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Standardizing output-based surveillance to control non-regulated diseases of cattle in the EU

Deliverable D4.2 Report with the methods, results and recommendations of the different STSMs

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Introduction

The ultimate goal of Working Group 4 (WG4) of the SOUND Control consortium was to develop a research agenda to advance the use of output-based methodologies for the surveillance of cattle diseases in Europe. To inform this agenda WG4 collected stakeholder needs related to output-based surveillance and additional information about existing gaps that might be hindering the implementation such methods. This was achieved by maintaining a close collaboration with other WGs throughout the SOUND Control project and by undertaking a series of activities to gather input from various stakeholders. The latter were mostly conducted within the scope of Short Term Scientific Missions (STSMs) and Virtual Mobility Grants (VMs). This document aims at summarizing the STSMs and VMs that focused on engaging stakeholders in SOUND Control activities. Further details (also for other STSMs and VMs conducted within the scope of WG4) can be found in the published reports for each mission. It must be stressed that WG4 coordinated several STSMs investigating several aspects of output-based surveillance (i.e. review of the use of scenario tree modelling, social-ecological determinants of farmer behaviour).

In order to guarantee the acceptance and usefulness of output-based methodologies in real-life, it is of crucial importance to follow a holistic approach and consider the experience and opinions of all stakeholders involved in the cattle trade process. Our initial plan was to follow

a transdisciplinary approach that encompassed several activities (e.g. focus groups, interviews) where multiple actors in the cattle trade chain would be enrolled. Unfortunately, the COVID-19 pandemic limited the possibility of conducting these activities in-person and our plan had to be adapted.

In order to develop efficient strategies there was a need to construct a solid understanding of the cattle trade process and the decision-making method followed by various stakeholders. This required investigating the roles, motivations and disease awareness level of the actors involved in intra-EU cattle trade. We also tried to identify the information needs of potential users of output-based surveillance tools. To achieve these goals we implemented two complementary approaches (bottom-up and top-down) that are further described below.

What does top-down and bottom-up mean?

The “top-down” and “bottom-up” approaches relate to the process used and the stakeholders involved in collecting the information necessary to achieve the abovementioned goals (Figure 1).

In the bottom-up approach farmers, the ultimate decision-makers when it comes to intra-EU cattle trade, were targeted. The bottom-up analysis was focused on specific characteristics and micro attributes of individuals, in this case farmers. This section examined whether disease control programmes influence farmers. And if they do, how do they impact farmers in their decision to buy cattle from other European countries?

The top-down approach on the other hand, aimed at gathering the input from other various stakeholders that play a role in intra-EU cattle trade. In this study the role of each stakeholder in the decision-making process was investigated. Also, the influence of the control programmes as perceived by the different stakeholders was assessed.

