# SOUND control
COST Action CA17110

COST Action CA17110

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

# NEWSLETTER

## November 2022

**CONTENT**

**SELECTED TOPICS**

*Dear reader,*

*This is the fifth and final newsletter from the SOUND control COST Action. My feelings while writing this last chairs address are a bit bittersweet. Looking back on our COST Action, I believe that we can be very proud of our achievements, even with the challenge of a global pandemic. Together with all our partners we wrote 28 published peer-reviewed scientific papers, we presented our work at more than 10 international conferences, we organized two highly valued training schools and we developed plenty materials for everyone to use. Nevertheless, probably the most important achievement of all is that we build a very active, friendly and inclusive community with young and more experienced researchers interested in monitoring and surveillance of cattle diseases. Unfortunately, all things come to an end and even with plans to keep in contact and to further expand the current network, the possibilities to work together in this COST Action are over. Looking back, I'm amazed what a group of people can achieve by working together in a COST Action and I have been very grateful for the opportunity to be the chair of SOUND control.*

*Given the fact that from March on, the COVID-19 restrictions were lifted, we were able to finally resume all COST networking activities this year and we made full use of these possibilities. We organized a training school in Ljubjana, Slovenia on scenario tree modelling given by one of the founders of this method, Angus Cameron. We provided grants for six short term scientific missions and six virtual mobility grants. Two people presented our SOUND control work in international conferences and we organized our final SOUND control conference in Athens Greece. So all-in-all, a lot of work was done in this final grant period resulting in many interesting new results. Of course all outcomes can be found on our website (www.sound-control.eu). Some of them can be read in this newsletter together with the experiences of working in this COST Action by the people involved. I sincerely hope that you enjoy reading this newsletter and that you keep checking our website as we are planning to remain active with news and updates for the coming two years.*

*__Inge Santman-Berends__, Royal GD, the Netherlands*
*Chair COST Action SOUND control CA17110*

# A short update

**Publicly accessible outputs from SOUND control**

During the Action, a large amount of information and data was produced by members of SOUND control. First, all peer-reviewed publications, other reports, data and links to the data collection matrix can be found on the "Reports & Publications" page of the SOUND control website. Three buttons on the home page give you access to **1.** The handbook describing the cattle disease control programmes in the partner countries, **2. Our** YouTube channel with many videos on monitoring and surveillance and related topics created by our Action members, and **3.** Rshiny app with information on the disease status of endemic cattle diseases across Europe. **All materials are freely available** and can be used for your benefit.

**The end of SOUND control**

The COST Action SOUND control started on 29 October 2018 and ended on 29 October 2022. During the life time of the Action, the number of participants increased from 64 members in 25 countries to 107 members from 33 different countries at the finalization. The COVID-19 pandemic resulted in a major challenge. Nevertheless, with the support of our SOUND control network, we were able to reach all of our objectives. Additionally, we build a close network with people throughout Europe sharing knowledge and passion for animal health and surveillance that will sustain beyond COST.
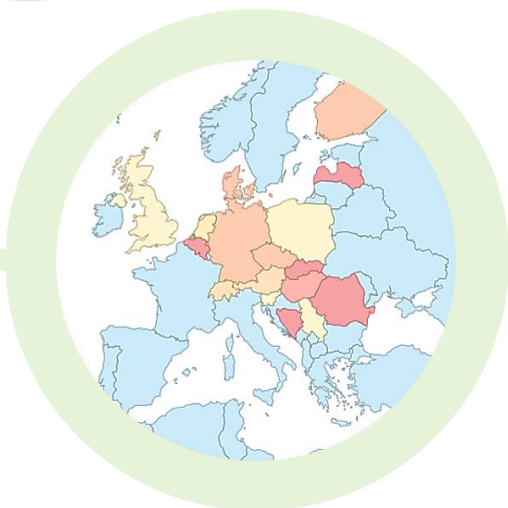
**Overview of controlled cattle diseases in Europe - RShiny app**

To provide users with easy access to information on the disease status of endemic cattle diseases across Europe, a Shiny app was developed (https://shiny.fli.de/ife-apps/SOUNDcontrol/).

