SOUND control
COST Action CA17110

COST Action CA17110

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

NEWSLETTER

October 2020

CONTENT

SELECTED TOPICS

Dear reader,

Thank you for showing interest in our project and taking the time to read our newsletter. We hope that this newsletter finds you in good health.

A lot has changed since the publication of our last SOUND control newsletter. In the beginning of this year, COVID-19 emerged and caused the cancelation of all COST events from mid-March on. In SOUND control we were lucky given that we had no events planned that could not be cancelled anymore. However, the pandemic did cause the cancellation of our SOUND control meeting in June and resulted in the postponement of the training school that was originally planned in June, to February 2021. Nevertheless, the work in our Action is still ongoing. We decided to publish a new STSM call, which can be found on our website ***www.sound-control.eu*** *and our working groups keep making progress within the limited possibilities that are currently in place. More information on the short-term scientific missions, the activities and the progress of our Action can be found in this newsletter and also on the website. I hope you enjoy reading this letter as much as we enjoyed making it and that you feel well informed about the status of our SOUND control COST Action afterwards.*

Best wishes,

Inge SANTMAN-BERENDS, Royal GD, the Netherlands
Chair COST Action SOUND control CA17110

SOUND control WG4 workshop at the Clinic for Small Animals of the Warsaw University of Life Sciences

Past meetings

29th October 2018	Management Committee (MC) meeting	Brussels, Belgium
21st January 2019	MC, WG1 and WG5 meetings	Porto, Portugal
25-26th March 2019	MC and meetings of all WGs	Utrecht, The Netherlands
5th September 2019	WG1 meeting	Inverness, United Kingdom
4–5th November 2019	MC and meetings of all WGs	Zurich, Switzerland
23rd January 2020	WG4 workshop and CG meeting	Warsaw, Poland
6th March 2020	WG1 meeting	London, United Kingdom

Planned events

9–10th November	MC and WG meetings	Online
1– 3rd February 2021	Training school and possibly WG meetings	Slovenia/online

Members and their experiences

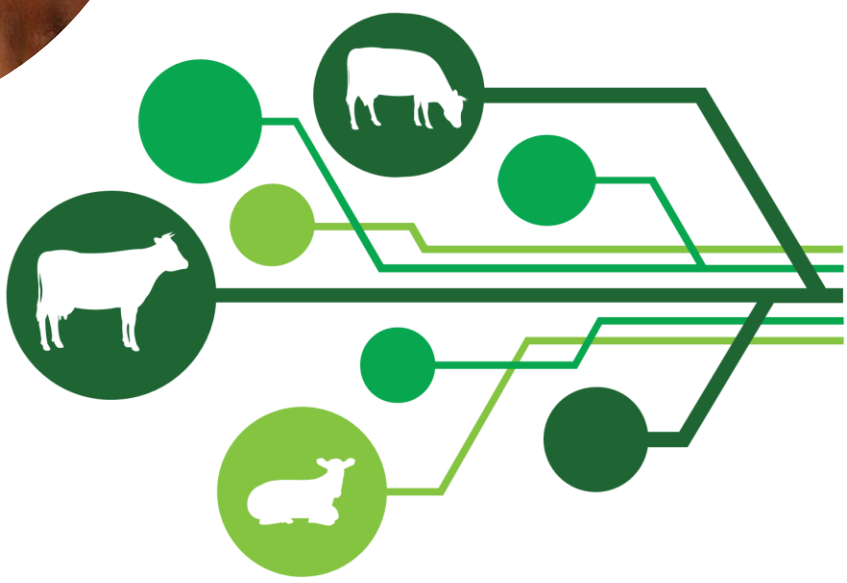
"My participation in the SOUND control gives me the opportunity of keeping in contact and collaborating with veterinary colleagues throughout Europe. This has an effect on my own professional confidence in using an updated scientific knowledge on important diseases that affect cattle welfare and good use of this important traditional European resource. Since there is a wide range of age and regions, that means also a formidable occasion for building up professional and scientific Europe and making it more competitive and coordinated in order to face the challenges that the future will bring to a sector with so many threats."
Ramon A. JUSTE, Spain