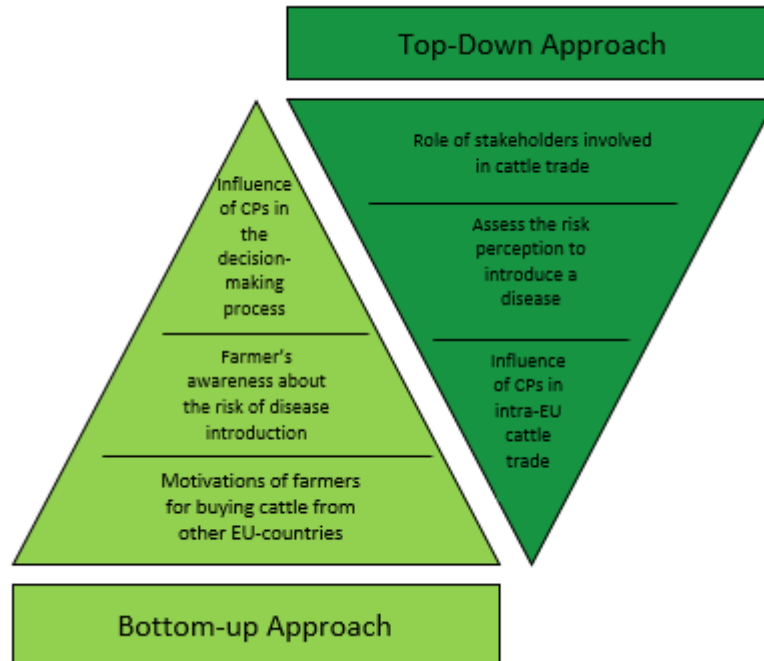


Figure 1 - Schematic representation of the top-down and bottom-up approaches.

Bottom-up Approach

The main goal of the bottom-up survey was to get a better overview of the intra-EU cattle trade process from the perspective of those on the ground, the farmers. This approach should enable us to have a better understanding of how individuals make their decisions related to cattle trade. Data were collected on the following topics:

- Characteristics of the study population (farm size, main production system, age of the farmer);
- Cattle trade across borders (has the farmer bought cattle from abroad before, does he/she intend to do so in the future and what was/is his/her motivation to buy cattle from abroad?);
- Effect of disease control programs on the decision-making process of farmers;
- Farmer perception of disease risk;
- What would be desirable information sources for them for disease control programs in other countries?

For this study, seven of the participating countries (Albania, Estonia, Ireland, Italy, The Netherlands, Portugal and Slovenia) participated by collecting farmer responses to a survey that included questions on the above mentioned topics. Data was collected between 25-07-2022 and 29-08-2022. Each of the participating countries translated the questionnaire into

their native language and sent out the questionnaire to cattle farmers in their country. After closing the questionnaire, each of the participating countries translated the answers back to English. Participating countries were free to use their own methods to select and approach farmers. Farmers were contacted via email, websites of breeding and farmers' associations and via phone calls. Thus, selection of participants was not standardized across the participating countries. The objective was not to collect a representative number of surveys that reflected the whole population of farmers in each country. This research was merely aimed at providing an insight into the process regarding cattle trade for this specific study population.

Following the collection procedure, the data was collated and validated. If farmers answered less than 75% of the questions (excluding questions that were only applicable to farmers that imported cattle in the last five years), they were not included in the analysis. Finally, a statistical analysis was performed using descriptive statistics. Further details on the methods and future analysis can be found in Nienke Paarlberg's report.

Descriptive statistics

The farmers that participated in the survey showed a large variation in age. In the Netherlands most participants belonged to the age bracket 26-45; while in Ireland, Albania and Estonia the majority of participants was older (age 45-65 and >65) (Figure 2).

