

COST Action CA17110

**Standardizing output-based surveillance to control non-regulated diseases of cattle in the EU
Workshop WG4 Report**

Deliverable D4.1. Overview of the results of the brainstorm session on the needs and possibilities for developing methods for an output-based comparison of the confidence of freedom from infection that is applicable to numerous cattle diseases

Luis Pedro Carmo^{1,2}, Maria Guelbenzu³, Annika van Roon⁴, Inge Santman-Berends⁵, Gerdien van Schaik^{4,5}, Mirjam Nielen⁴, John Berezowski^{1,6}

¹Veterinary Public Health Institute, Vetsuisse-Faculty, University of Bern, Switzerland

²Norwegian Veterinary Institute, Norway

³Animal Health Ireland, Ireland

⁴University of Utrecht, the Netherlands

⁵Royal GD, The Netherlands

⁶Scotland's Rural College, Scotland

Introduction

Surveillance has one main output: to generate information (Figure 1). Such information is then used to assess the disease status of a country/region, the risk and benefits and, finally, to make decisions. In the context of animal health surveillance, the decision-making process is often tied to trade (e.g. whether to allow the import/intra-EU trade of an animal, animal product, etc). Surveillance provides information about the risk of importing a harmful pathogen when an animal is imported.

Under the umbrella of European Union legislation (Animal Health Law), a number of surveillance programmes exist for which specific instructions on the surveillance process and sampling/testing methods are given ('input-based surveillance'). In this case, one can say that the same type of information in each country is created (as a requirement due to the standardization of the process). However, input-based surveillance lacks flexibility and may not be the optimal solution given the context in a country or region. There are a substantial number of diseases for which non-standardized control programmes are in place in a number of European countries. For these diseases, the surveillance process, tests used, and sampling are adjusted to the local context and can vary considerably. The resulting surveillance information may be variable and less easy to compare across countries than with an input-based approach. The challenge for any surveillance programme is how to make use of the information for decision-making.

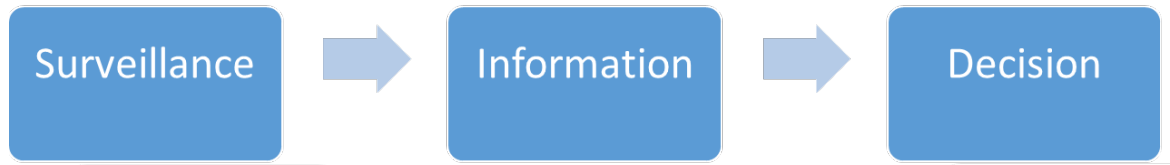


Figure 1 – Schematic representation of the use of surveillance to make decisions.

To investigate this topic Working Group 4 (WG4) of the SOUND-Control project organized a workshop with experts in animal health surveillance. This activity had the following objectives: a) to identify information needed to make decisions (to buy cattle from another EU country) taking into consideration disease risks in the presence or absence of an disease control program, and b) to rank the information needs considering their relevance to making such a decision.

Materials and Methods

Setting and participants

The workshop was held at the Warsaw University of Life Sciences, Warsaw, Poland. It was conducted on the 23rd January 2020 (morning and afternoon).

In total, 15 participants and three facilitators took part. From the 15 participants, 13 belonged to the SOUND Control project while two were externally invited. The participants came from nine different countries (12 counting with the facilitators).

The workshop was conducted to obtain information needs (from a surveillance point of view) related to the decision making process of animal trade in the context of endemic diseases. Considering the goal of the workshop, it was deemed appropriate to select experts from within the SOUND control consortium. The invited participants were selected based on each person's experience in animal health surveillance and their potential to contribute to the workshop.

Methods

The participants were given an introduction to the topic featuring some general points about the exercises to be conducted within the scope of the workshop, brief instructions and the goals of the workshop. The workshop encompassed two exercises.

Exercise 1

The participants were given a scenario where:

- They are epidemiologists
- Their country is free from bovine viral diarrhoea (BVD)
- A farmer from their country intends to buy cattle from another EU country
- The selling country is also free from BVD

The participants were required to think about the information they would need to ensure the safe trade of the animal – that is, without introducing BVD in the country.

Participants were requested to write each information need in an individual post-it note and stick it on a white board. During this exercise participants were asked to stay silent and not to discuss their options with the other participants. They were informed that the objective of this exercise was to obtain the highest number of information needs possible and that afterwards we would have a discussion to understand their relevance and how to group them. This exercise took about 20 minutes. After this time, the participants returned to their places.

