions of MAP bacteria into the environment for years prior to showing any clinical signs of the disease. Generally only 1-5% of infected cows in a herd will show clinical signs of the disease. The rest of the infected animals will appear healthy, highlighting the need for testing. Infection is almost always introduced to a herd by purchasing infected replacement breeding stock including bulls.

Prevalence

5. Over 80% of herds that have undertaken surveillance for Johne's disease have evidence of infection. The level of disease within individual herds varies. The majority of herds have fewer than 5% high risk cows but it is not unusual to identify herds with greater than 20% of high risk cows.

Disease Impacts

Economic

6. Johne's disease causes a severe economic impact on a dairy herd if the disease is allowed to spread within the herd. Johne's disease will cause a reduced yield in affected animals, greater associations with other diseases, such as mastitis and cell count, and increased risk of premature culling. If the prevalence of Johne's rises further consequential losses occur as additional emergency cull rates lead to retention of cows with poorer economic performance and fertility potential.
7. A recent study of 385 UK Dairy Herds by James Hanks of the University of Reading (2013) showed that Johne's test positive cows were 2x more likely to have a cell count > 200,000 cells/ml and were 2x more likely to have milk yields 25% below their adjusted herd average. Johne's disease costs can rise to excess of 1-2p/ litre with higher disease incidences and these costs remain for a number of years until the disease is brought under control.

Animal Welfare

8. Johne's disease poses a major obstruction to achieving higher standards of animal welfare. Infected herds pose a risk to other herds through the sale of stock and herd dispersals.

Endemic Disease Control

9. Tackling Johne's contributes to encouraging permanent behavioural change on farm in the management of endemic diseases through better biosecurity and improved hygiene and disease control practices. In particular tackling Johne's helps to reinforce the industry's efforts on BVD and TB. The principles for controlling Johne's are identical to that required by BVD Free of:
 - **A**ssessing the level of biosecurity and disease risk on farm
 - **D**efining the disease status of the herd
 - **A**ction plan for control on farm
 - **M**onitoring progress

International Experience

10. Significant efforts are being made around the world in most major milk producing countries to tackle Johne's and international experience has shown that if a rigorous control program is instituted and applied robustly Johne's disease can be brought under control. At the recent Para TB Forum in Nantes in France reports were received on activity in eleven major milk producing countries. The experience of these countries shows that managing and reducing Johne's disease is both necessary and achievable.
11. If the UK dairy industry is to remain internationally competitive and able to demonstrate to customers in export markets that it is taking a responsible industry approach then it needs to proactively tackle the disease.

Antimicrobial Resistance

12. The industry must contribute to efforts to reduce antimicrobial resistance. Because of its association with other disease conditions (lameness and mastitis), Johne's is a contributor to antibiotic use on farms. Reducing Johne's will assist in efforts to reduce antibiotic use on farms and address AMR.

Sustainability

13. Farmers need to maintain production efficiency and technical performance to remain viable in a competitive environment. Those that have already established effective Johne's management plans and demonstrated their success now consider Johne's management as a normal and necessary part of sustainable farming practice.

PHASE I OF THE ACTION JOHNE'S INITIATIVE

14. Phase I of the Action Johne's Initiative, which ran from 1st April 2015 to 31st December 2016 primarily focused on education and engagement.
15. The target of Phase I was to manage and then reduce the incidence of Johne's disease in dairy cattle and engage 80% of dairy farmers in Great Britain in credible and robust Johne's management activities
16. Phase I required:
 - Farmers to determine their risk and status
 - Put in place in consultation with their vet one of the six strategies developed by the Action Group on Johne's

Participation in Phase I

17. Milk purchasers accounting for nearly 78% of UK milk production became members of the plan in phase I. Members committing to the plan agreed to commit their supplying dairy farmers to deliver the requirements of the plan.
18. Approximately 50% of GB dairy herds have engaged in some form of surveillance. NML reported that it undertook some level of Johne's testing for 3,500 dairy farms over the last 12 months, ranging from ad hoc 30 cow screens through to full whole herd quarterly screening. It is estimated that a further 1,500 to 2,000 farms tested for Johne's through other laboratories.
19. Information from members of the scheme on the level of participation at farm level is still being collected and should be available shortly.
20. Additionally Phase I also involved:

- ***Employment of a Delivery Team***

A consortium of RAFT Solutions, SAC Consulting (a division of SRUC) and XLVets was appointed to deliver this role. Half of the cost of the Delivery Team was funded by the scheme members. This was matched by a contribution from AHDB Dairy. The Delivery Team primarily focused on recruiting members and in the creation and dissemination of information to the industry.

