SOUND control
COST Action CA17110

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

NEWSLETTER

December 2021

CONTENT

SELECTED TOPICS

Dear reader,

As the COVID pandemic is still unfolding, we have immersed ourselves in online activities, which is of great benefit to the progress of our Action. Since the last newsletter in summer 2021, COST has made it possible to offer Virtual Mobility Grants. SOUND control has taken full advantage of this, and five grants have been awarded between July and October. In this newsletter you can read more about the research that was conducted on virtual mobilities. In addition to regular online working groups and core group meetings, our activities included webinars on the animal health economics and comparison of output-based surveillance methodologies. All our webinars were recorded and can be accessed via our website or directly on our YouTube channel. An important milestone was reached with the completion of the special issue on control and eradication programmes for cattle diseases, which was very successful.

At the moment, we have just started our fourth and final grant period. For the coming year, we are planning a variety of different activities. Everyone who wants to be actively involved is welcome to apply for a Virtual Mobility Grant or a Short Term Scientific Mission and participate in our events: very interesting webinars, a training school on scenario tree modelling and a final (hopefully) live conference.

We are very proud of our active network, which consists of many members who dedicate their time to work on our SOUND control objectives. I hope you will enjoy reading this newsletter and get an overview of the activities we are working on.

Best wishes,

Inge Santman-Berends, Royal GD, the Netherlands
Chair COST Action SOUND control CA17110

A short update

SOUND control final year

Our COST Action is coming to an end. Officially, we will end our activities on 28 October 2022. However, we have the posibility to apply for an extension to the COST Action, which, if approved, would allow us to extend our final grant period by 6 months, during which we can spend any remaining funds and complete our planned activities in the current SOUND control community. We will keep you informed of any news in the News section of our website.

50 years of research networks

This year, COST celebrated its 50th anniversary. To mark the occasion, a number of activities were prepared to showcase and celebrate the workings and results of successful collaboration between researchers in Europe and beyond. Among other things, COST has prepared a video in which young researchers talk about their experiences with the COST programme. The work of SOUND control caught their attention and they invited our Science Communication Manager to tell her story. Watch the short or long testimonies here.

COST new corporate identity

COST and the European Commission signed the COST Horizon Europe Framework Partnership Agreement. Accordingly, some of the guidelines and documents have been adapted and updated, including the new corporate identity. When disseminating or communicating about SOUND control activities, please refer to the new guidelines for acknowledgement of COST funding.

Impact of our COST Action

We run special issue in Frontiers from 28 July to 30 April 2021

Jörn Martin Gethmann, Germany

In the journal Frontiers in Veterinary Science, we run a Research Topic *Global Control and Eradication Programmes for Cattle Diseases*.

The aim of this special issue was to improve the knowledge of control and eradication programmes (CPs) for cattle diseases in Europe and beyond, with a special focus on diseases that are not subject to any or only limited mandatory regulations in the EU, i.e. classified as C, D, E or not listed in the new Animal Health Law (AHL). In total, 30 papers from 37 countries covering 31 different cattle diseases have been published.

The studies can be grouped into the following broad research areas:

1. overview of country specific CPs and prevalence of cattle diseases (n = 22),
2. development of online data tools to collect and/or assess epidemiological data for cattle diseases (n = 3),
3. systematic reviews of risk factors for disease introduction into cattle herds (n = 1), and
4. effectiveness of different sampling materials for detecting infected animals and immune responses of animals after vaccination (n = 3).

Hodnik et al. (2021) provided the most comprehensive review of CPs for cattle diseases of interest. Furthermore, a systematic review of risk factors for the introduction of bovine herpes virus 1 was conducted by Waldeck et al. (2021). Other papers include: the national situation of different cattle diseases (Roch & Conrady, 2021; Bauermann & Ridpath, 2021; Guelbenzu et al., 2021; Mandelik et al., 2021); the existence and quality of data (Rapaliute et al., 2021); a tool for output-based surveillance (van Roon et al., 2021); the comparison of sampling methods (Pohjanvirta et al., 2021); or the analysis of control strategies (Polak et al., 2021; Nielsen et al., 2021; Huser et al., 2021; Toplak et al., 2021).

All the papers in this research topic reflect the great efforts to improve knowledge and fill gaps in the literature on cattle diseases CPs.

