

Expert elicitation on the effectiveness and importance of on-farm biosecurity measures in Switzerland

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Key words

Expert consultation, Delphi, Animal diseases, Risk profile

Aim of the study

Within the first draft of the new EU Animal Health Law, an attempt was made to focus on on-farm biosecurity measures, in order to allow for free trade across the borders of different European countries ("placing on the market" concept). Currently, in Switzerland and in many other countries, biosecurity consists of a combination of national and voluntary on-farm measures. As scientific data on the effectiveness of individual biosecurity measures are scarce, it is difficult to estimate the contribution of on-farm measures on the animal health status. The aim of this study was to develop a database based on expert knowledge, which can be used to compare the relative effectiveness of different on-farm biosecurity measures.

Material and methods

An expert elicitation of eight Swiss cattle and eight Swiss swine experts was conducted. In a modified Delphi method, the experts judged biosecurity measures applicable to either cattle or swine farms (n=31 or 30 measures respectively). The importance of each individual measure was assessed for the current situation in Switzerland, by taking into consideration the animal health status, feasibility of the measure and Swiss legislation. On the other hand, individual measures were evaluated on their effectiveness in preventing particular infectious agents from entering and spreading within a farm. The model pathogens assessed by cattle experts were those causing Bluetongue, Bovine viral diarrhea, Foot and mouth disease (FMD) and Infectious bovine rhinotracheitis, whereas swine experts assessed those causing African swine fever, Enzootic pneumonia, Porcine reproductive and respiratory syndrome and FMD.

The results of the elicitation were tested for agreement between experts by means of intraclass correlation coefficients (ICC).

Results and significance

For cattle farms, measures on disease awareness were ranked as most important, those on preventing contact to the outside world as least important. For swine farms, the measures on animal movement were rated as the most, whereas those related to feedstuff least important. Among all measures evaluated, education of farmers was considered to be the most efficient (combined importance and effectiveness) to keep Swiss livestock free from disease. Reliability was between 51% and 73% for the measures of importance and effectiveness for the cattle expert assessments, and between 46% and 55% for the swine expert assessments.

Publications, posters and presentations

Kuster K. et al (2013) Expert elicitation on the effectiveness and importance of on-farm biosecurity measures in Switzerland (to be submitted to Preventive Veterinary Medicine)

Kuster K., Cousin M.-E., Jemmi T., Schüpbach G., Magouras I., (2012) Efficiency of on-farm biosecurity measures in Switzerland. Poster presentation in Proceedings of the International Symposium on Veterinary Epidemiology and Economics (ISVEE), Maastricht

Kuster K., Cousin M.-E., Jemmi T., Schüpbach G., Magouras I. (2013) Effectiveness and importance of on-farm biosecurity measures in Switzerland, Abstract accepted for oral presentation, World Veterinary congress, Prague

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