

A meta-analysis of the impact of mitigation measures on the production losses due to bovine viral diarrhoea virus (BVDV) infection

Beate Pinior¹, Sebastien Garcia², Jean-Joseph Minviel², Ahmed Ferchiou², Didier Raboisson²

1 University of Veterinary Medicine Vienna, Institute of Veterinary Public Health 1210 Vienna, Austria
2 IHAP, INRA, ENVT, Université de Toulouse, Toulouse, France; [presenter](#)



AIM AND METHODS

Bovine viral diarrhoea (BVD) is an important infectious disease of cattle herds worldwide, which has an impact on both herd productivity and reproduction.

A **literature search** was conducted to identify studies focussing on the economic impact of direct losses due to BVDV and corresponding mitigation measures.

Three databases were used:

- ISI Web of Knowledge
- Pubmed
- Scopus

A **meta-analysis** was applied to analyse epidemiological and mitigation factors that influence the level of monetary direct losses due to BVD infection.

The 20 studies included in this analysis assessed BVDV monetary direct losses incurred over the past 40 years.

Two meta-analysis were performed:

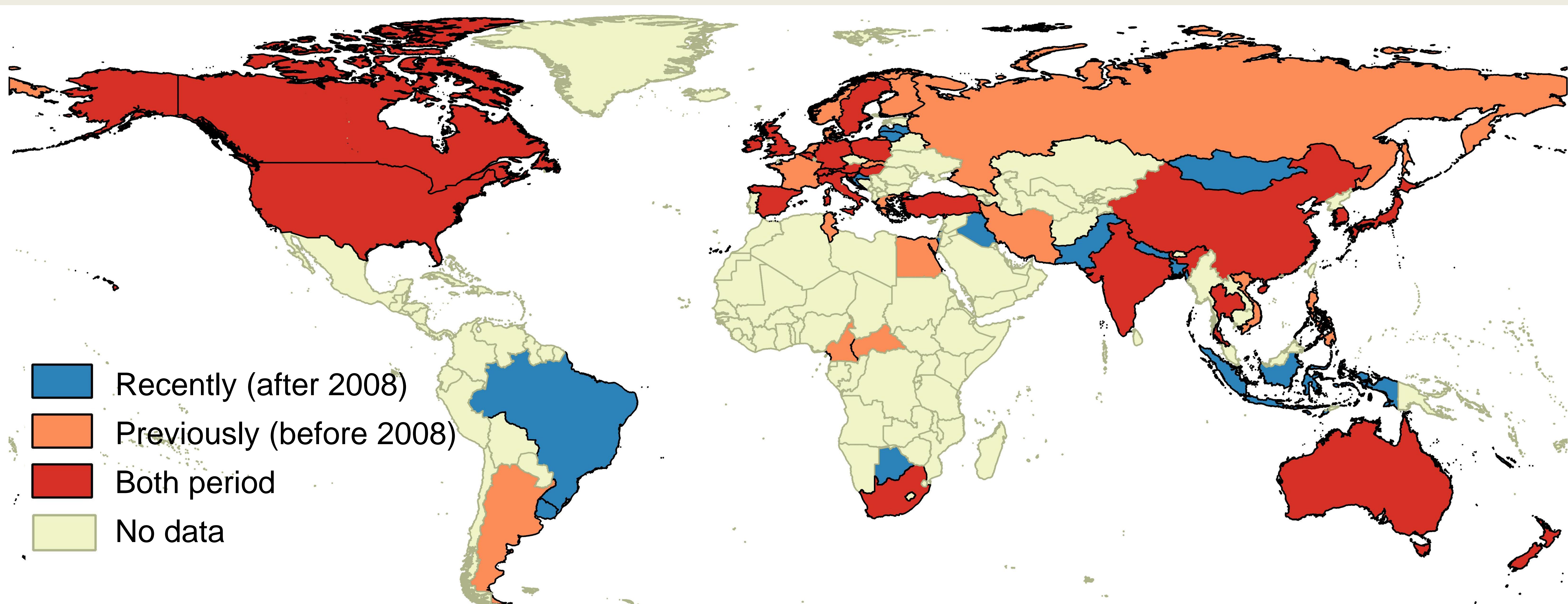
- 1) Analysing the influence of general herd management parameters and epidemiological factors on the annual production losses per cow before any mitigation measure had been taken into account.
- 2) Analysing the effect of mitigation measures i.e. biosecurity, vaccination, testing and culling, cattle introduction or contact with neighbouring cattle herds on the changes in BVDV production losses.

RESULTS

1) The mean annual direct losses were determined to be **€42.14 per cow**. The multivariate meta-regression showed that epidemiological factors i.e. **BVDV introduction risk, initial seroprevalence, viral circulation intensity and circulation duration** significantly influenced the mean annual BVDV production losses per cow. Indeed, the per cow costs **increased to €67.19** when these four moderators were considered as “high or moderate” compared to “low”.

2) The second meta-regression analysis revealed that implementation of **vaccination and biosecurity measures were associated with an 8-12% and 28-29% decrease in BVDV production losses on average**, respectively, when simulated herds were compared with or without such mitigation measures. This reduction of BVDV production losses per cow due to mitigation measures was partially counteracted when farmers brought new cattle on to farm or allowed contact with neighbouring cattle herds.

Overview about persistent infected or viraemic animals and/or herds recorded by the literature



N.B. The presented results were submitted as paper and are currently under review.