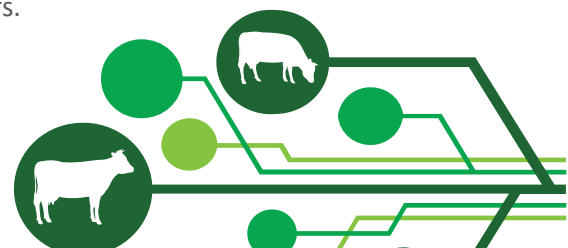
The Slovenian-Swiss project started on 1 December 2021

Tanja Knific, Slovenia

It all started on 4 May 2020 when Luís Pedro Carmo from the Swiss SOUND control team emailed the Slovenian team asking if we were interested in applying for the Lead Agency funding opportunity offered by the CH and SI research agencies. After some online meetings, emails and working on documents via MS Teams, we refined our project proposal titled *Paratuberculosis in dairy cattle: communal pasture implications, economic analysis and stakeholders' engagement*.

We aim to develop a bioeconomic stochastic model at the dairy herd level, including farmers' perceptions, based on empirical data from a case-control study conducted in SI. A detailed survey of risk factors will be conducted in a case-control study in CH, which will also identify potential control options. The role of shared pastures will be explored through extensive sampling of herds in SI, a survey of risk factors, whole genome sequencing and network analysis. In CH the cattle movement network will also be explored. To investigate the feasibility and acceptability of possible control measures, we will use participatory methods. Our transdisciplinary approach will deepen our understanding of the patterns and drivers of stakeholders' perspectives, which is crucial for developing sustainable and efficient solutions to complex animal health problems.

The project has been accepted and will run for three years.



SOUND control Annual online meeting on 9 November 2021
with participants from all over Europe and Canada.

Past events

29 October 2018	Management Committee (MC) meeting	Brussels, Belgium
21 January 2019	MC, WG1 and WG5 meetings	Porto, Portugal
25-26 March 2019	MC and meetings of all WGs	Utrecht, The Netherlands
5 September 2019	WG1 meeting	Inverness, United Kingdom
4–5 November 2019	Annual meeting	Zurich, Switzerland
23 January 2020	WG4 workshop and CG meeting	Warsaw, Poland
6 March 2020	WG1 meeting	London, United Kingdom
9–10 November 2020	Annual meeting	Online
1–2 February 2021	1st training school	Online
3 February 2021	Webinar *Evaluation of surveillance systems* by Marisa Peyre	
30 April 2021	Webinar *Storytelling* by Tanja Knific, Eglé Rapaliuté and Jörn Gethmann	
18 June 2021	Webinar *The STOC free model* by Aurélien Madouasse	
22–23 June 2021	Annual meeting	Online
9–10 September 2021	WG4 and WG5 workshops	Online
9–10 November 2021	Annual meeting	Online
14 September 2021	Webinar *Animal health economics* by Wilma Steeneveld	
1 December 2021	Webinar *Agent-based model for BVD* by Jörn Gethmann and Jason Bassett	

Planned events

28 January 2022	Webinar *New Animal Health Law* by Maria Guelbenzu	
beginning of March 2022	Webinar *COST Action HARMONY* by Polychronis Kostoulas	
beginning of June 2022	Training school *Scenario tree modelling*	Ljubljana
13–14 September 2022	Final SOUND control conference	face-to-face

Members and their experiences

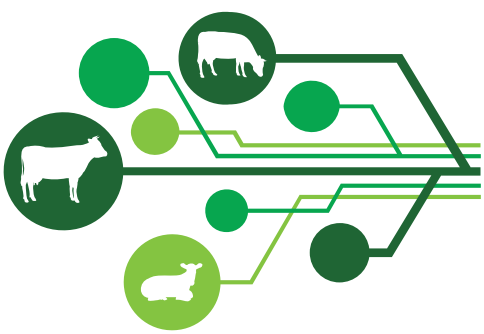
"I joined the SOUND control at the beginning of the pandemic. Nevertheless, I had a good opportunity to develop myself by meeting and learning from colleagues about the different methodologies and the most up-to-date information used in different European countries regarding animal disease control programs. Data on the status of Kosovo not previously available is now included in some of the published articles. I strongly believe that experiences and knowledge from different countries should be shared and easily accessible to all interested groups, and SOUND control is one of the best examples of this approach."
Mentor ALISHANI, Kosovo (ECI, NNC)

