

BVD pilot studies seroprevalence

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Key words

BVD, Seroprevalence, Surveillance, Antibody-ELISA

Aim of the study

The aim of the study was to assess the prevalence of antibodies (Ab) against Bovine Virus Diarrhoe (BVD-) virus in young cattle (serum) and first-lactating cows (milk) on selected farms throughout Switzerland and to set up the logistics and diagnostics for a long-term serological BVD-surveillance in Switzerland starting in 2012.

Material and methods

In autumn 2010, 3'572 serum samples of young cattle aged between 6 and 18 months from 446 farms were taken by official veterinarians (pilot study 1). In spring 2011, 2'379 serum samples of young cattle and 1'680 milk samples of first-lactating cows from 307 farms were collected (pilot study 2). In the second study a distinction was made between farms without any BVD-case in the last 12 months (group 0) and farms with a persistently infected (PI-) animal in the herd during the last 3 months (group 1). The serum and milk samples were tested at the IVI for the presence of BVD-antibodies using two different Ab-ELISA test kits (IDEXX HerdChek® BVDV and PrioCHECK® BVDV). In case of positive serological results, further investigations were carried out in order to find the reason for the seroconversion of these animals.

Results and significance

In autumn 2010 the prevalence of BVD-Ab in serum of young cattle was 2.3%. 9.4% of the 446 farms had at least 1 seropositive animal. In spring 2011, the seroprevalence in young animals and first-lactating cows in farms of group 0 was 0.6% and 13%, respectively. In the farms of group 1, 47.2% of the young cattle and 66% of the first-lactating cows were seropositive. Results of sensitivity and specificity calculations showed that the specificity was significantly higher when young cattle instead of first-lactating cows were tested. Specificity was also slightly higher when only animals were tested that had never left the farm since birth. The results of the studies also showed that in some cases, the presence of a PI-animal on a farm may not be detected by serological testing due to a special herd management.

Based on the results of this study, it is recommended to test a group of young cattle against BVD-Ab for the clarification of positive bulk milk test result of milk-producing farms and for the surveillance of non-milk-producing farms. The tested animals should preferably never have left the farm since birth. If at least one of the tested animals of this group is seropositive, further investigations to find the source of infection should already be carried out.

The results and insights attained in this study are used directly for the development of an appropriate strategy for a long-term serological BVD-surveillance in Switzerland.

Publications, posters and presentations

- Schlussbericht BVD-Pilotstudien Seroprävalenz
- Presentations:
 - o KT-Konferenz, Berne, September 7th 2011
 - o Informationsveranstaltung für veterinärmedizinische Laboratorien, Berne, September 8th 2011

Project 1.11.10

Project duration September 2010 – July 2011