Efficiency of the control measures of the BVD-eradication in Switzerland

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Key words
BVD, Eradication, Modeling, Control measures

Aim of the study
In the frame of the national BVD eradication program, strategic decision needed to be taken in order to better allocate resources and define the best control measures. The aim of this project was therefore to develop an epidemiological model in order to follow the disease situation over time

Material and methods
An epidemiological model was developed in the language and environment statistical computing R in order to evaluate and compare different surveillance strategies to be implemented after the eradication phase. Based on data collected during the eradication programme as well as available data coming from governmental database, the model follows the disease dynamic within and between dairy herds. In addition, the model takes into account the complex structure of animal movement, as well as the common pasturing. The model follows the evolution of the PI prevalence as well as antibody prevalence in the population. In addition to the quantification of the power of detection and the effect of each strategy, a cost analysis has been conducted from the data generated with this model in order to integrate the gain and the loss inherent to the disease as well as the programme itself. The different surveillance strategies looked at in the frame of the model were: 1) antibody testing of blood samples of young calves starting in June 2010; 2) antibody testing in milk sample of first lactating cows starting in June 2011. Additionally, we explored the possibility of integrating risk factors associated with the apparition of the disease in order to target a part of the population.

Results and significance
The two different approaches didn't show a clear difference in efficacy; in other word we wouldn't gain anything by starting a surveillance phase one year early thanks to blood sampling of young calves in comparison with milk of first lactating cows one year later. In addition, after integrating the cost of the different approach it was clear that milk sampling would be used preferably, achieving the same efficacy with less cost. The model also allowed showing that performing at least one additional year of calves testing for antigen prior to moving to a surveillance approach would speed up the whole eradication process. This allowed decision maker to get arguments to extend the eradication phase till the end of 2012.

Publications, posters and presentations
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