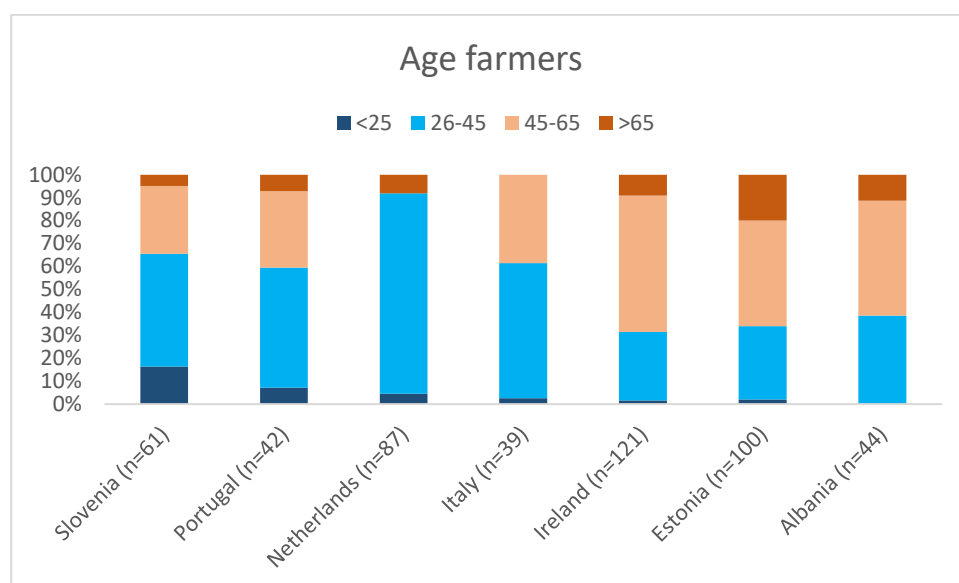


Figure 2 – Overview of the age of the farmers who responded to the questionnaire, shown in percentage per country.

Most respondents from the Netherlands, Italy and Albania were dairy farmers, while in Slovenia, Portugal and Estonia the majority of participants were beef farmers (including both breeding and fattening systems) (Figure 3). Participants with the largest farms came from Ireland and the Netherlands.

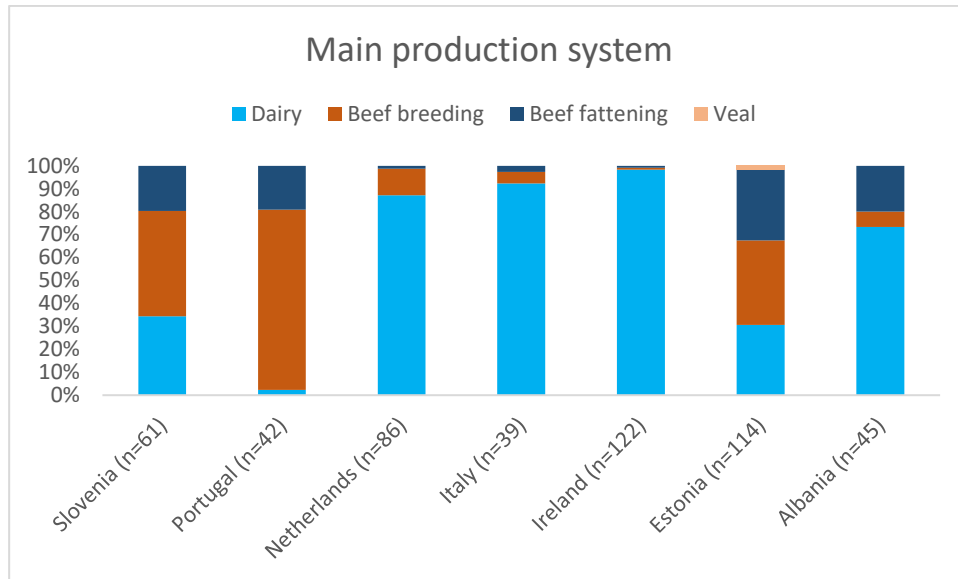


Figure 3 – Main production system of the farmers who responded to the questionnaire, shown in percentage per country.

The highest percentage of participants who bought cattle in the past five years from other European countries were from Slovenia, Italy, and Albania. The number of participating farmers from Estonia and Ireland who bought cattle from other European countries was very limited (Figure 4). The proportion of farmers in each participating country that intend to buy cattle from another country is depicted in Figure 5.

