

## The consequences of pitfalls in BVDV vaccination

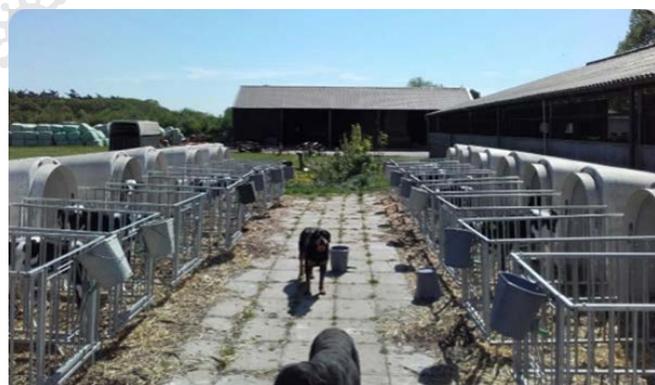
### Iris Kolkman

Veterinary practitioner, A7 Noord dierenartsen, Drachten, The Netherlands

**“This case report will discuss the pitfalls of BVDV control management on a Dutch dairy farm where BVDV re-entered the farm after several years of being “BVDV free” and vaccination.”**

### Background

A dairy herd of 170 Holstein Friesian dairy cows with an average milk yield of 7219 kg milk/year and approximately 160 young stock. In summer time cows grazed on pasture from April until October close to another farm. In wintertime, these animals were kept indoors in a free stall barn on a ration of grass- and maize silage and minerals. Vaccination with an inactivated BVDV vaccine started in 2008.



The young calves are housed in hutches for 2 weeks outside on the back of the young stock barn.

At that time no information on the BVDV status of the herd was available. No purchase was done on the farm besides bulls for breeding heifers. These bulls were bought from certified BVDV free farms, but never tested for BVD Ag in blood or semen. Measures to monitor the introduction of BVDV was done only once by blood sampling young stock for antibodies in 2013. There was no indication for BVDV circulation since there were no clinical signs related to BVDV, therefore the farm was considered to be BVDV free.

Vaccination with an inactivated vaccine was performed twice a year according to the label recommendations in 2008 and 2009. Afterwards vaccination with the same vaccine was done only once a year in the adult animals until March 2014. The young stock was vaccinated twice with a 4 week interval.

### Preliminary Indication

In the summer of 2015 pneumonia was diagnosed based on clinical symptoms (coughing, dyspnoea and fever) in calves of 2 to 4 months old. Two weeks later older calves of 5 to 6 months of age had Trichophyton infection with severe clinical symptoms. Immunosuppression was suspected and diagnostic testing for BVD was performed.



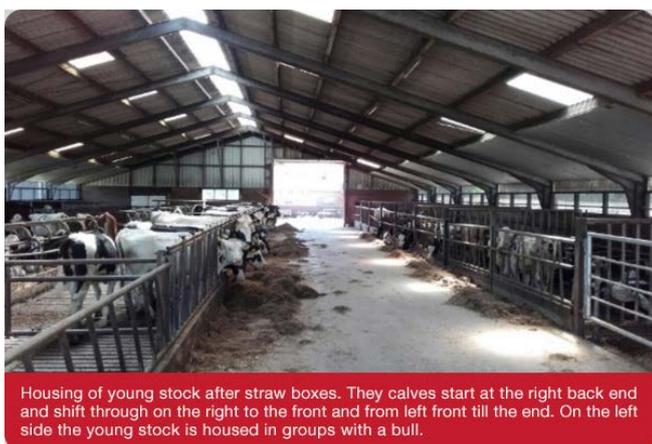
Housing of older calves in two boxes with straw. Maximum of 10 calves are grouped together on a calf drinking unit

## Further Development

The whole herd was sampled via bulk milk and individual blood samples for the presence of BVDV. Two persistent infected (PI) animals (born December 2013 and June 2015) were identified and removed. Both PI animals were born during the vaccination program with the inactivated vaccine, probably because the vaccination was only implemented once a year. By the age of the oldest PI it was calculated that the BVD circulation took place since the summer of 2013. At the neighboring farm BVDV was also diagnosed in the beginning of 2014.

## Treatment Applied

After removal of the PI's vaccination continued in July 2015 with a live double deleted vaccine against Type 1 and Type 2 with a 12 month duration of immunity. All new born calves are tested for BVDV since. So far one new born calf was found to be a PI animal in August 2015. No new PI animals were discovered since August 2015 (43 calves were sampled to the date of submission). No further problems within dairy cows and remaining young stock occur since the summer of 2015.



Housing of young stock after straw boxes. They calves start at the right back end and shift through on the right to the front and from left front till the end. On the left side the young stock is housed in groups with a bull.

## Result

When BVDV control is inadequate all the implemented strategies can be a waste of effort and money. In order to prevent BVDV circulation and (clinical) problems a close collaboration between veterinarians and farmers is needed.

Vaccination of all animals from 3 months of age with a live BVDV vaccine with a 12 month duration of immunity can help the vet and the farmer with an easier to implement vaccination strategy. Using a live BVDV vaccine also is suggested to have a better protection against the development of PI animals during pregnancy in contrast with inactivated BVDV vaccines (Newcomer et al., 2015).

## Questions

Q1: What are examples of pitfalls of this case?

1. Herd was considered BVDV free, based on the absence of clinical signs.
2. Vaccination with inactivated vaccine was applied only once a year.
3. Purchase of breeding bulls from certified BVDV free farms.

Q2: Why did the vet and farmer decide, besides testing all new born calves, to start vaccination with a new live BVDV vaccine?

1. Farm remains at risk re-introducing BVDV, because cows are on pasture during summer.
2. A live BVDV vaccine with a 12 month duration of immunity provides an easier to implement vaccination strategy.
3. Because a higher mortality was observed in the beef herd when compared to the dairy one.