



The virus is out there

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The Snapshot

- Pestivirus is the second most costly virus impacting the cattle sector and accounts for approximately 12% of the total cost of significant endemic diseases impacting the industry.
- The virus mainly targets the intestinal tract, lymphatic and reproductive system causing symptoms such as poor weight gain, fever, nasal discharge, diarrhoea, immune suppression, decreased reproductive performance and reduced milk production.
- It is estimated that more than 60% of cattle across the country have been exposed to Pestivirus and exposure rates vary a lot both between herds and within herds

The Detail

We get swamped with information about viruses these days, mostly Covid-19 related. Although, it wasn't that long ago that all the headlines were on the impact of African Swine Fever (ASF) on the Chinese pig herd and what it was doing to international meat markets.

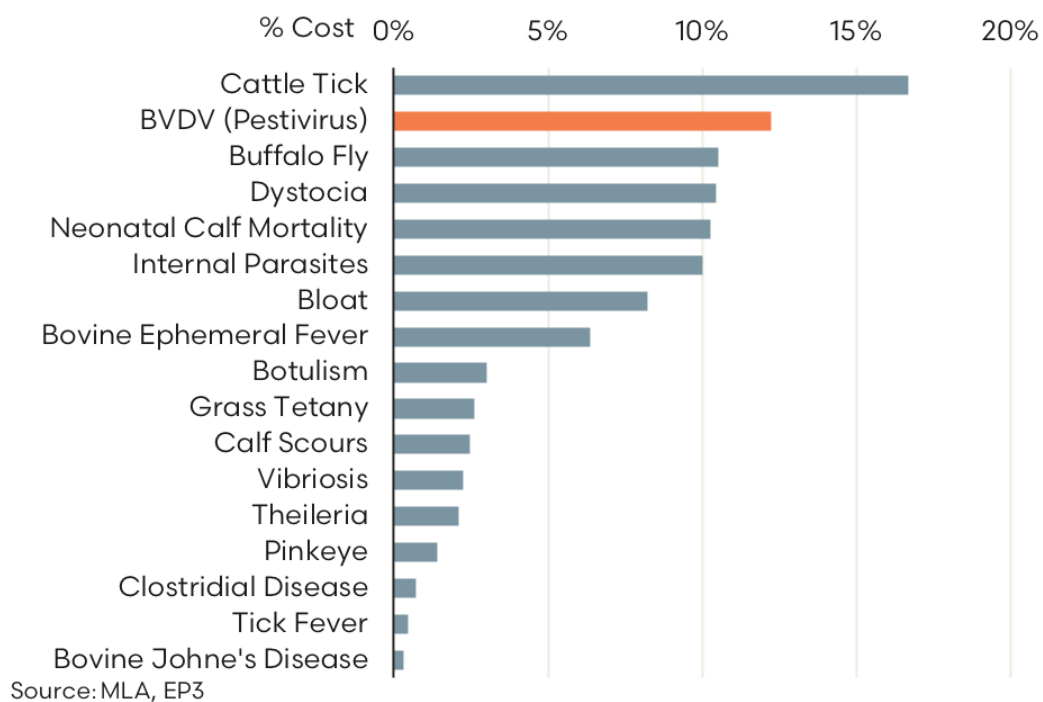
As the ASF epidemic in China demonstrated, an outbreak of a virus across a susceptible livestock population can have incredibly damaging and costly outcomes for individual farmers, an agricultural region or even an entire nation.

There are some viral pathogens that can fly under the radar somewhat, despite their significant cost to an industry. One such endemic cattle virus, that often doesn't get the attention it deserves, is Bovine Viral Diarrhoea Virus (BVDV). This virus can go under a variety of more commonly used names; Mucosal Disease, Pestivirus or just plain old Pesti.

In a 2015 Meat and Livestock Australia (MLA) study undertaken on endemic livestock diseases nationwide it was identified that, for the cattle sector, BVDV was the second most costly virus impacting the sector and accounted for approximately 12% of the total cost of significant endemic diseases impacting the cattle industry.

Endemic Cattle Disease Costs In Australia

ep3



episode3

Episode3 (EP3), with the support of Zoetis Australia, have been investigating the impact of BVDV on the Australian cattle sector and this analysis piece is the first in a series of articles on pestivirus that will focus upon:

- What the virus is, how widely it is distributed and how it is spread
- The impact of the virus on cattle, types of infected animals, implications for breeding and current control measures
- The economic cost of the virus, impacts to the beef feedlot and dairy sector
- The international response to the virus and the consideration of a control/eradication program for Australia

Pestivirus is an RNA (ribonucleic acid) based viral pathogen that is mainly spread through direct contact with an infected animal. While Pestivirus can affect other livestock species the predominant impact of the virus is borne by the beef and dairy cattle sector. The virus mainly targets the intestinal tract, lymphatic and reproductive system causing symptoms such as poor weight gain, fever, nasal discharge, diarrhoea, immune suppression, decreased reproductive performance and reduced milk production.

