BVD, hard to keep out

Marleen Doornbos-Hartman

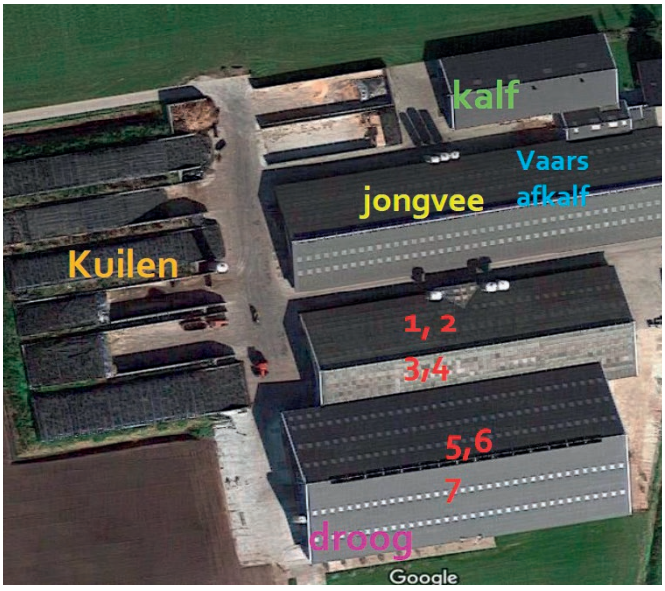
Dierenartsenpraktijk Van Zeebroeck, The Netherlands

Marleen has worked as a veterinary practitioner for the last 20 years. She has considerable experience with pet animals, bovines, small ruminants and horses.

Farm description

Family business with 450 dairy cows of various breeds, including Vlekvieh and HF cross breeds. There are 400 youngstock present. The cows are milked by 7 robots. The heifers are in a separate group. The youngstock up to 7 months are in a separate stable. The animals from 7 months until calving are housed separately too. There is no grazing. In 2015, there was an expansion from 5 to 7 robots. From April 2011 until September 2015 the farm had 'closed' management; this means no new animals arrived on the farm. In September 2015, 24 cows > 2 years of age with a BVD free certificate were acquired from Germany and 32 animals from the Netherlands from BVD free farms. The animals from Germany all were placed at robot 3, 4, 5 and 6. Of the animals from the Netherlands animals also went into the heifer group. In December 2016, 100 of the young animals were moved to the neighbouring farm and after more than 2 months these animals returned to the farm.

The average milk production is 28 litres/cow/day, more than 10,000 litres of milk is produced daily. The average bulk milk cell count is 213,000 cells/ml over a period of 12 months in 2017. The farm is leptospirosis-free, salmonella favourable (antibody negative in bulk milk) and is busy tackling Johne's disease (para TBC). Bulk milk is positive for IBR antibodies. In the previous years BVD antibodies were not demonstrated in young stock spot testing.



Description of the BVD case

As of the autumn 2015 there were many respiratory problems in the young cattle. In early 2016, there were also problems with fresh cows on a robot (No. 7) and in the dry cows; lameness, insufficient feed intake, rumen acidosis, loose manure and insufficient milk production. In consultation with the nutritionist the ration during dry period and transition period was adapted and the cows recovered quickly. In the animals on the other robots there were no problems.

The cell count increased over the period May to September 2016 to above 250,000 cells/ml. There were still issues with the calves, many coughing, in spite of vaccination against respiratory infections. Many calves were ill and their condition was not good. Through research, IBR and *Mannheimia* were demonstrated. And one animal was slightly (+ +) *Mycoplasma* positive. In September 2016 the herd was tested for BVD. Both in bulk milk and in the youngstock BVD antibodies were demonstrated, no BVD virus was demonstrated in bulk milk.

Action plan

The recommendation was to vaccinate against BVD and to identify the persistent infected (PI) animals. The farmer did not want to do both and it was decided to first identify the PIs. In December 2016, 443 of the youngstock older than 1 month and the dry cows are tested for BVDV. In 30 animals BVD virus is detected, of 1 animal the result is dubious, this was a pregnant heifer. All virus positive animals were born from the end of July 2016 to mid- October 2016 and were housed together. It was decided to retest the animals after 3 weeks for virus. A number of PI animals had already died before retesting, the dubious animal retested negative. In the end 26 persistent infected animals (PI) were identified. Typing research showed that BVDV type 1 was involved.