The app helps users search for specific diseases and compare control programmes in different countries. Recently, we updated the app and added new features. Now it is possible to generate maps for all diseases in the database. The app also lists available literature on the listed control programmes.

# Impact of our COST Action

**The DECIDE project: data-driven decision support for endemic contagious diseases in farm animals and salmon**

Gerdien van Schaik , The Netherlands

It started in 2019 when Prof. Dr Gerdien van Schaik was asked to organize a consortium for the EU H2020 call on endemic diseases in farm animals and aquaculture. The resulting project called DECIDE was funded with €10 million in 2021 and involves 19 partners from 11 countries.

Gerdien van Schaik, the coordinator of the DECIDE project, works at Royal GD and holds a chair in 'monitoring and surveillance of animal health' at Utrecht University. She was leader of WG2 in SOUND control and several of the partners in DECIDE were also involved in SOUND control.

The main goal of the DECIDE project is to develop data-driven decision support tools and workflows that farmers and veterinarians can make informed decisions for the control of endemic contagious diseases in calves, broilers, piglets and salmon. These decisions take into account the presence of the infection, direct production losses, impact on welfare and the costs and benefits of treatment. The DECIDE

consortium consists of experts from different disciplines and sectors, namely veterinary epidemiology and diagnostics, social sciences, economics, animal welfare, information technology, artificial intelligence, data science and mechanistic and predictive modelling. Data will be available from companies such as Vion Foods and Lely, but also by organisations such as Royal GD or the Norwegian Directorate of Fisheries. These partners can implement the developed tools in their workflows. The DECIDE project started in July 2021 and will run for five years. Currently, nine PhD students and several postdocs are employed through the project.

Gerdien considers it a great challenge to coordinate and successfully finalize a project with so many partners in different countries. However, the SOUND control project showed the feasibility of such endeavour. She will not be satisfied until DECIDE has developed practical tools for livestock farmers and their veterinarians that improve the health and welfare of calves, broilers, piglets and salmon.



Gerdien van Schaik, the leader of WG2, presenting SOUND control poster at ISVEE16 in Halifax, Canada in August 2022.
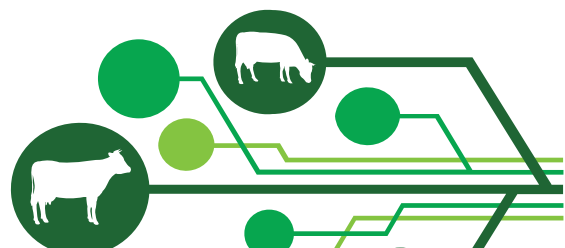
# Impact of our COST Action

## Workshop on statistical methods for output-based surveillance

Aurélien Madouasse, France

Eleftherios Meletis and Aurélien Madouasse presented a summary of the work of WG3 at the annual conference of the Society for Veterinary Epidemiology and Preventive Medicine (SVEPM), in Belfast in March 2022.

Fifteen enthusiastic veterinary epidemiologists from all over Europe attended this half-day workshop. The course covered basic notions on framing freedom from disease as a statistical problem as well as specific methods such as scenario trees and Bayesian latent class models.

The material presented during the workshop is available on GitHub:

https://github.com/LefMel/SVEPM_2022_wk.



Participants of the SVEPM 2022 workshop on "Statistical methods for Substantiating freedom from infection" with lecturer Aurélien Madouasse (in front).
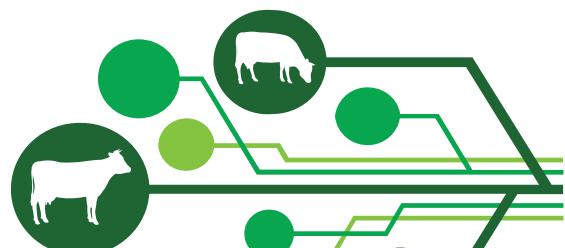
Final SOUND control conference in Athens, 19–20 September 2022,
with participants from all over Europe and beyond.