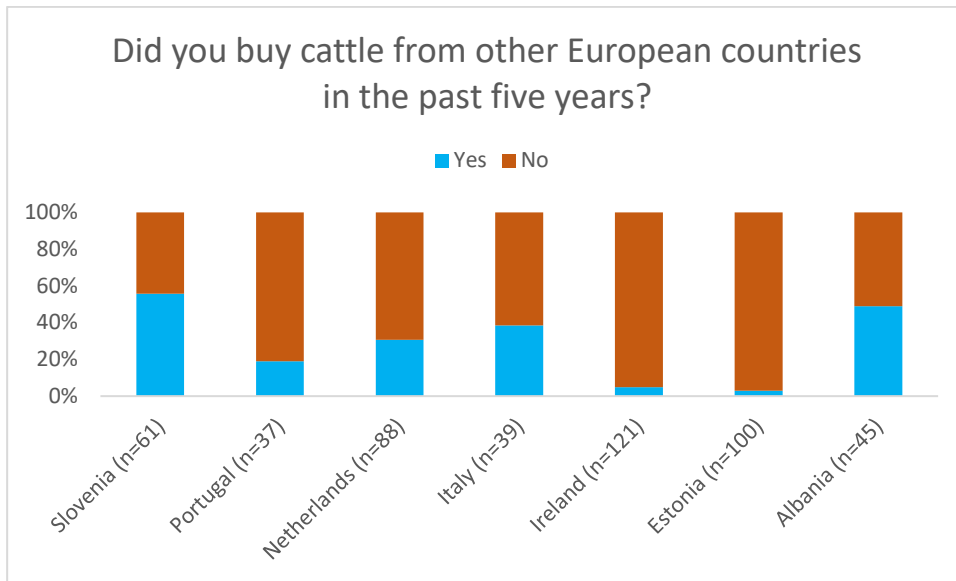


Figure 4 – Overview of the proportion of farmers who bought cattle from other European countries in the past five years, shown in percentage per country.

With respect to the location of trade partners, most countries traded with neighboring countries. Only farmers from Estonia mentioned buying cattle from Sweden and Finland, while participants from Albania were the only ones reporting cattle trade with Kosovo, Montenegro, Greece and Bulgaria. Almost all involved countries bought cattle from Germany, except for Portugal.

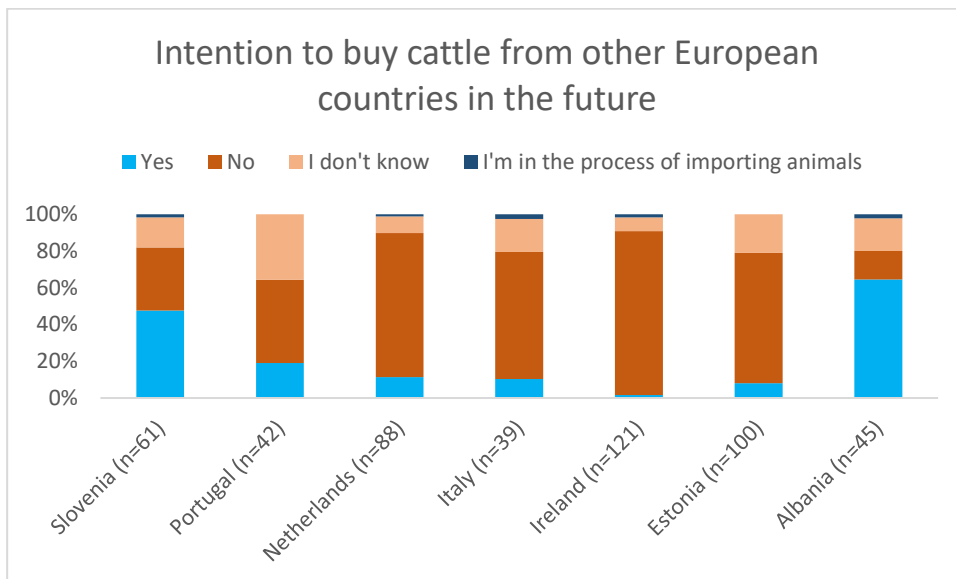


Figure 5 – Overview of the proportion of farmers who intend to buy cattle from other European countries in the near future, shown in percentage per country.

When focusing on the motivation of farmers related to purchase, the main reason for buying cattle was to start or improve the genetics on their farm. The Netherlands had the largest group of farmers who indicated a good financial opportunity as main driver. Further analysis should indicate whether these farmers are clustered within the same production system, the perceived risk of importing cattle and the perceived value of disease control programmes.