"Being part of SOUND control is a great opportunity for me as an early carrier investigator. It gives me the chance to collaborate with and learn from the representatives from other institutes or universities throughout Europe. I had the amazing opportunity to be involved in a VM grant which was an experience I recommend to everyone. This VM gave me the possibility to improve my speaking, organizing skills and acquire knowledge regarding health of calves in the EU. I am glad to be part of this great Action."
Elena IRMIA, Romania (ECI, ITC)

"*The pandemic hindered our possibilities to meet (not only between group members, but also with relevant stakeholders) and to conduct STSM. This had a substantial impact in Working Group 4 activities during a critical moment of our plan. The VM grants were an excellent mechanism to keep the wheels in motion. I had the opportunity to conduct a VM myself. The online setting allowed me to collaborate with SOUND control members and other VM grantees based in various places in Europe. We made some good progress that will shape our activities in the next grant period!*"
Luís Pedro CARMO, Switzerland (ECI)

Summary of STSMs and VMs conducted between March and October 2021

Researcher	Home institution	Host institution	Topic	Duration
Virtual mobility grants				
Metin Petek	Bursa Uludag University, Turkey	/	A review to describe the cattle export supply chains in Europe	21 days
Luís Pedro Carmo	University of Bern, Switzerland	/	Development of theory of change model	61 days
Elena Irimia	Research and Development Institute of Bovine Balotesti, Romania	/	Control programmes to support dairy calves health across EU member states	83 days
Rachel Cerf	Tierärztliche Hochschule Hannover, Germany	/	Review the scientific and grey literature to identify the stakeholders who make decisions about cattle imports in Europe	81 days
Lena-Mari Tamminen	Swedish University of Agricultural Sciences, Sweden	/	Creating SOUND control video content	49 days
Short Term Scientific Missions				
Madalina Mincu	Research and Development Institute for Bovine Balotesti, Romania	University of Thessaly, Greece	Finalizing a data collection tool for input data to model the freedom of controlled cattle diseases	21 days
Gary Delalay	Federal Food Safety and Veterinary Office, Switzerland	Norwegian Veterinary Institute, Norway	Review on the use of decision-tree models for animal health surveillance purposes	21 days



STSM participant and VM grant receivers and their experiences

"In this VM activity, I worked on reviewing scientific and grey literature to describe the cattle export supply chains in Europe. I learned a lot about different control measures for different cattle diseases during the activity. It was an excellent opportunity and a great experience for me, and a big chance to build new collaborations with the other SOUND control members. I would like to say a big thank you to John Berezowski, Luis Pedro Gomes De Carmo, and Maria Guelbenzu for their valuable suggestions on the VM project."
Metin PETEK, Turkey (ITC)

"Being French and studying veterinary medicine in Germany, I always wanted to take part in a European project. Having been introduced to the SOUND control in January 2021, I was eager to get involved. The VM grant allowed me to combine my exam year with my participation in this project. This action allowed me to meet new people and to gain experience. I have been able to gain self-confidence through this project and would be happy to participate in other European projects like this amazing one in the future in parallel to my work in the clinic."
Rachel CERF, Germany (ECI)

"After some complications due to the ongoing pandemic, a first postponement of the dates planned for the STSM and the uncertainty whether I would be able to fly to Norway at all up to the last moments, I was really glad and relieved when I finally arrived in Oslo in August. I would like to thank Dr. Petter Hopp, who is not only a great advisor as a SOUND control member, but also a proficient provider of tips, from places to see to great Norwegian literature. I really enjoyed my time in Oslo and at the Norwegian Veterinary Institute."
Gary DELALAY, Switzerland (ECI)

Selected topic

Cattle diseases that are included in SOUND control are listed as C, D or E in the new Animal Health Law

Inge Santman-Berends, the Netherlands

In the COST Action SOUND control, we focus on the topic of output-based surveillance for cattle diseases with either no or limited regulation under EU legislation. Limited regulation means that EU countries are not required to control the disease in their country. Countries can voluntarily choose to develop a disease control programme for these diseases, but if a control programme is implemented, there are regulations (e.g. IBR, EBL). During the lifetime of this Action the contents of the new Animal Health Law ((EU) 2016/429) became available. Many diseases that were not previously included in the regulation are now listed as category C, D or E* in the new Animal Health Law, which was set into force in April 2021.