The presence of so many BVDV positive animals amongst the calves and youngstock was probably the reason that the performance was poor and there were many calves sick. Therefore, after getting the BVD diagnostic results in December, the youngstock stable (all calves up to 7 months of age) were vaccinated with Bovela® directly. All calves were vaccinated off label from 2 weeks of age. Every 4 weeks, the newborn calves in the singles hutches are vaccinated with Bovela®, to reduce clinical signs as a result of the BVD virus circulation.

The BVDV positive animals were all born between July and October 2016. This means that the BVD infection has taken place between November 2015 and May 2016, before the new cattle arrived on the farm. The origin of the mothers of the BVDV positive animals was checked and they were also tested on BVDV through bulk milk. A number of mothers appeared to have been removed already. One mother had been present in the heifer group, of 3 it is uncertain and the rest of the mothers were in the groups at robot 3, 4, 5 and 6.

Follow- up

In early 2017 many treatments for respiratory disease were still needed and there were several growth problems (growth retardation) amongst the youngstock that were situated next to the PI animals in the same barn. The young calves were doing all right now. All new calves from 1 month of age are tested for BVDV. In April 2017, 65 calves that were born after end of November 2016 were tested, all tested negative for BVDV. In May 2017, however, 4 PI's were found, which were born in March 2017. Bulk milk was tested again for BVDV, but no BVDV was found. Two of the mothers of the new PI's found weren't present in the bulk milk, but had been removed in the meantime.

The recommendation was to vaccinate the whole herd, so all animals on the farm would be vaccinated against BVD and to continue to test the newborn calves for BVDV. In July 2017, the whole herd was vaccinated with Bovela®. And the farm also changed also to testing all the new born calves for BVDV via ear notches (instead of serum) to detect PI's more quickly.

Damage and costs

In the period from May 2016 to December 2016, 22 young cattle > 3 weeks of age died, 11 of them turned out to be PI animals. It was also a period with insufficient production in 2015, many respiratory problems and treatments in young stock in 2015, 2016 and early 2017. Also in 2017, PI animals were found. There were many costs for diagnostics and the veterinarian. A mild estimate of the costs based on € 10.70/1,000 litre milk (Fourichon 2005), means € 39,000 per year. However the BVD problems and the full aftermath on this farm can last 2.5 to 3 years, so total costs almost € 120,000.

Lessons learned

- After identifying an indication of BVD virus circulation, to vaccinate immediately the entire herd or perform standard preventive vaccination.
- Farmer should notify the veterinarian as soon as new animals have arrived or when animals are moved.
- On large farms, test far more frequently for BVDV.
- What is the status of the neighbouring farms, are they a risk or running risk?
- Despite all the diagnostics testing it is not possible to trace back how BVDV came onto the farm. Possible routes are: arrival of new animals, movement and return of young cattle to the farm, infected neighbouring farms.

The most recent follow up

Last PI was found in early September 2017; in the meantime, the farm is at the final stage of BVD certification to gain the BVDV free status. As of February 2018, all calves are tested via earnotches; also bulls, aborted and stillborn calves are tested. The young cattle are still being vaccinated, except for a small number, which will be used for monitoring and vaccinated afterwards. It is now going well on the farm.

Overall conclusion

A BVD outbreak leads to incredible problems for a long time on a farm and causes an enormous expense. This farmer wishes that he had started sooner with vaccination. Unfortunately, detecting the source (cause) of infection has not been possible for this farm in spite of the efforts of many supporters.

Certainly on large farms it is difficult to get BVD under control, there are many animal movements within the farm, arrival of new animals from other herds and neighbouring farms remain a source of risk. BVD monitoring and detecting PI animals are both important, also within the framework of national programs (it is now mandatory for dairy farmers in the Netherlands). Vaccination is the only way to protect the animals against BVD.