Bovine Viral Diarrhea (BVD)

Kristina Langston
Class of 2019 Animal Science BS

SUNY Cobleskill

Abstract:

BVD also known as Bovine Viral Diarrhea causes abortions and the birth of infected calves. Depending on the time of infection the fetus may be aborted, be born dead or be born infected. Infected animals including calves will constantly shed the virus in bodily fluids putting the other animals in the herd at risk of infection as well. Symptoms of virus include diarrhea as well as oral and nasal ulcers. Both males and females can be infected with this virus so it important to test both before breeding. If a male carrier breeds a female she is now infected and will most likely have an abortion. There is no treatment available for this virus only injections to help boost the immunity against it. Many animals that get infected should be culled from the herd to ensure the rest of the herd isn't infected as well.

What is Bovine Viral Diarrhea (BVD)?

- BVD is one of the most commonly diagnosed virus in bovine abortions (1).
- Some clinical signs include:
  - fever, lethargy, loss of appetite, nasal discharge and oral lesions, diarrhea and decreased milk production (2).
- This virus can be spread to the fetus
  - These infections can cause reabsorption, abortion, stillbirth or live-birth depending on the severity and stage of pregnancy that this infection was introduced (2).
- All infected cattle shed the virus in bodily fluids (3).
- Bulls can be carrier of this disease and can pass it onto to females if they are introduced while breeding (4).

What causes BVD?

- If this calf survives the birth it will be born as a BVDV-infected calf which means that it will persistently shed the BVD virus continuously and could infect other cattle if they are exposed to them (1).
- BVD is caused by a virus with the genus *Pestivirus* within the *Flaviviridae* family. There are two different types of BVD (BVD-1 and BVD-2) these are caused by two different species of *Pestivirus* (*A* and *B*) (7).

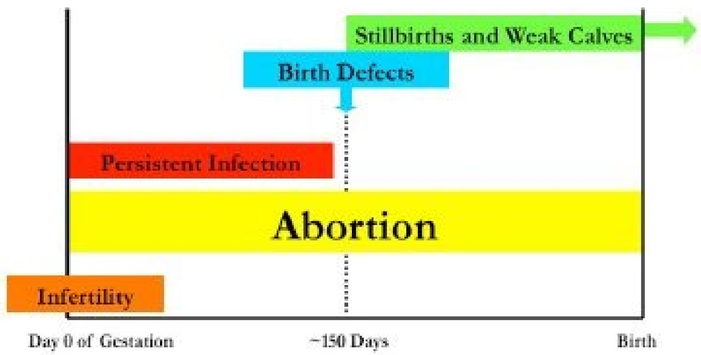
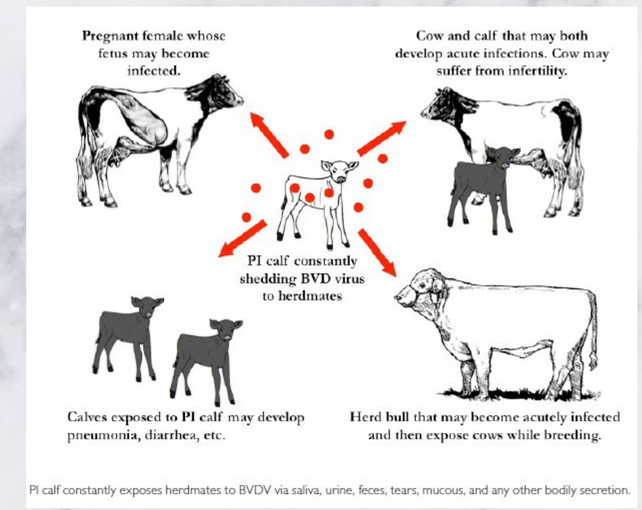


Figure 2. Consequences of fetal BVDV infections, subsequent to a BVDV infection in a pregnant cow or heifer during different times of gestation

(1)

Treatment:

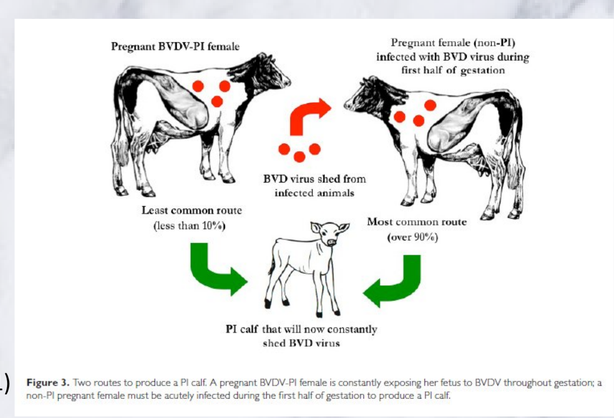
- There is no treatment for cattle infected with BVD. The only thing you can do is cull them from the herd to prevent the spread of the disease.
- Calves born with the disease will also need to be separated from the herd as they can infect others as well.



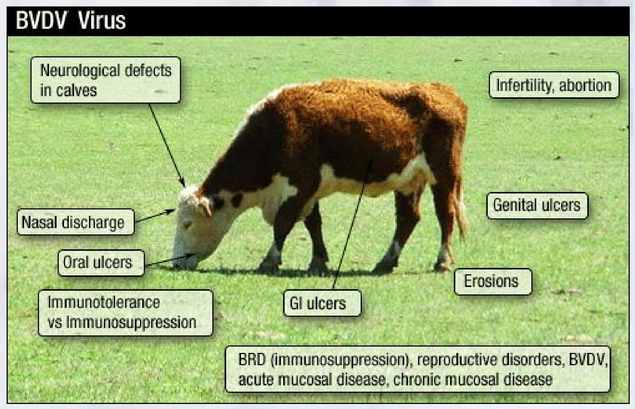
(1)

Disease Prevention:

- You can prevent this by culling infected cattle and vaccinating against BVD (1).
- Maintaining a closed herd operation is the best way to prevent BVD. This means that you should test any cattle before they are introduced to the main herd as well as ensure that any bulls used to breed the herd are not carriers for BVD as well.



(1) **Figure 3.** Two routes to produce a PI calf. A pregnant BVDV-PI female is constantly exposing her fetus to BVDV throughout gestation; a non-PI pregnant female must be acutely infected during the first half of gestation to produce a PI calf.



(2)

History:

- BVD was first discovered in 1946 when cows in New York State began to abort their calves. They also suffered from severe diarrhea as well as oral and nasal ulcers (6).
- Bacteria could not be identified when they tested the blood of the infected cattle (6).
- About seven years later a mucosal disease was discovered in beef and dairy cattle. These symptoms included ulcers in the oral and nasal cavity as well as diarrhea. Under further investigation it was found that these causes were both caused by the same virus (6).

References:

(1) Abortion in Cattle - Reproductive System. (n.d.). Retrieved from https://www.merckvetmanual.com
(2) Bovine Viral Diarrhoea (BVD). (n.d.). Retrieved from http://www.thecattlesite.com
(3) Bovine Viral Diarrhea Virus Type 1 and Type 2 (BVD) | Zoetis US. (2018). Retrieved from https://www.zoetisus.com
(4) BVD in Bulls (2018). Retrieved from http://www.msd-animal-health.co.nz.pdf
(5) Graham, D. (2014). Disease prevention: focus on BVD. Irish Farmers Monthly, 25–28. Retrieved from http://ezproxy.cobleskill.edu
(6) Information and History of Bovine Viral Diarrhea. (2018). Retrieved from http://www.uvma.org
(7) Volker Moennig, & Paul Becher. (2018). Control of Bovine Viral Diarrhea. Pathogens, Vol 7, Iss 1, p 29 (2018), (1), 29.

Figures:

(1) ACES Publications : Bovine Viral Diarrhea Virus : ANR-1367. (2018).
(2) Bovine virus diarrhea. (2018). https://memim.com/bovine-virus-diarrhea.html