Evaluation of BoHV1-free certification through bulk milk sampling in the Netherlands

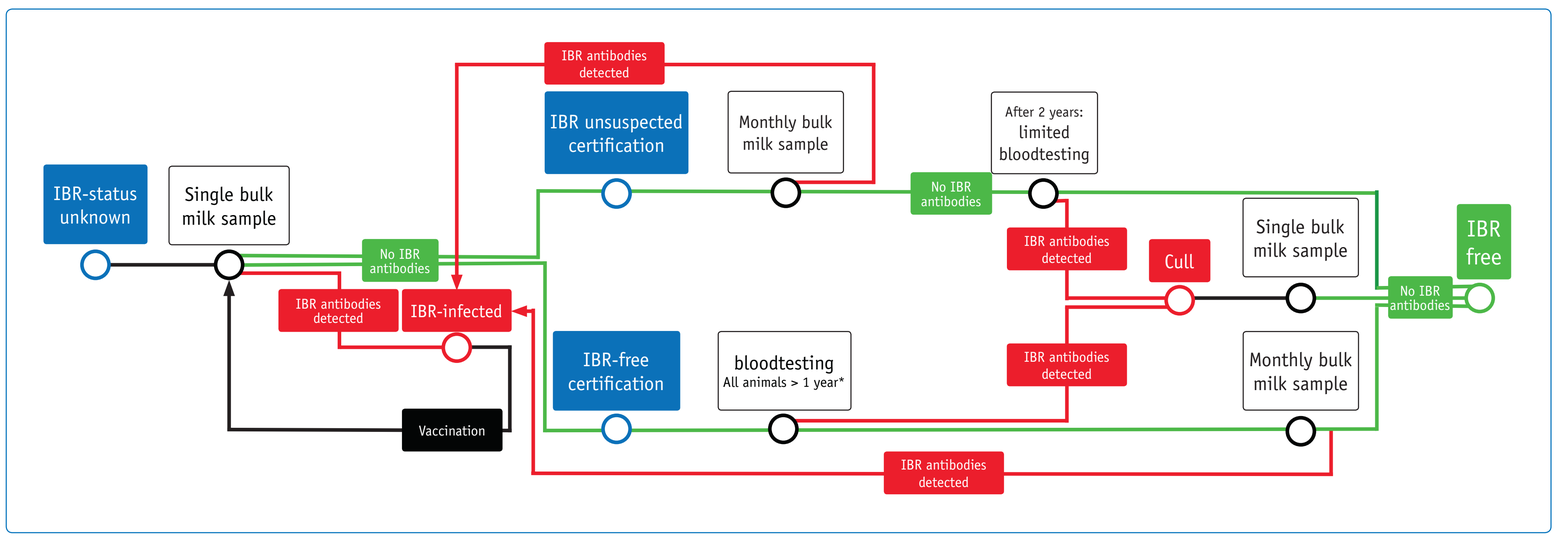
Frederik Waldeck[1], Henriëtte Brouwer-Middelesch[1], Jet Mars[1] and Gerdien van Schaik[1,2]
[1] Royal GD, Deventer, The Netherlands [2] Utrecht University, Utrecht, The Netherlands

Objective of the study

In the Netherlands, bovine herpesvirus 1 (BoHV1), the causative agent of infectious bovine rhinotracheitis (IBR), is endemic. The average Dutch dairy herd size is 98 milking cows. Up to 2018 farmers could voluntarily participate in two IBR control programs: 'IBR-free' certification and 'IBR-unsuspected' certification (scheme 1). For monitoring of dairy herds, both programs rely on monthly bulk milk sampling. In this study we analyzed herds that switched from 'unsuspected' to 'free' certification. The aim was to look at characteristics of BoHV1 positive animals and herds with positive animals in order to improve the existing programs for the mandatory phase of eradication on dairy farms that started in April 2018.

Background

The 'IBR-unsuspected' status can be obtained after an initial bulk milk sample with no antibodies. The gE antibody test in bulk milk is negative at an estimated within-herd prevalence of less than 10% (IDEXX IBR gE Ab Test). Consequently, a small number of latently infected cows can still be present in a dairy herd with a bulk milk sample with no antibodies. When 'unsuspected' herds purchase cattle from non-free herds, the farmer was notified and advised, but not obliged, to test that cattle serologically. After at least two years of 'IBR-unsuspected' status a herd has the possibility to qualify for the 'IBR-free' status by performing the 'program switch test' (scheme 2). This in contrast to the regular method of directly obtaining the 'IBR-free' status, which is by initial serological testing of all animals over one year of age in a closed herd (last year) and subsequent culling of seropositive animals if present.