- ***Training for the veterinary profession***

This has been provided by the BCVA through the development of a web based training package. To date 631 vets have registered and 491 have completed the training programme. These numbers are expected to increase further.

- ***The development of a technical manual***

This will be completed by March 2017.

PHASE II OF THE ACTION JOHNE'S INITIATIVE

Consultation on Phase II

21. The Action Group on Johne's undertook an industry consultation on Phase II from 10th August 2016 to 23rd September. Responses were received from the BVA, FUW, NFU, NFUS, vets and milk purchasers. The Action Group integrated these responses in finalising the requirements of Phase II.

Overall Objective of Phase II

22. The overall objective of Phase II of the Action Johne's Initiative remains the management and reduction of Johne's in the dairy herd of Great Britain.
23. The Action Group is of the view that this is an appropriate level of aspiration at this stage in the industry's efforts to tackle the disease and that raising the level of aspiration to minimisation or elimination would be premature at this time. Consequently setting targets for the reduction of the disease will not be necessary at this stage. Nor will there be any requirement for determining the disease status of individual animals or the creation of a centralised industry database on farm status.

Operating Principles

24. The operational requirements of Phase II are:
- Members of the NJMP would require their associated farmers to obtain annually over three years beginning 1st January 2017 a signed declaration by a BCVA Johne's Certified Veterinary Adviser that they will be implementing one of the six strategies specified by the National Johne's Management Plan. (The six control strategies remain unchanged from Phase I and are set out in annex 2 below).
 - In 2017 the declaration would confirm that the farmer had:
 - undertaken to assess their risks and herd status and,
 - put in place the necessary management information, equipment, husbandry and resources to implement the agreed control strategy.
 - In 2018 and 2019 the declaration would confirm that the farmer at the time of the consultation:
 - had reassessed their risk and status and,
 - was correctly utilising the management information, equipment, husbandry and resources to implement the strategy effectively.
 - Only vets that have undergone the BCVA training programme would be permitted to sign the declaration.
 - The BCVA Certified Johne's trained vet would issue a declaration that in their opinion, the farm's Johne's management plan was appropriate, robust, and compliant with the objectives of the NJMP. The wording to be used in the declaration is set out below in annex 3.
 - For all three years if deficiencies are identified by the vet then these would have to be rectified by the farmer before the declaration could be signed. Alternatively, the chosen strategy could be changed to enable compliance with the resources available.
 - The farmer would make a copy of the signed declaration available to their milk purchaser if they were requested to do so.

- Purchasers would provide the Delivery Team annually with information on the number of farmers obtaining veterinary declarations using a standard questionnaire developed by Action Group on Johne's.
25. In providing the declaration vets would make every endeavour to ensure that the consultation with the farmer took place at the same time as the annual review of the farmer's herd health plan to ensure all other relevant disease control factors were taken into consideration and to minimise costs.
26. Membership of CHECS would be recognised as giving equivalence to the requirements of phase II
27. In respect of the use of risk assessment tools it would be at the judgement of vets which tool was most appropriate to use for an individual farm.
28. In developing this framework the Action Group on Johne's has sought to:
- Ensure that only properly trained vets are permitted to provide the signed declaration
 - Create and maintain a dialogue between vets and farmers
 - Include external verification in the implementation of the scheme
 - Provide commercial incentives for all parties to engage, through:
 - Purchaser commitment to requiring the involvement of their supplying farmers
 - Leaving the provision of veterinary advice to farmers on a commercial basis
 - Requiring vets to be trained before being able to verify farmer compliance
 - Demonstrating to farmers the commercial benefits of tackling the disease

Delivery Team

29. A Delivery Team consisting of a consortium of RAFT Solutions and SAC will continue to be employed to ensure harmonised messaging to the industry on:
- The benefits of tackling the disease
 - The six strategies developed by the NJMP and how they can be implemented
30. The functions of the Delivery Team will be to:
- Maintain a list of milk purchasers that are members of the NJMP
 - Compile information on an annual basis from members of the NJMP on activity at the farm level

- Maintain and update the scheme website as the central information resource for the industry
- Prepare and circulate a quarterly newsletter to NJMP members
- Present updates to the Action Group
- Place case studies in the mainstream agricultural press on a regular basis
- Use social media to further maintain the profile of the scheme
- Attend shows and events - presentations and conferences
- Maintain and update the Action Johne's website.