Factors that were mentioned to influence the initial decision to buy cattle from another country included interest in other breeds (mainly by Albanian farmers) and to improve the quality of the herd. Trust in the cattle trader was perceived as an important factor by respondents from all participating countries. Price was not reported as being an important factor for 47.0% of the respondents. This could be because other factors are perceived as more important, such as health status or genetics. Further investigation into the differences in farmer characteristics between farmers who find price a relevant factor and those who value other aspects as health status more would be interesting and relevant to understanding farmer decision-making processes.

From all the participating farmers, 13.9% indicated that they are not aware of the disease control programmes in place in their country. In addition, 42.3% responded that they are not aware of control programmes in place in other countries. A total of 25.6% of the respondents reported that disease control programmes which are in place in their country, did not influence the countries they are trading with. This opinion was particularly prevalent in Albania (77.8%). When looking at the risk of disease introduction, in Albania 66.7% of the respondents reported the risk of buying cattle from other countries as being high, 13.3% reported the risk of buying cattle from within their own country as high. Irish and Estonian farmers reported that the risk of buying cattle in their own country was higher (82.2% for Ireland and 56.4% for Estonia) compared to buying abroad (37.4 % for Ireland and 35.7% for Estonia). However, almost all cattle trade was reported to occur within the country for this group of farmers. When looking at whether an individual animal is part of a disease control programme, there is a small proportion of farmers (5.2%) who reported that they do not find this information important, and a slightly larger proportion (9.2%) who reported that the status within a control programme was not important information to them. It may be relevant to explore whether this could be due to the fact that there is a lack of understanding of the difference in risk between countries with and without control of cattle diseases or whether other factors are simply more important to the farmers.

Top-down Approach

When a farmer decides to purchase one or more cattle from another EU country, different stakeholders are likely to have varying degrees of influence on the farmer and the decision-making process.

The top-down approach aimed to:

- Define the role of the various stakeholders in the decision-making process;
- Discuss the risk of disease introduction via intra-EU cattle trade, as seen by the different stakeholders in the study
- Understand how and by what means disease control programmes encourage or discourage intra-EU cattle trade.

A questionnaire focusing on the abovementioned topics was developed and shared with stakeholders in 15 COST partner countries (Figure 2). Most questions were open ended (in order to obtain more insightful opinions from the various stakeholders) and required qualitative data analysis. More details on the methods can be found in the STSM report of Rachel Cerf.

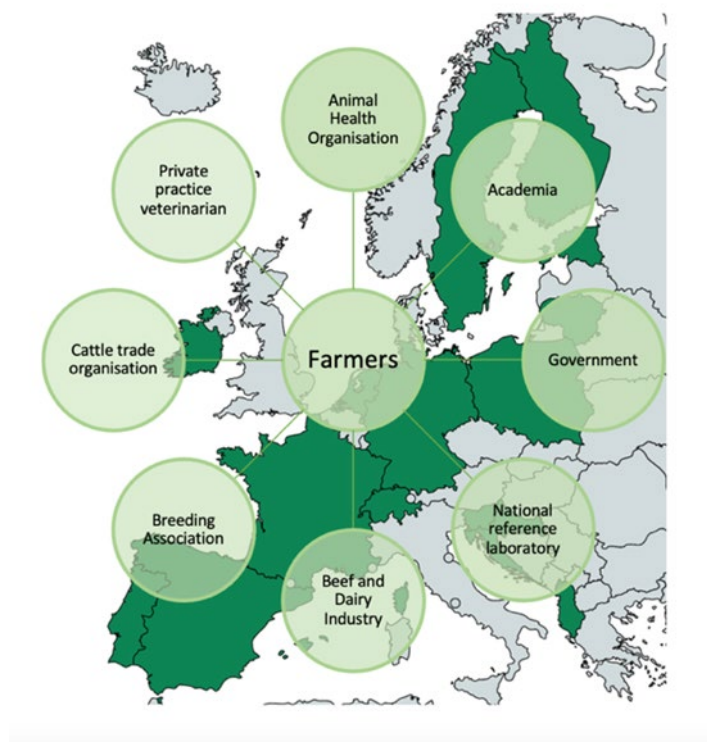


Figure 2 – Participating countries and stakeholder groups involved in the top-down approach.

