

Rearing calves to minimise the risk of Bovine Johne's Disease (BJD)

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Introduction

Cattle infected with Bovine Johne's Disease (BJD) can shed huge numbers of the bacteria *Mycobacterium paratuberculosis* in their faeces, especially when they are showing signs of the disease. These bacteria can survive for up to 12 months in the paddock environment, especially where moisture is present.

The main means of spread of BJD is through contact of calves with infected faeces, or soil and other objects contaminated with faeces. Young calves are much more susceptible to this disease than adults. Resistance to infection increases with age, and is dose related. That is, the greater the number of infective bacteria and animal is exposed to, the more likely it is to become infected. Cattle over 12 months of age are relatively resistant to infection.

BJD bacteria can also be shed in milk. This occurs in greatest numbers once a cow is showing obvious signs of disease (diarrhoea and weight loss), but sometimes commences before these signs are apparent.

For calves, the major source of exposure to BJD organisms is suckling a manure contaminated udder. However, calves must be allowed access to colostrum to protect them from various other diseases in their environment. They must then be separated from their dams as quickly as possible, to reduce the risk of exposure to BJD bacteria.

While it is possible for calves of infected cows to become infected while still in the uterus, this only occurs occasionally and is more likely in cows showing clinical disease. Once a cow is identified as being infected it is recommended that the cow, her dam and all her offspring are culled as soon as possible, so calves infected **in utero** would not normally be retained in the herd.

The main means of reducing the risk of infection in calves is to rear them with no access to any

material that may be contaminated with adult faeces.

Quarantine measures on the farm (Biosecurity)

1. Management to prevent exposure to manure

Calves should be born in a clean, dry environment that has a minimum of adult manure. Every effort should be made to ensure that the cow's udder is clean and not contaminated with faeces when the calf first suckles, or when colostrum is collected.

Calves should be taken from their mothers in the paddock in the first 12 hours of life, and preferably carried in a truck or trailer to the calf rearing area. Avoid walking calves up laneways where the contamination level may be high.

Calves should be raised in an area that cannot become contaminated with manure from adult cattle. Their water supply should also be protected from contamination.

Care should be taken that hay and other feeds do not come from a potentially contaminated source, or could become contaminated on the farm. Machinery used for handling calf feed should be cleaned of any manure.

Calves up to 1 year of age should be grazed in paddocks that have not been grazed by cattle which are more than two years old in the previous 12 months.

The effluent from the dairy shed, laneways and paddocks needs to be controlled to ensure that calves (cattle less than 12 months old) are not exposed to it. The longer the separation of young stock from adult stock can be maintained, the lower the risk of spread to the herd replacements.

The calf facilities should be regarded as a quarantine area, if BJD is to be kept out. Ideally, a separate pair of rubber boots and overalls should be kept for use in the calf area only. Otherwise, boots should be cleaned and disinfected when entering the facility. This is even more essential in wet, muddy conditions in which the BJD bacteria thrive.



Simple hygiene precautions must also be applied to any visitors to the calf shed.

Don't forget about manure and mud that can be transferred on vehicles. If any tractors or other vehicles need to cross paddocks or yards used for calves, they should be cleaned first. Special attention should be paid to tyres and under mudguards. It is not sufficient to drive through a container of disinfectant; contaminated material needs to be removed and left behind! The site for cleaning should be chosen to ensure that drainage from the washing process does not create further risks. If the prevalence of infection in the herd is high, a properly designed and drained washing bay would be a good investment.

If calves are to be transported in trucks, these need to be thoroughly washed out to remove any adult faecal material. Allowing the truck to dry out in hot sun will further reduce risk, as hot dry conditions kill the BJD bacteria.

2. Management to minimise exposure through colostrum and milk

Calves should be removed from their mothers as soon as possible, and preferably within 12 hours of birth. If collected colostrum is fed to calves only use colostrum from low risk cows. The safest colostrum would be colostrum collected from cows in a herd with a MN3 status under the Cattle JD Market Assurance Program.

In herds with a high prevalence of BJD, it is preferable to feed calves calf milk replacer rather than whole milk from the herd.

If possible the calves water source (including water used to mix any milk replacer, if used) should be potable water eg rain water, bore water or town water.

Three-step calf rearing program

Because the management of calves is so important in the spread of BJD, a 3-step calf rearing program is to be introduced as a requirement in CattleMAP for dairy herds. These measures will reduce still further the risk that Cattle MAP herds are infected with BJD. This scheme will be independently audited.

The 3 steps required are:

1. Calves to be reared as replacement heifers or bulls must be removed from their mothers and the calving area within 12 hours of birth.
2. The calf rearing area, including calf paddocks, must be separated from areas used by adult cattle, and not take any drainage from laneways, yards and paddocks used by adult cattle.
3. The paddocks used by calves between weaning and 12 months of age must not have had any adult cattle (older than 2

years) run on them in the previous 12 months.

Under the national Dairy BJD Assurance Score, which is soon to be introduced to enable risk-based trading, calves reared under the 3 step plan will score 1 point higher than that of their herd of origin.

Johne's Disease Calf Assurance Program (JDCAP)

In Victoria, an even more rigorous calf management scheme is available. The calves reared under JDCAP score an additional 3 points relative to their herd, under the Dairy Assurance Score.

More information about the Victorian JDCAP is available at:

<http://www.dpi.vic.gov.au/dpi/nreninf.nsf/fid/243B6F4835A73016CA256F0B00215E3E>.

The manual for JDCAP can be viewed at:

http://www.aahc.com.au/jd/maps/2001_amendments/cattlemap_amend/Appendix2.pdf

For more information about the management of calves to reduce the risk of spreading BJD, please contact your NSW DPI Dairy Livestock Officer, your local District Veterinarian, or private vet (preferably MAP approved).

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (September 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.