

# PRODUCER GUIDE

## Annual Heifer Pre-Mating Screening for Exposure to Bovine Pestivirus (BVDV)



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Bovine Pestivirus (BVDV) is an endemic viral disease of cattle responsible for considerable financial consequences for both Australian Beef and Dairy producers across Australia. Initial exposure to BVDV can result in potent immune suppression, infertility, early embryonic death, abortion, or the production of Persistently Infected (PI) animals. Whilst Meat & Livestock Australia (MLA) ranked BVDV as the second costliest endemic disease of cattle in Australia in their 2015 endemic disease prioritisation survey, and third in their 2022 survey, BVDV still remains possible to control and even eradicate at the herd level.

Understanding the role of PI animals is paramount to understanding BVDV and how best to manage it. The mothers of calves born as PIs were initially infected with BVDV whilst pregnant, and the developing calf's immune system mistakenly believed the virus to be normal, as a result of the virus being catalogued as 'self' by the growing calf. Because PIs are 'immuno-tolerant' to BVDV, they never clear the infection and shed enormous amounts of the virus into the environment for their entire, typically shortened, lives. Due to the volume of virus they shed into the environment within saliva, semen, milk, urine, and faeces, PI animals excel in spreading the virus. In fact, PIs are almost exclusively responsible for the propagation of BVDV between generations, between management groups, and between properties. By managing PIs, BVDV can be managed.

Some PI animals survive to breeding age, and some may even be selected as a replacement heifer. If a PI produces a live calf, it will invariably be born a PI. However, most PIs are born from normal cows or heifers, exposed during pregnancy to another PI. If the pregnant animal is at the right stage of pregnancy, if the foetus is not aborted, and if the dam herself lacks prior immunity, the calf will go on to be born PI itself. The cycle can then be repeated.

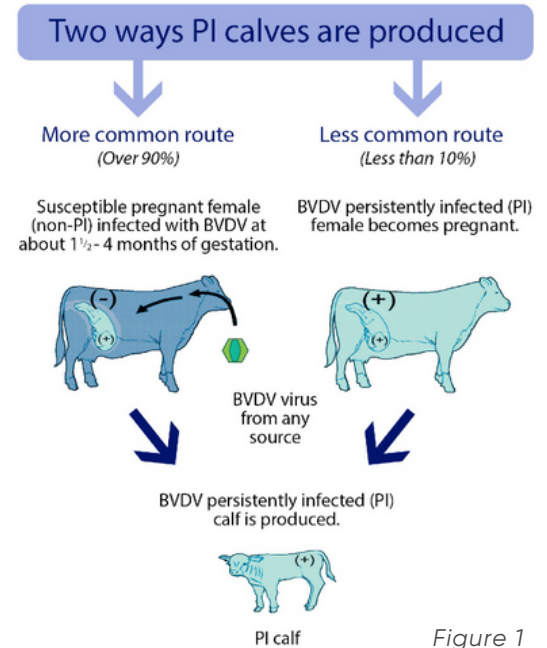


Figure 1

**Controlling BVDV centres around identifying and removing PI animals, providing immunity to animals without prior exposure to the virus, and simple biosecurity steps.**

A key window of opportunity to control BVDV presents itself prior to each new replacement heifer group's first joining. Replacement heifers can be screened with a simple blood test to measure antibodies to BVDV prior to joining to define their specific 'BVDV Risk'. With their results, producers can invest in the best management strategy to ensure that their next generation of breeders are both immune to BVDV and PI free prior to mating.

By blood testing 5% or a minimum of six animals from each management group of replacement heifers (that have been in constant contact for at least two months and are at least eight months of age), producers can accurately predict:

1. which management groups have been exposed to a PI and may even include a PI heifer (representing a threat to other management groups),
2. which management groups have poor pre-existing immunity (other management groups represent a threat to them).

If over 80% of the animals screened have evidence of exposure to the virus, the entire management group is more likely to contain one or more PI animals. Vaccination would be of little benefit, however, by ear notching each individual heifer, all PI heifers could be identified and culled prior to mating.

If less than 50% of the animals screened have evidence of exposure to the virus, the entire management group is unlikely to contain a PI, and vaccination would instead be a better investment.

If the seroprevalence falls between 50 and 80%, further veterinary investigation is warranted.

Producers who consistently screen their heifers prior to mating for exposure to BVDV can then **invest in the most effective intervention**. By ear notching the immune groups and vaccinating the groups without immunity, producers can ensure that each new group of heifers they produce go into their first mating both immune and PI free.

