Impact of Schmallenberg virus on British sheep farms during the 2011/2012 lambing season

K. A. Harris, R. D. Eglin, S. Hayward, A. Milnes, I. Davies, A. J. C. Cook, S. H. Downs

Context
Schmallenberg virus (SBV) emerged in Europe in 2011 and was first confirmed in the UK in January 2012. The aim of this study was to assess the effects of SBV on lamb and ewe mortality and malformations in lambs, as well as farmers’ perceptions of the impact of the disease on financial performance, animal welfare and farmer emotional wellbeing.

Main conclusion
The results from the survey do not indicate high levels of SBV-related losses at a population level in 2011/2012. However, some individual farms did experience greatly elevated mortality and farmers generally perceived the impact of the disease to be high. There was a measurable impact of SBV on flock welfare, flock financial performance and farmer emotional wellbeing regardless of absolute measured sheep loss. The emotional impact associated with SBV was highest on farms where SBV was confirmed or suspected, but half of the farmers from farms where SBV was not suspected reported that SBV had caused some impact on their emotional wellbeing.

Approach
The questionnaire was open to all sheep farmers in Great Britain and participation was voluntary. The questionnaire was administered in three ways: online through the AHVLA website and through links on Defra’s website and sheep industry websites; by post; and through the National Sheep Association’s biennial Event, Sheep 2012.

Mortality rates, incidence of malformations and other impacts were compared across three SBV categories: SBV confirmed (positive by RT-PCR); SBV suspected by farmer; and SBV not suspected. Data from the free text question requesting any further comment from responders on the impact of SBV, was interpreted using a thematic analysis with responses categorised into themes.

Results
A total of 494 farmers responded to the questionnaire and were categorised. Seventy-six farmers had SBV confirmed on their farm, 140 had SBV suspected and 278 did not suspect SBV.

The percentage of barren ewes was similar across the groups; however, lamb and ewe losses were higher on responder farms where SBV was confirmed or suspected. The median number of lambs born (and the median number of deformed lambs) that died within one week of birth per 100 ewes were 18.2 (5.5) on farms where SBV was confirmed, 11.8 (2.9) where SBV was suspected and 8.6 (0.0) where SBV was not suspected (P<0.001). Eight to 16 per cent of SBV confirmed or suspected farms reported lamb mortality of 40 per cent or more during the 2011/2012 season.

A significantly larger proportion of responders from SBV confirmed or suspected farms reported that the disease had a negative impact on animal welfare, financial performance of the flock and emotional wellbeing of the farmer, compared to farms on which SBV infection was not suspected (P<0.001). The differences across groups were much smaller; however, when comparing scores for emotional wellbeing, as nearly half of farmers who did not suspect infection on their farms still reported some emotional impact. Overall SBV impact has been large relative to reported sheep loss.

Almost 6 per cent of responder farmers from SBV confirmed or SBV suspected farms reported that the experience of SBV had made them less likely to farm sheep the following year, compared to 1.8 per cent of farmers from farms on which SBV was not suspected (P<0.001).

Interpretation
The survey was not conducted using a probability-based sampling frame, participation was voluntary and the number of responders was small in some categories. The results should therefore be interpreted as a guide to the nature of the impact on the sheep industry, rather than comprehensively quantifying loss. Farmers who suspected or had SBV confirmed in their flock were specifically targeted and, as a consequence, the results of this impact study may over-represent their losses. Farms that experienced significant lambing problems unrelated to SBV, where farmers had no obvious explanation of losses, may also be over-represented. However, the survey data may under-represent farms that experienced more subtle effects of SBV infection, due to differential diagnosis or farmers not suspecting infection.

Significance of findings
These results do not support high animal losses caused by SBV in the 2011/2012 lambing season. However, some individual farms did experience greatly elevated mortality and the perceived impact of the disease was generally high to farmers. Further work to better understand the nature of SBV effects on sheep farms and possible control strategies could assist farmers in addressing future incursions. In addition, further work to improve two-way engagement between the farming industry and government might reduce the impact of newly emerging diseases on animal welfare and farmer wellbeing.
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Veterinary Record 2014 175: 172 originally published online May 2, 2014
doi: 10.1136/vr.102295

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Correction

Impact of Schmallenberg virus on British sheep farms during the 2011/2012 lambing season (VR, August 16/23, 2014, vol 175, pp 172; doi: 10.1136/vr.102295).

The figures on lamb deaths and deformed lamb deaths given in the fourth sentence of the abstract in the full, online version of this paper were incorrect. The sentence should read: ‘The median number of lambs born (and the median number of deformed lambs) that died within one week of birth per 100 ewes were 18.2 (5.5) on farms where SBV was confirmed, 11.3 (2.9) where SBV was suspected and 8.6 (0.0) where SBV was not suspected.’ The error is regretted.

doi: 10.1136/vr.102295corr1