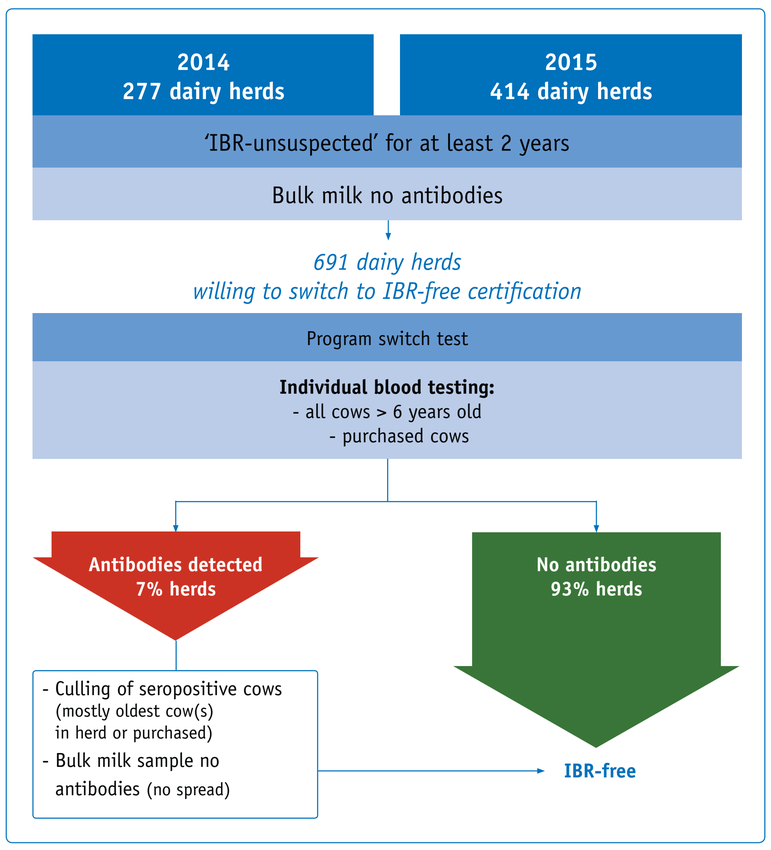


Scheme 1: Routes to IBR-free certification through antibody testing in bulk milk samples and individual blood samples

*** in closed herds (last year), otherwise bloodtesting all animals > 1 week old**

Results

Results of individual blood tests of 691 switched dairy herds were available over the years 2014 (277) and 2015 (414). For each herd the proportion of BoHV1 positive cows was determined. In herds that switched from unsuspected to IBR-free, 93% did not find any cows with BoHV1 antibodies in the 'program switch test'. This indicates that no previous infection was present in the herd and these herds did not have to cull cattle to become IBR-free.
In 7% of the herds one or more seropositive animals were found. In 25 out of 46 herds these animals were born on the farm and where typically the oldest animals in the herds. In the other 21 herds the seropositive cows were bought in and were likely infected prior to purchase (and did not reactivate since then). In the positive herds, on average 1.4 (range 1 to 4) cows had gE antibodies. Out of 46 herds with seropositive animals, 33 herds had just one cow with antibodies. Possibly some false positive test results contributed to this, but mostly they were either the oldest cow present or bought in. The average age of seropositive cows was 9.3 years (range 6.0 to 17.1 years).



Scheme 2: Results IBR program switch test

Conclusion

Certifying herds 'free' for IBR after a minimum of two years of consecutive negative bulk milk samples is easy, cost-effective and works very well. The chances of obtaining the status 'IBR-free' without culling of seropositive animals is high. After the results of this study compulsory testing of purchased cattle from non-free herds soon after arrival was implemented in the program to contribute preserving the 'IBR-unsuspected' status.
The study was repeated over the years 2016-2019 (until July) with 2967 dairy farms performing the program switch test. In total 92% of these herds qualified for IBR-free without culling cattle.

f.waldeck@gdanimalhealth.com
www.gdanimalhealth.com