"Our Institute for Experimental and Clinical Veterinary Medicine (National Scientific Center) is involved in SOUND control EU COST Action. This cooperation allows us to get up to date information about most economically and regionally important non-notifiable diseases of ruminants and perform informational and knowledge exchange platform in a related area. Additionally, it enables us to involve early career investigators for participation in the training schools within the project, establish new contacts, project efforts and networking for further scientific developments in ruminants' diseases control area."
Anton GERILOVYCH, Ukraine (NNC)

"*Being involved in SOUND control is for me a great opportunity to work with colleagues from all over Europe, exchange expertise and experience, and build new collaborations. However, SOUND control is for me not just about work. It is also a lot about people, building relationships, and learning from different cultures. The STSMs are for example a fantastic opportunity to share and learn not only technical skills but also the daily life of another team/country.*"
Céline FAVERJON, France (ECI)

Summary of STSMs conducted between January and September 2020

Researcher	Home institution	Host institution	Topic	Duration
Luís Pedro CARMO	University of Bern, Switzerland	Utrecht University, The Netherlands	**Identify information and other needs to facilitate trade, using output-based surveillance methods for non-EU-regulated diseases**	11 days
Eglė RAPALIUTĖ	Lithuanian University of Health Sciences, Lithuania	Ausvet Europe, France	**Design a data collection matrix**	13 days



STSM participants and ITC grant receiver and their experiences

"My STSM was at Ausvet Europe, in France. During the time in France, I worked on some objectives of WG2: data quality evaluation and data collection matrix which is needed to assess freedom from infection of non-regulated cattle diseases. This STSM gave me a great opportunity to be involved in the Action and a chance to work with very supportive and experienced researchers. I am very happy to be a part of this Action as it gives a fantastic chance for young researchers to improve."
Eglė RAPALIUTĖ, Lithuania (ECI, ITC)

"As we learnt in the last few months, there is lots one can do on the distance. But there is certainly an added-value about visiting another research group, meeting face to face and getting to know your colleagues. STSMs provide an excellent platform to build your network and learn from your peers. To me it was an excellent opportunity and an experience I would be happy to repeat."
Luís Pedro CARMO, Switzerland (ECI)

"The STSM was a great experience for me. I was very fortunate to join the great working environment at the National Veterinary Institute, Sweden. I received excellent guidance and learned a lot about how to utilize animal movement data. Working on epidemiological methods and at the same time establishing contacts for the future has been equally important, and is a valuable and unique opportunity offered by the COST STSMs."
Ingrid TOFTAKER, Norway (ECI)

Selected topic

Contact list of relevant stakeholders

Inge SANTMAN-BERENDS, Royal GD, the Netherlands

Members from all countries of the SOUND control consortium identified stakeholders in their countries that are involved in the control of cattle diseases with no or limited regulation on the European level. These stakeholders are relevant ministries, veterinary authorities, industry representatives, laboratories, farmers' and veterinarians' associations and others. Based on the information provided by many members, Jaka Jakob Hodnik created the list of relevant stakeholders – an important deliverable of WG1. The list is now available on our website.

Click here to see the list of relevant stakeholders.

Selected topic

Design of the data collection matrix

Eglė RAPALIUTĖ, Lithuanian University of Health Sciences, Lithuania
Céline FAVERJON, Ausvet Europe, France

WG2 aims to assess the availability and quality of data that is required as an input for an output-based framework for calculating the freedom of infection of EU non-regulated cattle infectious diseases. The first draft of the data-collection matrix was developed in previous STSMs and was discussed during the workshop of SOUND control meeting in Zurich (November 2019). The third STSM of WG2 was held in Lyon, France at the Ausvet Europe. This STSM focused on two aspects: developing a standardized approach for data quality evaluation and improving the data-collection matrix.

Following a brief literature review, a data quality evaluation tool was developed based on 4 criteria: accessibility, completeness, timeliness and accuracy. The quality of each criterion was then described using 3 levels: poor, fair and good. This tool will help to objectively capture the differences in data quality among Action member countries.

To facilitate the data collection process, the data collection matrix initially based on an Excel spreadsheet was converted to an online survey using "Limesurvey" provided by the University of Bern, VPHI. The first online version of the data-collection questionnaire was developed during the STSM and later discussed with WG2 members during online meetings.

The next steps are to test the online questionnaire with actual data from Sweden (Dr Lena-Mari Tamminen, Swedish University of Agricultural Sciences) and Romania (Madalina Mincu, National Research & Development Institute for Animal Biology and Nutrition), and then to send it to all the countries members of SOUND control. The next STSM will focus on the analysis of collected data.

