

THE ECONOMIC COST OF JOHNE'S DISEASE

Liam Doyle, Johne's disease Programme Manager

Johne's disease (JD), caused by an infection with *Mycobacterium paratuberculosis* (MAP) bacteria, burdens both animals and producers. Classically if asked about JD most people envisage the case of mature animals, usually three to five years developing a persistent, profuse diarrhoea associated with significant weight loss. However, in many infected herds nowadays these severe clinical cases may not present on a frequent basis. The reason for this is that animals will generally be culled because of reduced performance, infertility or other disease. An infected herd may never have cows with more obvious signs of JD than production failure leading to premature culling. This means that the economic and welfare burden that JD places on a herd are much more insidious than directly through classic clinical cases. Indeed, a search of publications related to JD demonstrates the wide range of deleterious impacts it can have on a farm's operation:

- Reduced milk production
- Premature culling leading to increased cost of unnecessary stock replacement
- Lower value cull animals
- Increased levels of lameness
- Lower feed conversion efficiencies leading to increased feed costs
- Negative effects on herd fertility
- Higher cell counts
- Increased veterinary costs and associated increase in antimicrobial usage

Unfortunately, the losses associated with these areas tend to increase as the level of herd infection increases over time, leading to greater economic and welfare impacts for the infected farm. This is an important observation in relation to JD, as it has been shown that economic losses because of it in herds which keep JD prevalence low are negligible. This demonstrates the importance of knowledge about your herd JD status and in turn the application of a control programme on your farm.

One area highlighted as an economic loss associated with the presence of JD infection is reduced milk production. Economic loss from JD was studied in an international scientific paper which included Ireland comparing it to other countries (Rasmussen et al. 2021). It concluded that internationally approximately 1% of gross milk revenue, equivalent to €31(US\$33) per cow, is lost annually in MAP infected dairy herds, with those losses primarily driven by reduced production and being higher in regions characterized by above-average milk prices and production per cow. This international work

also compared economic losses in milk production in a host of different countries using two different sets of assumptions. The results of these two different calculated losses gives a likely estimated range of what JD costs the Irish dairy industry. Estimated JD costs to the Irish dairy industry were calculated to vary from €11.24 million (US\$ 12.09 million) to €23.85 million (US\$ 25.65 million) per year, depending on assumptions used.

One consistent factor shown in the study by Rasmussen et al. (2021) was important in all scenarios as having a large impact on the economics of loss associated with JD. This factor was the within herd prevalence of infection. Given this information and on an economic basis only it is compelling evidence in support of national JD control programmes. Put simply, it tells us that if we control the level of JD infection to low levels in the national herd it will have a knock on positive economic effect on the industry as a whole. This beneficial economic effect from implementing control programmes will also be reflected in better welfare conditions for stock.

Remember if you need any more information about the Irish Johne's Control Programme (IJCP) please refer to the Animal Health Ireland website for further details [click here](#).

Rasmussen P, Barkema HW, Mason S, Beaulieu E, Hall DC. Economic losses due to Johne's disease (paratuberculosis) in dairy cattle. J Dairy Sci. 2021 Mar;104(3):3123-3143. doi: 10.3168/jds.2020-19381. Epub 2021 Jan 15. PMID: 33455766.

