

# TESTING IN THE IRISH JOHNE'S CONTROL PROGRAMME (IJCP)

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## THE ELISA TEST (MILK/BLOOD) AND THE FAECAL ANCILLARY PCR (ANC) TEST

**T**here are two different tests used on cattle within the IJCP. The first is the ELISA test which looks for the presence of antibodies (the animal's immune system response to the presence of infection) in the blood or milk sample. Secondly, we have the Ancillary PCR test (ANC) which looks for the presence of DNA from the causative bacteria *Mycobacterium avium* subspecies *paratuberculosis* (MAP) in a faecal sample. MAP infection generally progresses slowly whilst hidden from the immune system, meaning that animals are typically infected for years before either the ELISA or ANC test will detect the respective antibodies or DNA, however typically the detection of antibodies precedes the detection of the MAP DNA.

### The ELISA test (milk/blood)

The majority of herds in the IJCP now implement the ELISA test through milk recording, where a milk sample from each animal is submitted for analysis. This means that a detailed report is generated giving information on all cattle sampled. Given the array of information in these herd reports it is essential practice to interpret any JD test results in association with your vet. Your vet is best placed to use their knowledge of individual circumstances along with the science to place real value on their interpretation. The type of information your vet will take into consideration when interpreting your JD ELISA results report is:

- The number of animals in the herd with Positive or Inconclusive ELISA results.
- The strength of the positive ELISA result (known as the S/P value), with higher values associated with higher likelihood of the animal being infected.
- Test results from previous years at both herd level and for the animals with an ELISA positive or inconclusive result.
- Disease history for the herd, especially whether there has been a prior diagnosis of Johne's disease.
- The history of animal movements into the herd, including number of animals, number of source herds, and risk factors for those source herds (infection status, test results, trading history).

With professional interpretation the results of your herd ELISA test can be used to risk assess many areas your farm JD management including breeding, calf care and priority culling.

## The Faecal ANC test

In the IJCP the faecal ANC test is being used on cattle (in herds which have not previously disclosed MAP infection) and which have an ELISA positive result in the milk or blood test. It fulfils two different functions in the IJCP.

- 1. It attempts to prove if MAP is present in the herd?** A positive ANC test demonstrates the presence of MAP, and thus Johne's disease (JD), on the farm. That is why, once a herd has a positive result from an ANC test this confirms infection in the herd. Once herd infection is confirmed, all animals which return a positive or inconclusive to an ELISA test result can reasonably be interpreted as being infected.
- 2. It assists in clarifying the infection status of ELISA-positive animals in herds with no previous evidence of JD?** Two results are possible following an ANC test in an animal that previously tested positive to the ELISA test:
  - The ANC result is positive, which provides confirmation of infection. That is, it can be assumed that both the animal and the herd are infected with MAP.
  - The ANC result is negative which tells us that MAP DNA has not been detected in the faecal sample. It is good news to not detect MAP DNA in the faecal sample but it does not prove the animal is uninfected. A potential reason for this is the disease has not progressed, antibodies may be present in the blood or milk, but DNA is not yet present in the faeces. These animals are considered "suspect" and should be viewed as a possible infection risk, having the potential to shed MAP in and eventually develop clinical disease.

Remember for more information about how you can best utilise the information contained in your JD herd tests speak to your veterinary practitioner. It is your vet who will have the knowledge and experience to place real value on these important farm management tools.