Role of different stakeholders in the intra-EU cattle trade

The implementation of control programmes and the stakeholders who were involved in disease control varied greatly between countries. Since the same stakeholders from different countries had a different role in the decision-making process for cattle trade, they may influence the purchase of cattle in various ways. It was therefore of interest to document the different roles of different stakeholders.

The following provides an overview of the most relevant results:

- The countries participating in this study were: France, Germany, the Netherlands, Ireland, Spain, Portugal, Slovenia, Albania, Croatia, Sweden, Finland, Poland, Switzerland, Lithuania and Estonia.
- The government plays an important role in control of diseases regulated at European level, but limited influence on non-regulated diseases. However, they are a key player in the traceability of cattle traded between EU countries through the TRACES system.
- In some countries, the dairy industry (in some countries also the beef industry) addressed the problem of unregulated diseases by setting up control programmes and imposing penalties on farmers.
- Breeding Associations and Animal Health Organisations have an important role in advising and warning farmers about the risks associated with importing cattle from other countries.
- Auction sale companies are not very present or even non-existent in some countries, such as Sweden, Finland, Slovenia or Albania. Where they do exist, they can have a great influence on farmer decision making, as they determine the price of cattle.
- Veterinarians are often considered to be trusted persons by farmers and therefore their role is essential, but not decisive in the decision-making process.
- Friends, family and neighbours, influence farmers' behaviour in the decision-making process for farmers.

In this survey most of the stakeholders in the cattle industry reported being concerned about the introduction of a disease in their country via intra-EU cattle trade.

Influence of control programmes in the farmer decision making process

There are over 20 non-EU-mandatory regulated cattle disease but for which European Countries have locally applied control programmes. Control programmes vary considerably from country to country which can make it difficult for the farmer to decide whether or not to buy cattle from a country.

It is interesting to note that stakeholders who reported that control programmes can discourage cattle trade were often from countries with the most control programmes in place. Some respondents reported that it was the lack of control programmes in their country that discouraged farmers from other countries from purchasing cattle from them.

Some experts from the Netherlands reported that control programmes did not discourage trade, but added an additional burden to the export process. They reported that when they export cattle to BVD and IBR free countries, they have to fulfil additional conditions, which can hamper trade. Some experts from Sweden reported that all trade should take into account cattle health and control programmes are a way to underline its importance.

Moreover, it is of interest to note that control programmes seem to have an important role in building trust between trading partners. A control programme was defined as surveillance and/or intervention strategies designed to lower the incidence, prevalence, mortality or to prove freedom from a specific disease in a region or country. It is therefore logical that most countries reported that they prefer to trade with countries that have many control programmes in place, ensuring that their cattle are most likely to be free from non-EU-regulated diseases.

Conclusion

The bottom-up and top-down approaches provided an initial picture of the cattle trade process, especially with regard to the motivations, roles, disease awareness and information needs of various stakeholders. They showed that there are many different elements that can influence the decision-making process of farmers regarding intra-EU cattle trade. Both studies presented in this document constitute preliminary analysis that should be followed-up with more detailed investigations.

These studies were also used to identify gaps that will inform the research agenda to be developed by WG4. Further details can be found in the deliverable 4.3. Likewise, the recommendations collected from the various STSMs and VMs conducted within the scope of WG4 activities are compiled in the abovementioned deliverable.

In this study we found decision making in cattle trade in Europe was influenced by both disease control programmes and many different stakeholders. Therefore, the development of output-based surveillance strategies for cattle trade that are acceptable and supported by all stakeholders will require the involvement of all stakeholders in a participatory process. There are widely available transdisciplinary research methods that could be used to guide this process.