Eglė RAPALIUTĖ (2nd from the right) during her STSM in Lyon and **Céline FAVERJON** (3rd from the right) and her team at joint dinner

Selected topic

Identify information and other needs to facilitate trade, using output-based surveillance methods for non-EU-regulated diseases

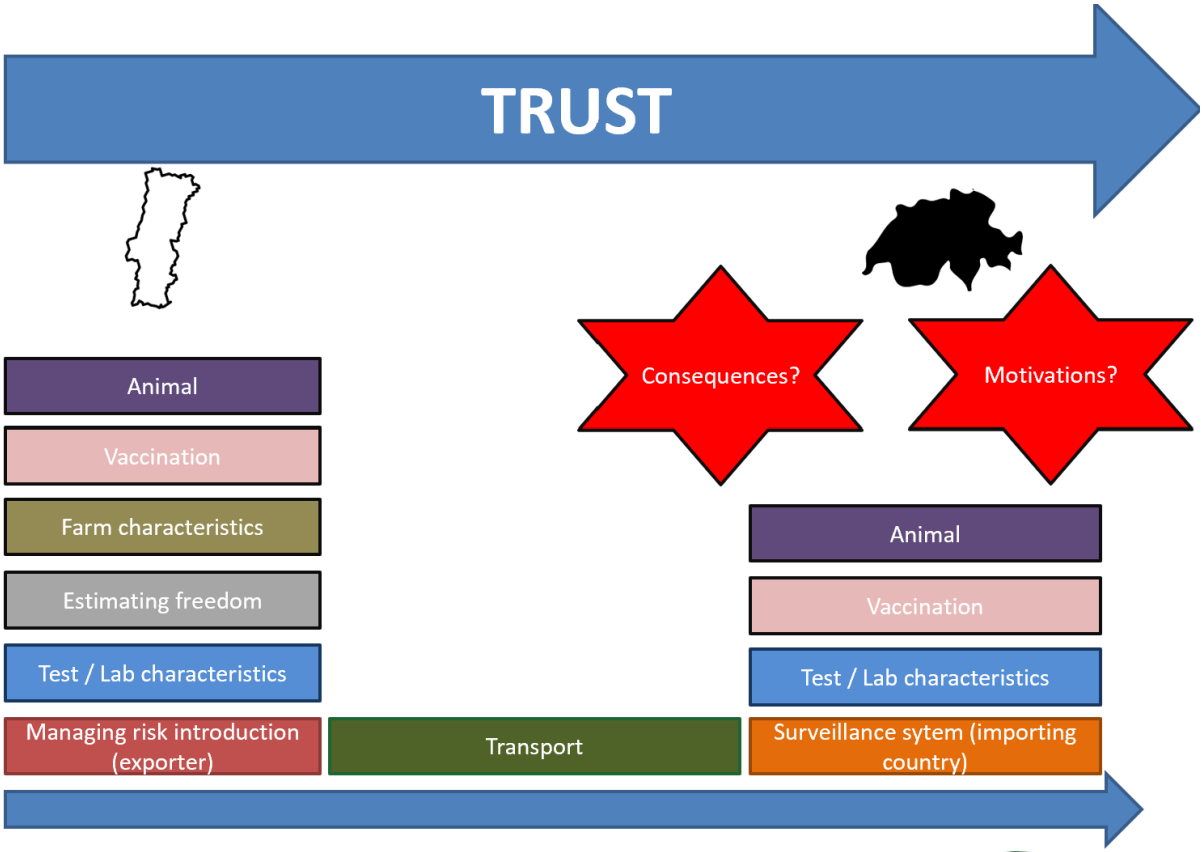
Luís Pedro CARMO, University of Bern, Switzerland

In February 2020, I had the chance to do a STSM at the Utrecht University (The Netherlands), supervised by Prof. Mirjam Nielen. This STSM was performed within the scope of the activities of WG4 and focused on the information needs that must be considered within the sphere of output-based surveillance.

Most activities conducted during this STSM related to the workshop organized by WG4 in Warsaw, earlier in January. In particular, I aimed at reporting the activities of the workshop and summarizing its results. In Warsaw, a series of participatory exercises was completed to list and rank the information needs required to make decisions about cattle trade. In these exercises, experts in the field of animal health surveillance were confronted with several scenarios.

