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Experiences from BVDV control in Sweden

L. Hult [a,*], A. Lindberg [b]

[a] *Swedish Dairy Association, Dairy Cattle Health Service, Box 1146, SE-631 80 Eskilstuna, Sweden*
[b] *Swedish Dairy Association, Research and development, Box 7019, SE-750 07 Uppsala, Sweden*

Abstract

A control scheme on BVDV was launched in Sweden in 1993 with the aim to prevent spread of the infection between herds, to eliminate virus from infected herds and, ultimately, to eradicate BVDV from Sweden. At the start it was voluntary and fully financed by the affiliated farmers. The estimated prevalence of infected herds was 40%. After 11 years there were only 205 (0.9%) herds still under clearance. Measures perceived to be of importance in concluding the scheme are subsidies on costs for analyses, gradually making regulations for contacts between herds and prevention of indirect infection stricter and also to eventually make the scheme compulsory.

Keywords: Bovine viral diarrhoea (BVD); Control scheme; Eradication; Epidemiology

1. Introduction

During the 1990s, efficient methods for detecting bovine viral diarrhoea virus (BVDV) in serum, and for detecting antibodies in serum, milk and bulk milk (Niskanen et al., 1991) were developed.

In Sweden, a national bulk milk screening in 1993 showed that more than 50% of the dairy herds had high antibody levels in the bulk milk, indicating an ongoing or recent infection (Niskanen, 1993). At the same time, practical experiences had shown that it was possible and profitable to clear infected herds from the disease and maintain their free

* Corresponding author at: Swedish Board of Agriculture, Animal Disease Control Division, SE-55182 Jönköping, Sweden. Tel.: +46 36 15 62 74; fax: +46 36 16 38 28.
E-mail address: lenahult@brikks.com (L. Hult).

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status. This resulted in a decision to control BVDV, and a scheme was started by the Swedish Dairy Association in 1993 with strong support from the farmers' own organisations. The aim of the scheme is to prevent spread of the infection between herds, to eliminate the virus from infected herds and, ultimately, to eradicate BVDV from Sweden (Alenius et al., 1996).

At the start, the scheme was voluntary and fully paid for by the farmers. Since 1996, the Board of Agriculture has granted funds that are used mainly to subsidise costs for analyses. Today most of the costs for analyses and central administration are subsidised, whereas the farmers still pay for labour and local administration.

The epidemiological principles underlying the scheme have been described elsewhere (Lindberg and Alenius, 1999), but briefly the scheme is based on a non-vaccination approach, where repeated demonstration of absence of antibodies is required for certification, and a systematic test-and-cull protocol is used for eliminating PI animals from infected herds. The regulatory framework is aimed at controlling the major routes of introduction of BVDV infection into a herd, i.e. through direct contact with PI animals or through purchase of dams carrying PI foetuses. However, as the scheme has proceeded, relatively more emphasis has been put on preventing infection through indirect contacts. The purpose of this paper is to describe changes made and actions taken during the scheme in relation to the progress.

2. Materials and methods

Most of the data regarding the progress of the BVD scheme were obtained from the BVD database that was set up in 1997 and which stores results from all the analyses taken within the scheme. It also contains information about all affiliated herds, as herd size, production type (dairy/beef/heifer rearer) as well as historical and present BVD status. Information from the time before April 1997 was derived from output from an older computer system, which was less detailed. Other sources of information have been personal communication with veterinarians working in the field, livestock traders and farmers. Over time, a series of actions have been taken in order to make all herds affiliate and comply with the rules, to prevent new infections, and to find and take actions in infected herds. Actions and events perceived as having had major influence on the progress are listed in Table 1.

3. Results

In the spring of 1993, 52% of all the dairy herds had very high levels of antibodies to BVDV in the bulk milk, indicating a recent or ongoing infection. In November 2004, only 2% were in class 3. Also, in January 2005, 97.3% of the herds were certified free, 1.9% were awaiting their second test before certification, and 0.8% (173 herds) were still undergoing clearance. The progress of affiliation and certification of free herds (Fig. 1) was markedly higher among dairy herds than among the beef herds. While 50% of the dairy herds had affiliated after less than 2 years it took about 4.5 years to affiliate 50% of the beef