There are no mandatory regulations to eradicate diseases listed as category C, D or E, nor are there input-based standards for demonstrating that a country is free from infection. However, in some situations countries can set additional trade requirements depending on their national disease status and the listing of the specific cattle disease. So far, Member States have either developed their own specific control programme or have no control programme at all for these diseases. An output-based evaluation of these country-specific control programmes can support the validity of the programme design and thus safe trade within Europe. Consequently, cattle diseases listed as category C or higher are included in SOUND control.

* For category C diseases, measures are necessary to prevent the spread of the disease to parts of the Union that are officially disease-free or where eradication programmes are in place (2018/1882). For category D diseases, measures are required to prevent the spread of the disease due to its introduction into the Union or movements between Member States. For category E diseases, surveillance within the Union is required (2018/1882).

Selected topic

Control programmes to support dairy calves health across EU Member States

Elena Irimia, Romania

Dairy calves are susceptible to a wide range of health issues up to the age of weaning because of the sensitivity and the higher risks of mortality. Moreover, the long-term consequences of diseases as well as the high degree of morbidity in unweaned calves lead to a reduction in genetic potential in adults. The aim of the VM was to attempt to map existing disease control programmes (CPs) in Europe that focus on, or at least involve, dairy calves. Together with the team members, we drafted a questionnaire with 25 questions related to the dairy industry, calves and control programmes.

Following the online interviews, we were able to obtain information that shows the existence of CPs for dairy calves. The most common diseases for which a CP has been established are Bovine Viral Diarrhoea and Salmonellosis. Recommendations for developing CPs for calves included diseases such as Bovine Respiratory Disease, Neonatal Calf Diarrhoea, Cryptosporidiosis and Coccidiosis. Main risk factors associated with the reintroduction of controlled diseases are related to animal trade and cattle movements.

The results show that the definition of calf differs between countries. In many EU countries calves are cattle up to 12 months of age (Romania, Northern Ireland, Hungary, the Netherlands, etc.), while others classify them as calves up to 6 months of age (Belgium, Hungary and Denmark).

The work is ongoing and at this point the first results are available, although we are still trying to involve more countries in this work. The plan is to produce a publication that will include an overview of the disease control programmes implemented in Europe.

Elena Irimia and those she hopes will benefit from her studies.

Selected topic

Review on the use of decision-tree models for animal health surveillance purposes

Gary Delalay, Switzerland

Scenario-tree models are commonly used to assess disease freedom. These models allow to aggregate data from different sources, mapping the population with a tree-like scheme. However, there is a lack of harmonisation, from parameter definition to presentation of the results. Additionally, these models are also increasingly used slightly differently as initially presented. Besides disease freedom assessment, their use also extended for instance to assessment of the sensitivity of surveillance systems. Therefore, we aimed to conduct a scoping review about scenario-tree models and their use to assess disease freedom to map the whole thematic.

Our team, consisting of my supervisor Dr. Petter Hopp as well as other colleagues from the working group 3 and 4, begun the work remotely. We defined our search strategy based on three principles: 1) database search for scientific and grey literature; 2) citation-search of publications citing one of the two papers of Martin et al. (2007) describing the scenario-tree method; and 3) call to experts to retrieve grey literature through the Epivet maillist. We also defined the search strings and retrieved publications from these three strategies.

At the STSM, we dived directly into the refinement of the protocol and particularly of the criteria for title and abstract screening through a calibration exercise. We all screened a small amount of selected studies, and achieved consensus through discussion, which enables us to find a better formulation of the criteria. Then, we conducted the title and abstract screening while working on the data extraction form. The end of the STSM did not end the project; we refined the criteria for the full text screening through another calibration exercise and are now performing the screening. We are looking forward to the future data extraction and the writing of the publication.

Selected topic

Who makes decisions on intracommunity cattle trade in relation to diseases that are not mandatory regulated by EU?