In Utrecht, I listed and organized the information needs into groups. In the figure below, I display the most relevant results taking into consideration the temporal/spatial distribution (represented by the bottom arrow) of the information needs: from the exporter country to the importer country. Trust in the information provided by the partners was a critical element raised by the experts and was relevant throughout all the stages of the process.

These results will help us to further develop a research agenda for output-based surveillance for EU non-regulated cattle diseases.



The most relevant groups of information needs identified in the Warsaw workshop on 23rd January 2020.

Selected topic

Cattle movements in Norway

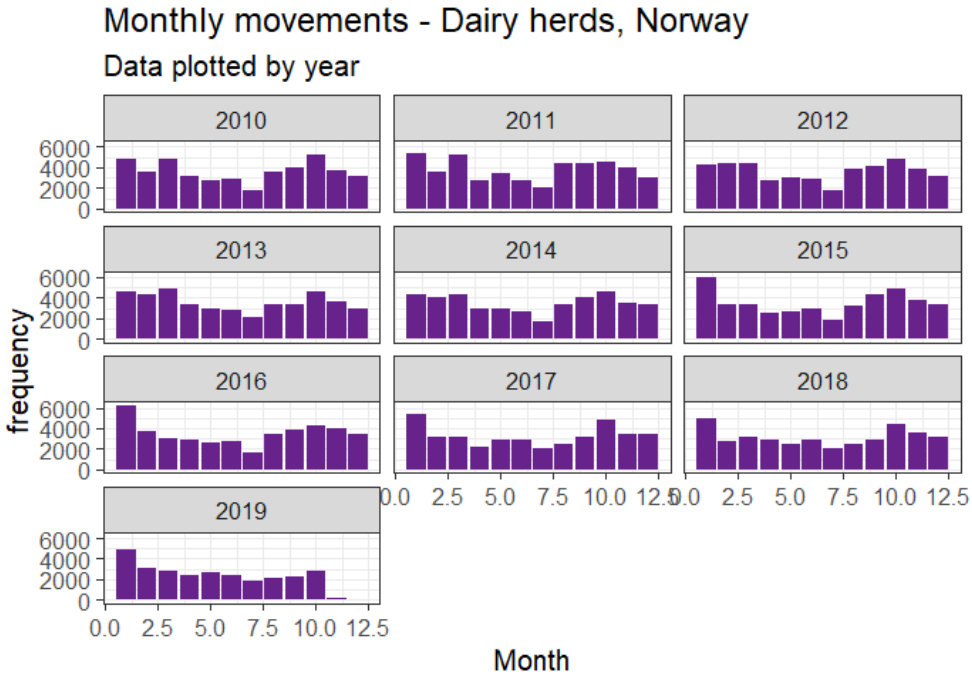
Ingrid Toftaker, Norwegian University of Life Sciences, Norway

Cattle movements between farms are an important route for transmission of infectious diseases. In Norway, these movements have not yet been described, although data are routinely recorded on all movements. A first step towards utilizing this information in systematic disease control and surveillance was therefore to check the validity of available sources, and to describe the movements.

A SMSTM was conducted at the National Veterinary Institute, Sweden, with the aim to characterize cattle movements in Norway using social network analysis and explore the potential use of these data for infectious disease control.

Data was retrieved from the Norwegian Dairy Herd Recording System (NDHRS), where 98% of all dairy herds are members. However, beef herds are not included. On average the database contained events of approximately 75 000 cattle moved per year, however a large proportion of the events lacked a corresponding record for entry to a new herd. This could be purchases of calves to beef herds, indicating a problem with using the NDHRS as a data source for an overall description of cattle movements in Norway.

The distribution of contacts per farm was heavily skewed as most of the herds had few movements, although a small number of herds had many. There were both geographic and temporal trends in cattle movements with a recurring dip in July, and the highest number of movements during the winter months. The largest proportion of both source herds and destination herds were located in south-west and mid Norway, respectively, corresponding to the most cattle dense regions in Norway. The majority of movements in these regions were short distance.



Selected topic

Review of methods for the estimation of a probability of freedom from infection from data generated by disease control

Adrian ARDELEAN, Sanitary Veterinary and Food Safety Directorate, Romania
Aurélien MADOUASSE, INRAE & Oniris, France

So far, output-based surveillance has been described in situations where an entire country is likely free from disease, as a way to confirm that the country is really free and safe to trade with. From the data generated by surveillance programmes in such situations, the method used to quantify how safe it is to trade with a country claiming freedom from infection is called the scenario tree methodology. With this methodology, three generations of output-based standards are described: surveillance sensitivity, probability of freedom, and expected cost of error.