## 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 | |
| 28 January 2022 | Webinar *New Animal Health Law* by Maria Guelbenzu | |
| 18 March 2022 | Webinar *COST Action HARMONY* by Polychronis Kostoulas | |
| 13 April 2022 | Webinar *The DECIDE project* by Gerdien van Schaik | |
| 25 May 2022 | Webinar *COST Action BETTER* by Alberto Allepuz | |
| 13–15 June 2022 | Training school *Scenario tree modelling* | Ljubljana, Slovenia |
| 22 June 2022 | Webinar *Progress with the GBADs programme* by Jonathan Rushton | |
| 19–20 September 2022 | Final SOUND control conference | Athens, Greece |

## Planned events

| | | |
|---|---|---|
| 30 January 2023 at 1 pm CET | *Final SOUND control webinar* by Inge Santman-Berends | |

# Members and their experiences

*"Participating in this project was an exceptional honour for me personally, and all knowledge from the research will be very useful for my professional work. Apart from my personal impression, the real benefits of this project are much more important, such as meeting experts from different countries with extremely wide expertise and exchanging their experiences, which I consider extremely stimulating for further scientific work in this and similar fields. I found the results obtained as part of the activities of this project are very important not only for the users of the project but also for all other stakeholders."*
**Žaklin Acinger-Rogić**, Croatia (ITC)

*"Being part of SOUND control has given me the opportunity to collaborate with colleagues from all over Europe on cattle diseases and surveillance and I am impressed by all the scientific publications resulting from the collaboration within SOUND control. Our institute hosted an STSM with the purpose to "Prepare a literature review of the use of scenario- tree models in the veterinary field for surveillance for freedom from disease". I believe that a review on this method is important and timely, and I am glad to be part of this work."*
**Petter Hopp**, Norway

*"Being part of SOUND control has been a great experience. It has given me the opportunity to meet and exchange experiences with colleagues from all over Europe. It has widened my understanding on the diversity of situations and challenges regarding animal disease control. I have enjoyed the challenges of learning about methods and having the opportunity to play a leadership role and indeed, working with John Berezowski and Luis Pedro Carmo in WG4 as well as many others across this COST action. "*
**Maria Guelbenzu**, Ireland

# Summary of STSMs and VMs conducted between November 2021 and October 2022

| Researcher | Home institution | Host institution | Topic | Duration |
|---|---|---|---|---|
| **Short Term Scientific Missions** | | | | |
| **Angela Fanelli** | Ausvet Europe, France | National Veterinary Institute, Sweden | Application of a scenario tree model on data collected about EBL CPs | 11 days |
| **Dima Farra** | University of Bern, Switzerland | University of Thessaly, Greece | Review on the use of scenario-tree models for animal health surveillance purposes | 17 days |
| **Eleftherios Meletis** | University of Thessaly, Greece | Technical University of Denmark | Application of the STOC free model for Salmonella Dublin in Denmark | 15 days |
| **Jože Starič** | University of Ljubljana, Slovenia | University of Novi Sad, Serbia | Overview of CPs for cattle ciseases in categories C, D or E in Serbia and Slovenia | 20 days |
| **Tanja Knific** | University of Ljubljana, Slovenia | University of Nottingham, UK | Developing Theory of Change and research agenda | 93 days |
| **Xhelil koleci** | Agricultural University of Tirana, Albania | Animal Health Ireland | Finalise the bottom-up questionnaire | 17 days |
| **Virtual mobility grants** | | | | |
| **Nienke Paarlberg** | Wageningen University, The Netherlands | / | Participating in the top-down approach and taking a leading role in the bottom-up approach | 144 days |
| **Pureza Duarte Ferreira** | University of Lisbon, Portugal | / | Applying the top-down approach in Portugal | 30 days |
| **Rachel Cerf** | Alfort National Veterinary School, France | / | Stakeholders involved in the decision-making process regarding EU cattle trade | 60 days |
| **Tanja Knific** | University of Ljubljana, Slovenia | / | Towards output-based surveillance of transmissible cattle diseases | 15 days |
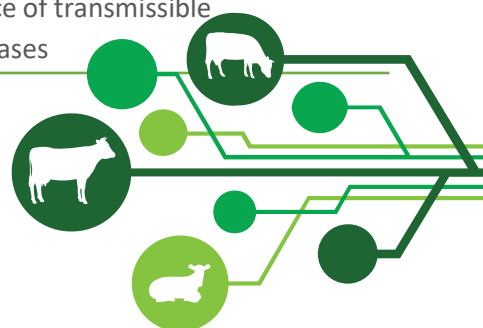
# STSM and Training school participants and VM grant receiver and their experiences