31. As in phase I the Delivery Team will be funded by contributions provided by purchaser members of the National Johne's Management Plan which will be matched in total by an equal contribution from the AHDB.

Technical Advisory Group

32. The provision of technical advice to the Action Group on Johne's will be undertaken by the Technical Advisory Group consisting of:

Karen Bond	NML (Chair)
Dai Grove-White	Liverpool University
Derek Armstrong	AHDB
Dick Sibley	Vet
Elizabeth Berry	Vet
Gareth Hateley	APHA
George Gunn	SRUC
Jonathan Statham	RAFT Solutions
Jules Dare	Vet
Keith Cutler	Vet
Natalie Jewell	APHA
Pete Orpin	Vet
Sophie Throup	RAFT Solutions
Steven Van Winden	Vet

Governance of the Plan

33. The overall approach to governance remains inclusiveness, co-operation and voluntary action.

Management

34. The NJMP will continue to be overseen by the Action Group on Johne's (AGJ). Secretariat support for the AGJ will continue to be provided by Dairy UK.

35. The AGJ is open to;

- Members of the NJMP
- Trade bodies drawn from the dairy industry supply chain, defined as:

- Dairy farmers
- Dairy processors
- Related farm supply industries (Vets, Testing Laboratories, etc)

36. The AGJ will endeavour to maintain the engagement of all relevant stakeholders in the development, implementation and evolution of the plan.

Membership

37. The membership of the plan will be organisations that agree to commit dairy farmers to delivering the requirements of the plan. Relevant organisations can be:

- Dairy co-ops
- Dairy processors
- Supply Groups
- Producer Organisations
- Or any other farmer based organisation that can collectively represent dairy farmers

38. Organisations becoming members of the plan commit to:

- Contributing resources for the implementation of the plan, particularly a financial contribution to the employment of the Delivery Team
- Provide their associated dairy farmers with an appropriate level of information and support

Annex 1: Members of the NJMP members

AJ & RG Barber Ltd (Maryland Farm)
Arla Foods
Belton Cheese
BV Dairy
Colston Bassett
Cotteswold
Crediton
Cropwell Bishop
Dairy Crest
Embleton Hall
First Milk
Glanbia
Graham's the Family Dairy Ltd
Isle of Man Creamery
Lactalis
Lanchester
Longley Farms
Meadow Foods
Medina Dairy Limited (Watson Dairies & Buckley Farm Dairy)
Muller Milk and Ingredients
OMSCo
Parkham Farms
Pollock & Sons
Quickes Traditional Ltd
Wensleydale Dairy Products
Wyke Cheese
Yew Tree Dairy

Annex 2: Six Control Strategies

- ***Biosecurity Protect and Monitor***

This option is suitable for herds which have completed appropriate screening tests and have no evidence of disease. A robust biosecurity protocol must be established to minimise the risk of bringing the disease in, this must address buying practice, slurry and grazing management. Surveillance testing is required to monitor the herd status and detect incursions of disease. The level of surveillance required will depend on farmer aspiration and the risk of introducing Johne's disease into the herd. For example a farm which buys in multiple animals would require a higher level of surveillance than a truly closed herd. Also a herd wishing to pursue accreditation through the Cattle Health Certification Standards (CHeCS) (which may attract a premium when selling stock) would need to undertake whole herd testing as per the scheme requirements. It must be remembered that with minimal surveillance testing it may be possible to miss the arrival of the disease and allow it to gain a foothold within the herd before it is identified, especially if the herd has management strategies which would facilitate spread.

- ***Improved Farm Management***

This option relies on breaking the cycle of disease transmission from cow to calf through management changes implemented across all cows in the herd. These changes will concentrate on calving, colostrum and milk management. No individual cow testing is undertaken and so all cows must be treated as if they are infected and a risk. The important thing to bear in mind with this strategy is that these changes **MUST** be implemented across **EVERY** cow in the herd.

This option is best suited to smaller herds with low risk and low prevalence which are able to commit labour resource to the system. Without excellent compliance this strategy will not work, and as there is no testing, there is no way of monitoring the disease. A level of herd surveillance testing should be considered, at least to establish a starting point and then periodically to be able to assess the effectiveness of the control programme.