**By implementing screening annually, producers can ensure their entire breeding population becomes immune and PI free. In this way, herd level eradication of BVDV is both feasible and achievable.**

Figure 1: Compliments of the Academy of Veterinary Consultants Mallory Hoover, Veterinary Medical Illustrator and Bob L. Larson, DVM, PhD. Coleman Chair, Livestock Production Medicine Kansas State University.

Figure 2: Compliments of Australian Veterinary Association BVDV Management Guide: Beef Edition Version 1.0, published 20.07.2015 and Enoch L. Bergman DVM, Swans Veterinary Services.

This guide is published as part of ASHEEP & BEEF's Utilising Heifer Pre-Mating Serology to Manage BVDV, a Meat & Livestock Australia Producer Demonstration Site.

Document Version 2.0, published 1/4/2025  
[www.asheepbeef.org.au/managingbvdv](http://www.asheepbeef.org.au/managingbvdv)  
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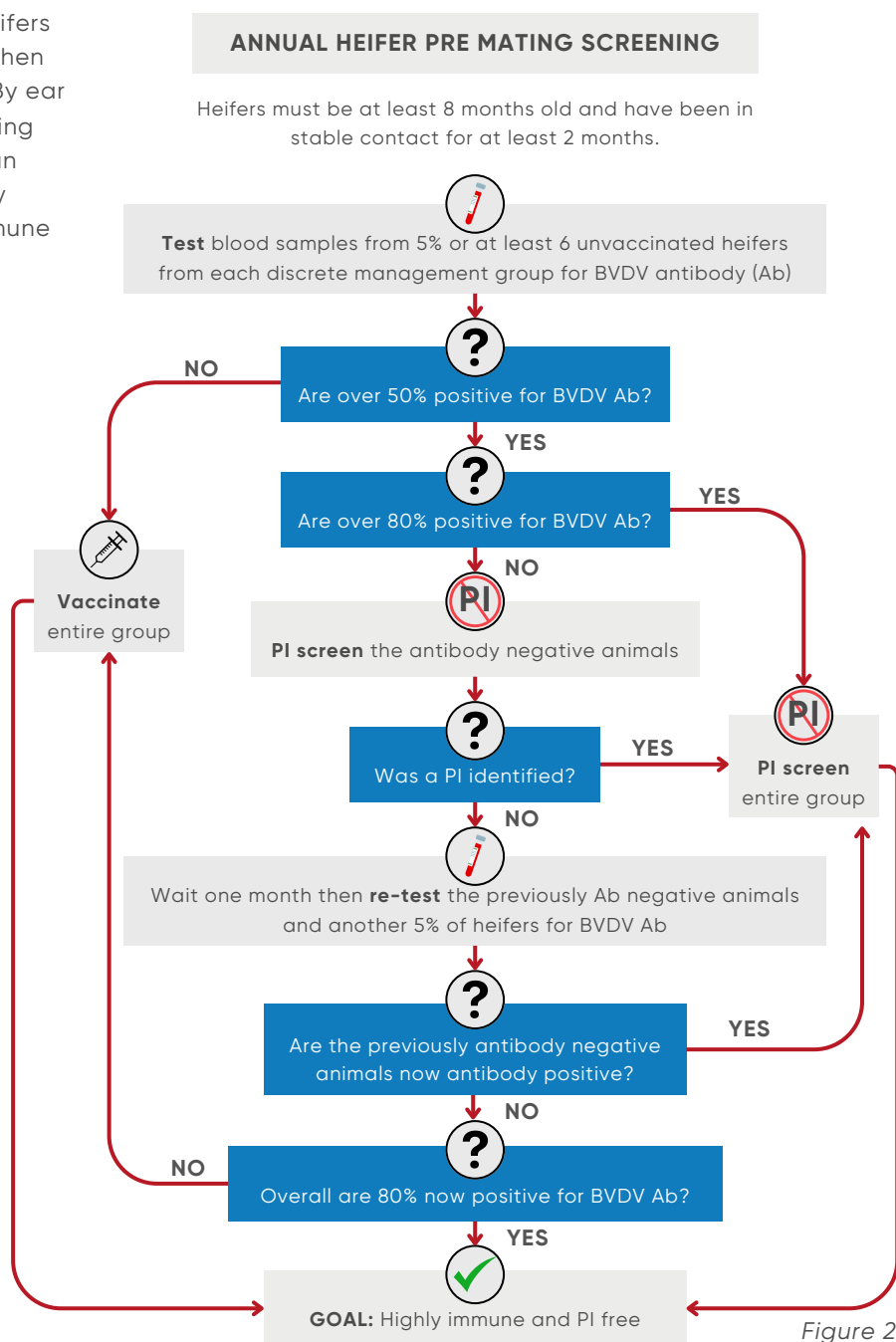


Figure 2