The facilitators read all the post-its out loud, sticking together those that asked for the same information (repeated ones). Following this process, a discussion about how to organize these needs was initiated. Despite contributing to the discussion and the organization of the information needs, the facilitators tried to put these tasks in the hands of the participants. When several options arose, the facilitators discussed with the participants all the possibilities and tried to find consensus. When this was not possible, the facilitators followed the option with most supporters. At the end of this exercise, the participants had clustered and named each group of information needs.

In the second scenario, the status of the selling country was changed: the selling farm was in a free region but the selling country had both free and endemic regions and an ongoing control programme for BVD. For this scenario, the participants were asked to write the additional information needs (compared to the first scenario) that would be required to make an informed decision that would minimize the risk of buying a BVD infected animal. These were written in post-it notes that were a different colour, to distinguish them from those of the first exercise. Participants were given ten minutes to complete this task. After this period, a new round of discussion was initiated to figure how (and in which group) the new information needs would fit. In this discussion the facilitators also tried to understand why the new information needs were identified for this scenario.

Finally, a third scenario was suggested. In this case the status of the buying country changed again: the farm from which animals were being bought was in a free zone but both the buying and selling countries had free and endemic zones and a control programme

underway. The purchasing farm was also free from BVD. The same exercise as described above was repeated for this scenario (Figure 2).

Exercise 2

For the afternoon session, participants were split into three groups (of five experts each). The facilitators organized the groups in advance, trying to have a balanced distribution of country of origin, background and experience level. The participants were allowed to change groups if they would feel more comfortable (or if they would be able to provide a more insightful contribution) with a different scenario than the one that was attributed to them.

The scenarios were similar to the ones presented in the morning, differing solely in the disease of interest. Figure 2 schematically represents the differences between each scenario. The objective of this exercise was to: a) determine if there were information needs that were disease-dependent, and b) categorize the information needs by their importance.

The participants were asked to identify the information needs they would require to make a decision. They were asked to: a) classify the information needs into “essential”, “important to have” and “low importance”, and b) to create minimum groups of information needs they would require to make a decision. They had about 30 minutes to complete the exercise. One facilitator worked with each group. A standardized PowerPoint presentation was created in advance. The participants were requested to complete the exercise using the PowerPoint. At the end of the exercise, each group was given 5 minutes to present their results. After the three presentations, a group discussion was held.

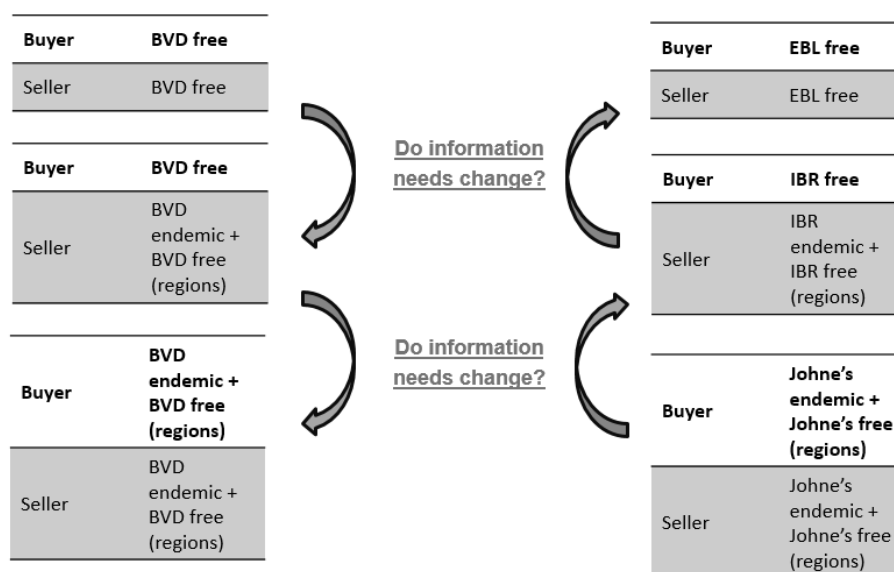


Figure 2 - Schematic representation of the scenarios used in the two participatory exercises.

Results

Following the exercise with the first scenario, participants started by organizing the information needs by their level: animal, farm, region or country. The information needs were then organized into different categories: surveillance system of the buyer, management of the risk of introduction in the seller country, transport, vaccination, estimates of freedom from disease, laboratory and test characteristics, and surveillance system of the seller.

