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Annexe I : Programme de recherche STOC free

STOC free: An innovative framework to compare probability of freedom from disease in heterogeneous control programmes

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In the STOC free project, six countries collaborate to develop a framework that is able to objectively quantify the probability and uncertainty of freedom from infection for animals in different control programmes. The ultimate goal is that the framework will be used throughout Europe to enhance safe trade.

Several European countries have implemented national or regional surveillance, control, or eradication programmes for endemic infections of cattle. Such programmes bring tangible benefits to participating farmers and national economies, and are to be strongly supported. However, they also create difficulties for intra-community trade, as free trade has the potential to allow (re-) introduction of infectious agents into regions where disease freedom has been achieved. With respect to non-regulated diseases, countries differ both in their progress towards eradication and in control programme design. When freedom from infection is reached, safe trade is essential to protect that status.

In 2017 a project was initiated in which a Surveillance analysis Tool for Outcome-based Comparison of the confidence of FREEdom generated by control or eradication programmes (STOC free) will be developed. The project is financially supported by EFSA and the European Commission and is executed by a consortium that consists of eight parties from six European countries that collaborate to tackle this major challenge.

The project aims to develop and validate a framework that enables a transparent and standardized comparison of confidence of disease freedom for control programmes across herds, regions or countries. The STOC free framework consists of a model (STOC free MODEL) combined with a tool to facilitate the collection of the necessary quantitative information (STOC free DATA). In Figure 1, a graphical overview of the STOC free framework is presented.

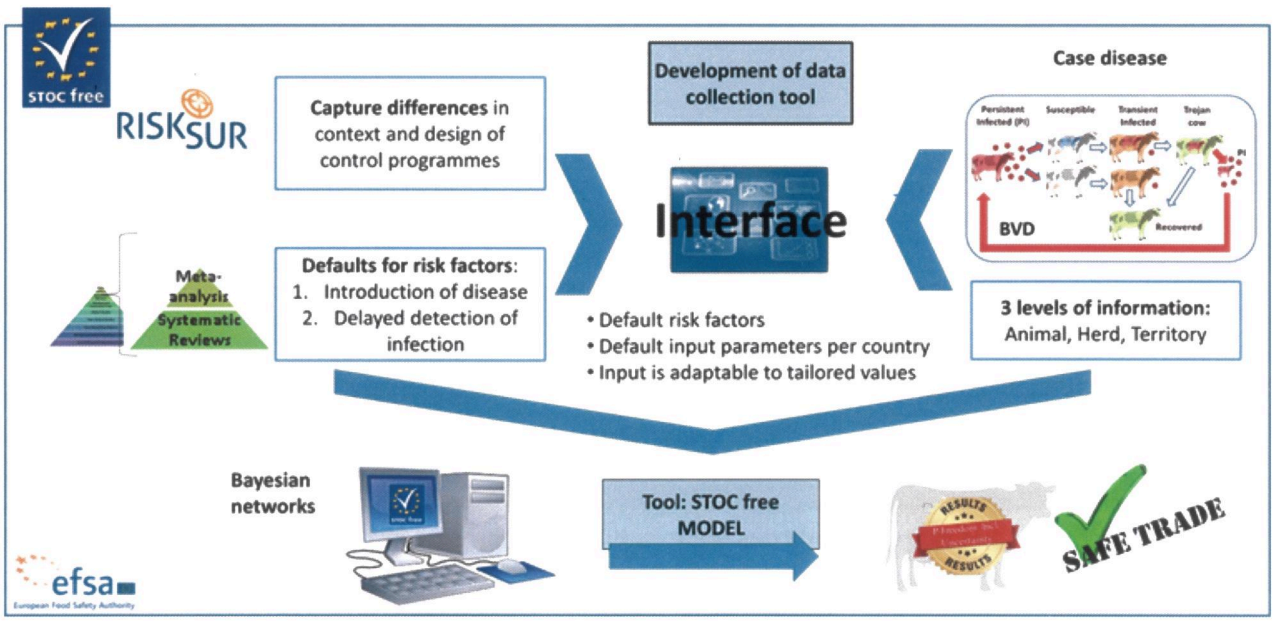

Figure 1. Graphical representation of the STOC free framework

In the project, bovine viral diarrhea (BVD) will be used as the example disease. BVD is a viral disease that can be transmitted both horizontally, leading to transiently infected cattle, and vertically. Vertical transmission in early gestation results in persistently infected (PI) calves which are considered the most important source for spread of the virus. The BVD virus is often introduced by purchase of either PI calves or cows pregnant with PI calves. The latter are popularly referred to as Trojans due to the deceptive way in which such cows can introduce the virus into a new herd.

Many countries have differently designed control programmes in place for BVD and are at different stages of eradication. The ultimate goal of STOC free is that the user of the framework can estimate the probability of freedom of bovine viral diarrhea virus (BVDV) and the uncertainty around that probability for a trade animal based on default input information on animal, herd and country level. The results can be tailored to the individual situation when programme-specific quantitative data is entered in the data collection tool. These data can be obtained from databases or control programmes, diagnostic data, demographic data and contact structures between herds. In addition, the model will include both the frequency of occurrence and risk estimates for factors that influence the probabilities of introduction and of delayed detection of the infection in an animal or herd.

The developed framework will be tested and validated to evaluate the probability of freedom of BVDV infection in each of the collaborating countries in which the BVD situation varies from endemic to free. Although BVD will be a thorough test of the flexibility of the initially developed framework, it should be generic enough to be adaptable to control programmes for other diseases. At a later stage of the project, the possibilities for expanding the framework to other diseases and other species will be explored. The long-term vision is that the use of the framework is supported by each European country and is extensively used to assess equivalence in the probability of freedom of traded animals for any infectious disease.

With the introduction of the new Animal Health Law (AHL), it is anticipated that assessments of the performance of control programmes will progressively change towards output-based measures. The STOC free framework will support the AHL by providing a single general framework that is adaptable to multiple diseases, which will provide an objective and standardized probability of freedom of infection combined with the uncertainty given the context and the design of the control programme.

More information about the project, the status and the progress can be found at the project website: www.stocfree.eu.

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