- ***Improved Farm Management and Strategic Testing***

This option uses strategic individual cow testing to identify those cows most at risk of spreading Johne's disease and implementing management changes to break the cycle of transmission for these cows only. This allows the management changes to be targeted at those cows which pose the highest risk whilst allowing normal management of the remainder of the herd. Testing is carried out to identify high risk cows at a time appropriate to reduce the risk of transmission through management changes.

There are three options which are described in more detail below. It should be noted that the more frequent the testing, the more sensitive the results.

- **Improved Farm Management Test and Cull**

An addition to the Improved farm management & strategic testing option with immediate culling of test positives rather than retaining and managing them. This option would be suitable for low prevalence herds wanting to quickly remove infected animals. This option would not be suitable for high prevalence herds as it may be uneconomic to pursue and alternative strategies may be more suitable in the first instance.

- **Breed to Terminal Sire**

No replacement animals are bred, all cows are served to a terminal beef sire and all offspring are fattened for slaughter. Replacements are sourced from herds with lower levels of Johne's disease. In effect they become a 'flying herd'. This strategy may be suitable for herds with a high risk and high prevalence with no wish to breed their own replacements or the ability/resource to manage the risks through improved farm management. This is not a way to remove Johne's disease and its effects from a farm.

Cows will still develop Johne's disease and will need to be removed from the herd, hopefully this number will reduce over time as they are replaced with uninfected bought in cows. It must also be remembered that on a farm with very high levels of Johne's disease transmission between adult animals is possible. It may still be prudent to undertake testing to help identify cows for removal. ALL calves produced in this system MUST be slaughtered for beef and NOT enter the suckler herd as breeding animals.

- **Firebreak Vaccination**

A vaccination is available for Johne's disease, however its efficacy is limited. In the dairy herd calves will frequently become infected within the first 24 hours of life meaning that they are already infected by the time they are vaccinated. The vaccine does not prevent infection, nor will it prevent an infected cow from shedding the bacteria and infecting others. It does extend the period before an infected cow shows clinical signs thus giving that cow a longer productive period before she succumbs to Johne's disease. Vaccination may be an option for high risk, high prevalence herds as a firebreak to 'buy some time' until another strategy can be adopted. Vaccination should not be undertaken without a clear exit strategy and a good understanding of the implications of vaccination. Once a herd is vaccinated it becomes very difficult to determine whether an animal is infected as the tests cannot differentiate between antibodies from vaccination and infection. This complicates the management of the disease. Vaccination must be undertaken under the advice and supervision of your vet.

- **Improved Farm Management and Strategic Testing: Three Options**

Risk based (quarterly testing)

Suitable for herds of moderate to high prevalence who are not able to dedicate the resources or have the facilities required for IFM on all cows calving. Frequent testing allows the creation of a low risk group (green cows, typically 90% of the herd) which are managed normally and a high risk group (red and amber cows) of cows which are separated at drying off into a dedicated segregation area to prevent contamination of green cows and green cow areas. Test results are also used to inform breeding and culling decisions.

This programme is especially suited to herds which undertake milk recording as the Johne's testing can be carried out on the milk recording samples.

The overall cost of the program may be offset by savings on labour and higher cull prices for cows identified early in the infection cycle.

Single test (Pre Dry off)

This is a less rigorous testing programme, with just a single test performed before drying off. This result is used to segregate test positive cows at drying off into a dedicated area away from the low risk cows.

The single test will not be as sensitive as repeated testing and as such not all infectious animals may be identified allowing some to enter the calving area and spread the disease.

This option may be suitable for block calving herds with low prevalence which can test all of the animals in one session pre dry off. It is more challenging to ensure timely testing in a year round calving herd with cows going dry every month. Adequate resources are needed to ensure cows are sampled at the appropriate time.

Double test (Pre Dry off and Pre Breeding)

This increased testing provides greater sensitivity than the single test and also provides a test result pre breeding to allow breeding decisions to be made.

This option may be suitable for block calving herds with low to medium prevalence.

Annex 3: Veterinary Declaration

Declaration for year 1 of phase II

'I can confirm that this farm has undertaken an assessment of Johne's risk and status, and in my opinion has an appropriate and robust Johne's management plan in place, which is compliant with the objectives of the National Johne's Management Plan.'

Declaration for year 2 and 3 of phase II

'I can confirm that this farm has undertaken an assessment of Johne's risk and status, and in my opinion has adopted the necessary management protocols to adhere to the appropriate and robust Johne's management plan in place, which is compliant with the objectives of the National Johne's Management Plan.'