Participants stated that they would be much stricter in their information requests for the second scenario. This was related to an increased risk of pathogen introduction associated with the selling farm being located in a country where some regions were not free from the disease. Participants also mentioned that in this scenario they would consider the status of the region to be equivalent to the country status. The organization of the whiteboard after scenario 2 can be seen in Figure 3.

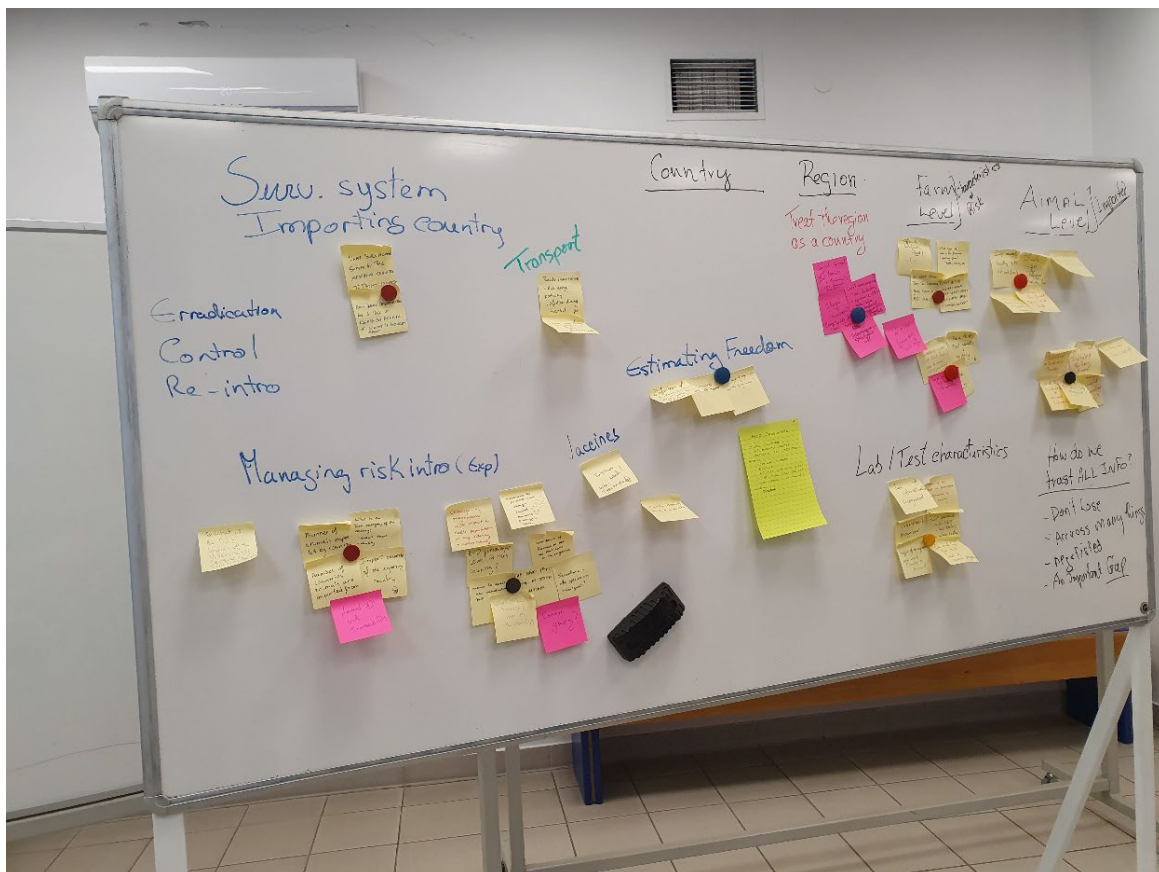


Figure 3 – Summary of information needs after scenario 2.

In the third scenario participants mentioned they would be less strict with their requirements. This related once again to risk perception. During the discussion participants stressed that farmers' motivations would be particularly interesting to investigate, in order to identify the social economic factors that make the farmer prefer a transaction with another country compared with their own. It was also stressed that the context for this scenario would be quite dependent on the disease, the country/region status and the potential consequences of a pathogen introduction / re-introduction. Participants also mentioned that it is important to know the control measures in place in the buying country: if trade of live animals between free and non-free zones within the country are allowed, or not controlled strictly, there would be no reason to be strict with transactions from outside the country (especially with areas that claim to be free).

Following the workshop the organization of the groups of information needs was further refined (Figure 4). A detailed list of information needs identified during the workshop is available as an appendix.

