

Protecting your young cattle at pasture from Johne's disease

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MAP (*Mycobacterium avium ssp. paratuberculosis*), the bacteria which causes Johne's disease, may be present in dung or slurry. Because MAP is a tough and persistent organism, it may be found on pasture for up to a year after slurry or manure has been applied or has been contaminated by grazing cattle. Consequently, careful grazing management of young stock can reduce the risk of these stock being exposed to viable MAP bacteria and in turn reduce their risk of becoming infected. Two important factors to consider when determining the risk of infection from MAP are the susceptibility of the animals and the infective dose they are exposed to.

Susceptibility

In terms of risk newborn calves are very susceptible to MAP infection which is why within the IJCP so much emphasis is placed on maintaining as hygienic an environment as possible for this group. Susceptibility for MAP infection reduces during the first 12 months of a calf's life, which leaves the risk of yearlings and adults picking up infection as moderate to low with increasing age, but certainly not risk-free. Based on this information the susceptibility of young stock lies somewhere in between that of calves and adult animals, meaning careful decision-making around grazing and pasture management must be considered.

Infective dose

Pasture can be contaminated with MAP from grazing cattle and contaminated slurry or manure. When pasture is contaminated with MAP bacteria this pasture becomes a risk, potentially acting as a source of infection for other cattle; and the younger the stock the greater the risk. When MAP bacteria are placed on pasture they do naturally start to die off over a period of months; but as described above it may take up to 12 months in Irish climatic conditions for them to be reduced to negligible levels. Given this information it is also an important biosecurity issue (for MAP and more generally) on any farm to avoid the spread of slurry sourced on other farms, especially on ground where young stock will graze and to be careful that proper cleaning and disinfection of contract slurry spreading machines is practiced.

With these considerations in mind, what can a farmer do practically to reduce the infective dose of MAP that young stock are exposed to and graze stock in such a manner that takes age susceptibility into account? In simple terms if it was possible to graze calves/youngstock on ground that had received no slurry/dung and

was not grazed by adult cattle in the previous 12 months this would minimise risk, though is not practical on the majority of Irish farms. Instead, the farmer must consider how they run stock over the land during the grazing season to minimise risk to animals from both MAP bacteria and parasites (gut worm and coccidiosis). If paddocks are dedicated to calves, which will help reduce the risk of MAP contamination from adult cattle, then the gut worm and coccidiosis burden can potentially increase in these areas. Sheep are also susceptible to MAP infection. Thus, co grazing of sheep and cattle should be avoided especially on farms with proven MAP presence.

Using both the principles of age susceptibility of stock and reduction in MAP bacteria on pasture with time (along with not concentrating young stock on the same pasture continuously) the leader/follower grazing system provides a good management option for farmers. With this system calves graze the fresh paddocks of grass first but are moved quickly on, followed by older stock, typically yearlings, to graze the remaining grass. This minimises the risk of exposure to high levels of parasites and to MAP, especially on fresh paddocks early in the year when the parasites and MAP will be at low levels after the winter period and when the grazing calves are most susceptible. It also enables the yearlings or adults, which are more resistant than the calves to both parasites and MAP, to further reduce the pasture levels of worm larvae. Then when the calves are rotated back, they will be exposed to reduced parasite load and be more resistant by age to MAP and worms. You can enhance this control in several ways. Rotate through multiple pastures to delay re-grazing and allow both MAP and larval loads to fall further. Follow the calves only with yearlings rather than the adult herd because generally yearlings are too young to shed infective loads of MAP, even if carrying the bacteria. Use reseeded fields, or land used for silage in the last season, to provide even greater reductions of pasture loads of both MAP and worms.

For more information on the Irish Johne's Control Programme (IJCP) see Animal Health Ireland Website and for practical advice 'A guide to Johne's Disease' - [click here](#).