Rachel Cerf, Germany

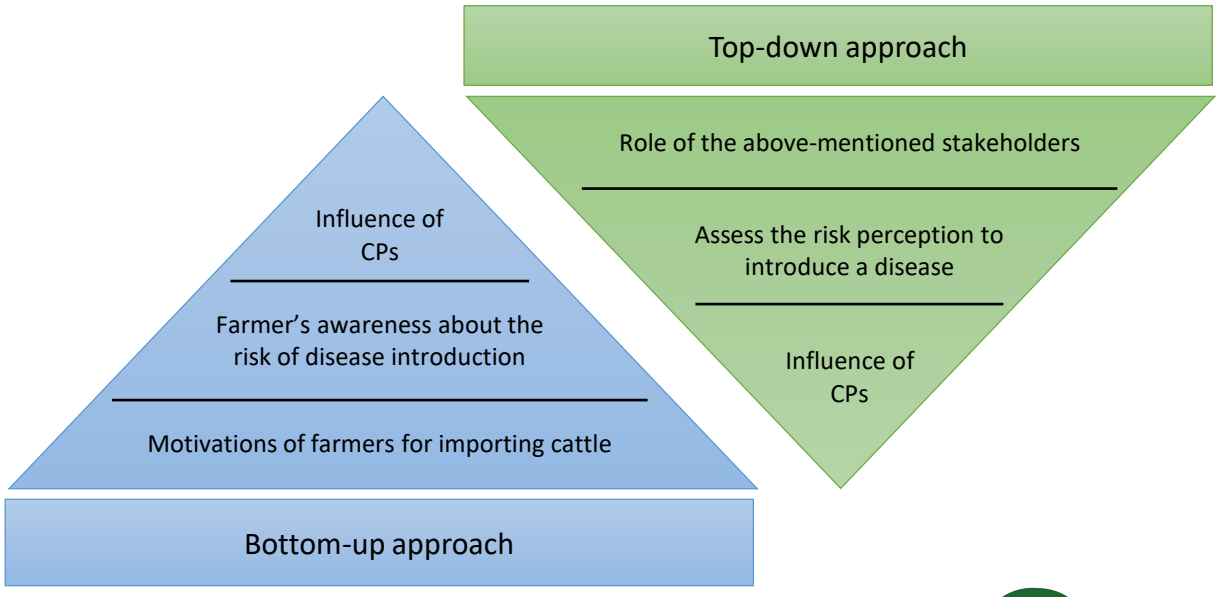
At present, the scientific literature does not identify the stakeholders nor explains the processes related to the decision making for cattle trade. A VM was conducted in the interest of understanding the decision-making process of intracommunity cattle trade in relation to diseases that are not mandatory regulated by EU. A strategy was developed to collect the information. The strategy consists of creating a common questionnaire that can be used as a basis for interviews and that can also be answered online as an anonymous questionnaire. It is clear, that the main stakeholder in the decision on intracommunity cattle trade in the EU is the farmer himself. It was therefore decided to create 2 questionnaires:

- a top-down approach for defined stakeholders and
- a bottom-up approach for farmer.

In general, the top-down approach goes from the general to the specific, and the bottom-up approach begins at the specific and moves to the general.

Top-down analysis generally refers to using comprehensive factors as a basis for decision making. Top-down is commonly associated with the word "macro". In this part, the role of each stakeholder is identified in the decision-making process. Also, this questionnaire should assess the risk perception of different stakeholders about disease introduction via intra-EU cattle trade and finally the influence of the control programmes perceived by the different stakeholders could be analysed.

The bottom-up approach focuses its analysis on specific characteristics and micro attributes of an individual herd, in this case the spotlight is on the farmer. In this section, we learn more about their motivations for importing cattle from other EU countries and how they built their trust with these countries. It also examines whether control programmes influence farmers and finally assesses farmers awareness of the risk of disease introduction due to intracommunity cattle trade.



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.

VM Grant Virtual Mobility Grants are grants to conduct research at the home institution with the support of a foreign expert.

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

> 40 WG online meetings

110 active members from different fields

7 face-to-face meetings

6 webinars

29 YouTube videos

14 STSMs

> 58 k views of Frontiers special issue

5 virtual mobility grants

4 annual online events

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COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.

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