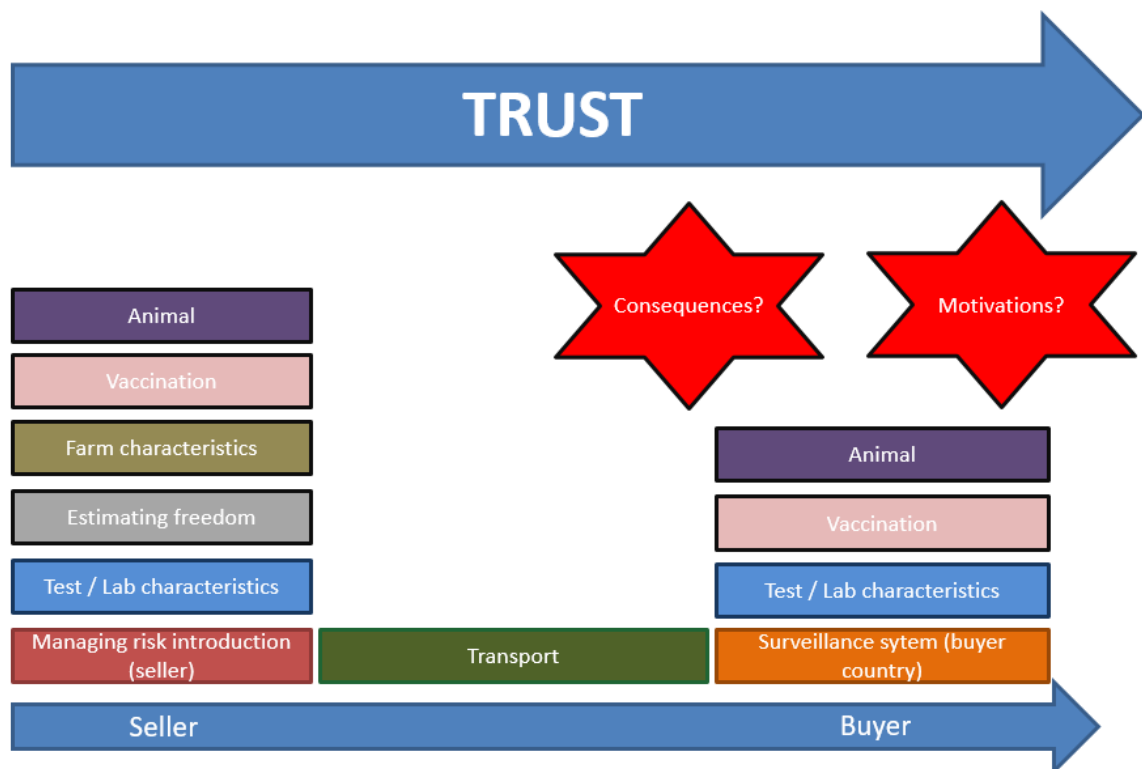


Figure 4 – Summary of the groups of information needs identified by the experts during the workshop in Warsaw. The scheme identifies different groups allocating them to different time points in the trade process: in the country of origin, during transport, in the country of the buyer.

Discussion and final thoughts

The results from this workshop provided relevant inputs for the plan of activities of WG4, as well as for the research agenda to be drafted within the scope of this project.

While these results provide a good overview of the scientific inputs that might be required for successful implementation of output-based surveillance methods, it must be stressed that most experts attending the workshop were working for universities or the government disease control authorities. These results must be complemented with input from other stakeholders, in particular those that will be the users of the outputs created by these surveillance systems. It is therefore of relevance that transdisciplinary activities are undertaken for an efficient implementation of output-based systems. WG4 envisioned the enrolment of various stakeholders in their activities. Even though the initial plan had to be changed due to the limitations imposed by the pandemic, we were still able to develop some activities where the input of multiple stakeholders was gathered. These offer a preliminary perspective on different actors and topics within the sphere of output-based surveillance. For further details on these activities, please consult the deliverables 4.2 and 4.3.

We also stress that the information needs provided by the experts may be dependent on the diseases presented in the scenarios. We tried to reduce this bias by presenting scenarios that considered different diseases. However, the generalizability of these results should be investigated.

Finally, it became clear that social economic factors and trust between trading partners are of crucial importance in the cattle trade process. We must improve our understanding of these factors in order to be able to develop more adequate tools.

Methodological aspects related to output-based comparisons of the confidence of freedom from infection are extensively discussed in the deliverables provided by WG3. In addition, methodological gaps are also discussed in the deliverable 4.3.