When a disease is known to be present in a country or in a region, this country or region cannot claim freedom from disease. However, based on surveillance, some herds or (part of) regions may be deemed safe to trade with because of sufficient evidence of absence of infection. In such cases, Bayesian hierarchical prevalence estimation models and a Bayesian model estimating a probability of infection from longitudinal data generated by surveillance programmes (the STOC free model) have been identified as relevant for output-based surveillance. These models are based on Bayesian inference. They allow the estimation of distributions for the probability of (freedom from) infection based on prior knowledge and data for each unit of interest (e.g. herd, region). This output is therefore different from any of the three generations of output-based standards associated with scenario trees.

Different methods are suited to different contexts. It was realised during the STSM that these different methods produce different types of output and that further work is needed on making these outputs comparable.

Adrian ARDELEAN (1st from the right) during his STSM with the team from Nantes; from left – **Aurore CARCEL, Mathilde MERCAT, Aurélien MADOUASSE, Christine FOURICHON** (all members of the SOUND control) and his office roommate **Dimitra EXARCHOU** Erasmus+ participant from Greece.

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Short communication

Standardizing output-based surveillance to control non-regulated cattle diseases: Aspiring for a single general regulatory framework in the European Union

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Abstract

Several European countries have implemented country specific programmes to control cattle diseases with little or no regulation in the European Union (EU). These control programmes vary between member states, impairing a confident comparison of freedom from disease when cattle originate from different countries. In order to facilitate safe trade, there is a need to support the development of transparent methods that enable comparison of outputs of surveillance, control or eradication programmes. The aim of the COST Action (CA 17110), Standardizing OUtput-based surveillance to control Non-regulated Diseases in the EU (SOUND control), is the development of a generic and joint understanding of the requirements and characteristics needed for a flexible output-based framework. This framework should be able to substantiate the confidence of disease freedom and cost-effectiveness of heterogeneous surveillance, control or eradication programmes for cattle diseases in the EU. This project supports other initiatives in the development of an output-based framework which will subsequently facilitate safe trade and support the improvement of disease control measures, which is of great importance as the cattle sector contributes to one third of the total gross production value of EU agriculture.

Abbreviations and useful information

COST — European Cooperation in Science and Technology – Funding organisation for research and innovation networks. Networks are called **COST Actions**, last for 4 years and bring together researchers from European countries as well as other countries:

- COST Member countries: 38 full member countries and 1 Cooperating Member and 1 Partner Member
- Non-COST Members: COST Near Neighbour Countries (NNC), COST International Partner Countries (IPC)

COST Vademecum — Key document which provides the terms and conditions for the financing of Actions and other activities. Other important documents and useful material can be found here.

SOUND control — Standardizing OUtput-based surveillance to control Non-regulated Diseases of cattle in the EU

- **CA17110** – COST Action number

MoU — Memorandum of Understanding – The agreement which describes the Action's objectives accepted by participating countries

MC — Management Committee – National representatives of each COST country nominated by COST National Coordinators (CNC) in charge of the coordination, implementation and management of an Action's activities. Each country has up to 2 MC members and 3 MC substitutes.

CG — Core Group – Action's leadership

WG — Working Group – our Action has 5 working groups:

- **WG1** – Characteristics of existing control programmes
- **WG2** – Data requirements and availability
- **WG3** – Evaluation of existing methods
- **WG4** – Addressing the knowledge gaps
- **WG5** – Dissemination and communication

STSM — Short-Term Scientific Mission - financially supported mobility of researcher from one institution participating in SOUND control COST Action to the participating institution in another country.

ITC — Inclusiveness Target Country – less research-intensive COST Member country

ECI — Early Career Investigator – An individual who is within a time span of up to 8 years from the date they obtained their PhD/doctorate

CP/CPs — Control Programme/s

SOUND control
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SOUND control in numbers

32 participating countries

5 working groups

>100 experts from different fields

7 face-to-face meetings

11 STSMs

47 % ITC countries

41 % ITC MC members

31 % ECI MC members

60 % female leadership roles

Project duration:
Oct 2018 - Oct 2022

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EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

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