A calf, born to a cow that has either been recently vaccinated or previously exposed to Pestivirus and recovered, can be protected by antibodies passed on by the cow for a period of approximately three to ten months. Unlike the recovered cow, the calf does not remain immune to exposure to Pestivirus throughout its life.

After the maternal antibodies within the calf subside the animal becomes susceptible to infection from Pestivirus. Exposure to the virus can occur through contact with transiently or persistently infected cattle (more information on these two types of infected cattle will be provided in a future analysis piece).

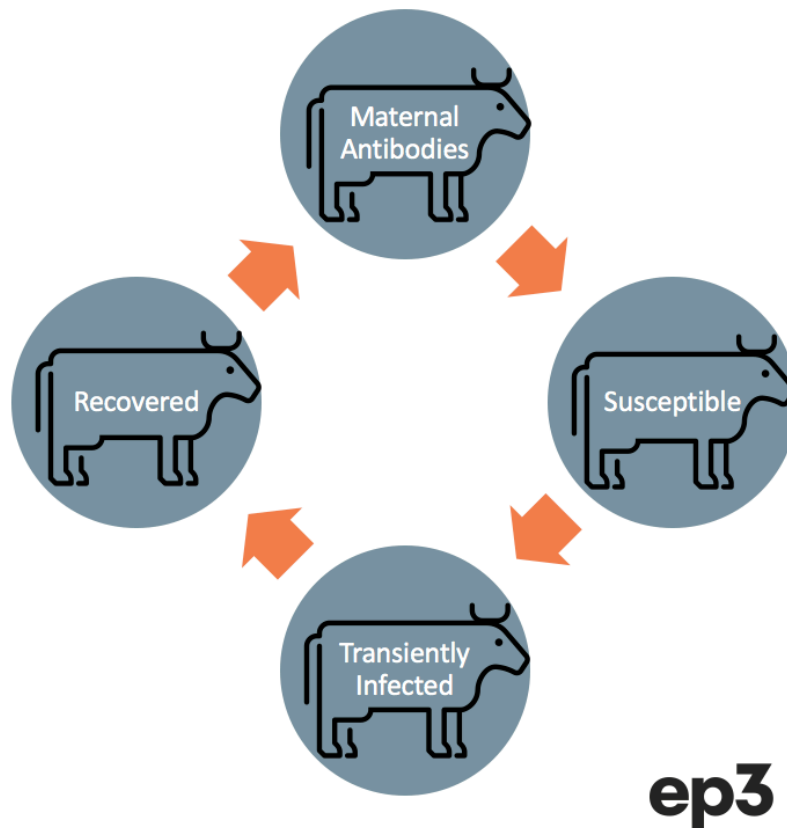
Exposure of a susceptible animal can take place when new cattle (that actively are shedding the virus) are introduced on farm, during transportation of cattle on/off farm for grazing or to a sale yard, and via the sharing of a water trough or feed bin. Nose to nose contact with a neighbouring herd at the fence line can also lead to infection in susceptible cattle.

Once exposure occurs the susceptible cattle becomes transiently infected, usually for a period of two to three weeks, where they begin to create antibodies that fight the viral infection. During this time, they can shed the virus and infect other susceptible cattle. Often in non-pregnant cattle under normal grazing conditions the spread of the virus can go relatively undetected as the symptoms of infection in this cohort can be relatively mild.

After their immune system rids the animal of the virus, they become recovered and usually retain immunity from Pestivirus for the remainder of their life. Cattle, like humans, are generally rather social creatures. Just as the spread of Covid-19 has been hard to contain so too has been the control of the spread of Pestivirus within the Australian herd.



The Bovine Viral Diarrhoea Virus Cycle



It is estimated that more than 60% of cattle across the country have been exposed to Pestivirus and exposure rates vary a lot both between herds and within herds. Unlike endemic diseases such as cattle tick, buffalo fly and bovine ephemeral fever, which are broadly northern based problems for the cattle industry, or predominantly southern based diseases like bloat, calf scours and grass tetany, the distribution of Pestivirus is widespread across the country.

A 2014 study on endemic cattle diseases in Australia highlighted that in northern herds approximately 40% of herds had a medium to high prevalence of exposure to Pestivirus and 20% of herds recorded nil exposure. Similar distribution of the virus was reported in southern herds with 35% of herds recording a medium to high rate of exposure, with 20% of the southern herds demonstrating nil exposure to Pestivirus.

An Australian Veterinary Association journal release (Volume 92, No 8, Aug 2014) noted that “BVDV is the most prevalent infectious disease of cattle in Australia.” However, this journal piece concluded that the success seen in controlling Pestivirus overseas could be replicated in Australia if there was the right leadership and a co-ordinated approach, involving the funding of a cost-benefit analysis in order to “inform discussion on the feasibility of BVDV control in Australia, as presently available analyses are not specific to the local industry.”

Over the coming month we will publish additional articles that further explore the on-farm impact of Pestivirus on the beef and dairy sector. This will include estimates of the economic cost on the cattle industry and the approach being taken overseas at the control or eradication of the virus.