*"The training school in Ljubljana was well suited to acquire methodological knowledge that can be incorporated directly into my current research projects. For me it was also a great opportunity to get in touch with my colleagues from other European countries and discuss today´s challenges in the field of animal health surveillance."*
**Jonas Brock**, Ireland (ECI)

*"As part of the activities of WG4, I conducted a successful three-week STSM at Animal Health Ireland (AHI). I was hosted by Dr Maria Guelbenzu. In addition to working on STSM, I had the opportunity to familiarise myself with other activities of AHI, which allowed me to better understand the role of this organisation in CPs of different diseases (Johne's, BVD, IBR) and biosecurity. I am very grateful to all the staff at AHI who welcomed me into their team and spent so much time with me - at work, over coffee, at lunch and in my spare time. I would recommend everyone to do a longer STSM as it is a very good opportunity to learn and gain experience."*
**Xhelil Koleci**, Albania (ITC)

*"Participating in SOUND control offered me, as a young, enthusiastic researcher, the opportunity to work in an international team with more experienced researchers. Through my VM grant, I was able to explore my future career prospects, learn more about disease control programmes in different European countries and to start building an international research network. I am very thankful for this experience, for everyone who supported me during this VM and for the opportunity to present my findings at the final conference in Athens!"*
**Nienke Paarlberg**, The Netherlands (ECI)

# Selected topic

## Using scenario tree modelling to evaluate the probability of freedom from Enzootic bovine leukosis (EBL) in Ireland, Italy and Slovenia

Angela Fanelli, France

Documented freedom from disease is paramount for international free trade of animals and animal products. Scenario tree modelling (STM) is the reference statistical method used to prove freedom from disease. It is an objective quantitative analysis that allows comparison of the output of different CPs. We used a stochastic STM to estimate the probability of freedom from EBL in three European countries using information gathered via the data collection tool developed in SOUND control.

All data providers were government veterinary officers or researchers. The herd level design prevalence was set to 0.2% in accordance with the Council Directive 64/432/EEC and the within herd design prevalence was set to 15%. The models were run assuming representative sampling and 10,000 iterations.

This is the first study estimating the posterior probability of freedom from EBL in several countries using STM. It represents an attempt to carry out an output-based evaluation of

disease CPs. This type of assessment allows for flexibility in inputs, so that it may be tailored to any surveillance system.

In this study, we developed a STM considering the information derived from active EBL surveillance. Nevertheless, a surveillance system for EBL includes other components, namely clinical surveillance at the farm and abattoir level. Passive surveillance can be effective in detecting diseased animals. However, its effectiveness is difficult to assess as it depends on several factors, such as the probability of infected animals having lesions, the disease awareness of farmers and veterinarians, and their willingness to report it. It would be of particular interest to run the models with this information added to assess how much the results may vary. This may pave the way for initiatives aimed at increasing farmer and clinical veterinarian participation in the surveillance strategy, which in turn would help improve the quality of the data collected and thus refine the estimates of output-based surveillance.
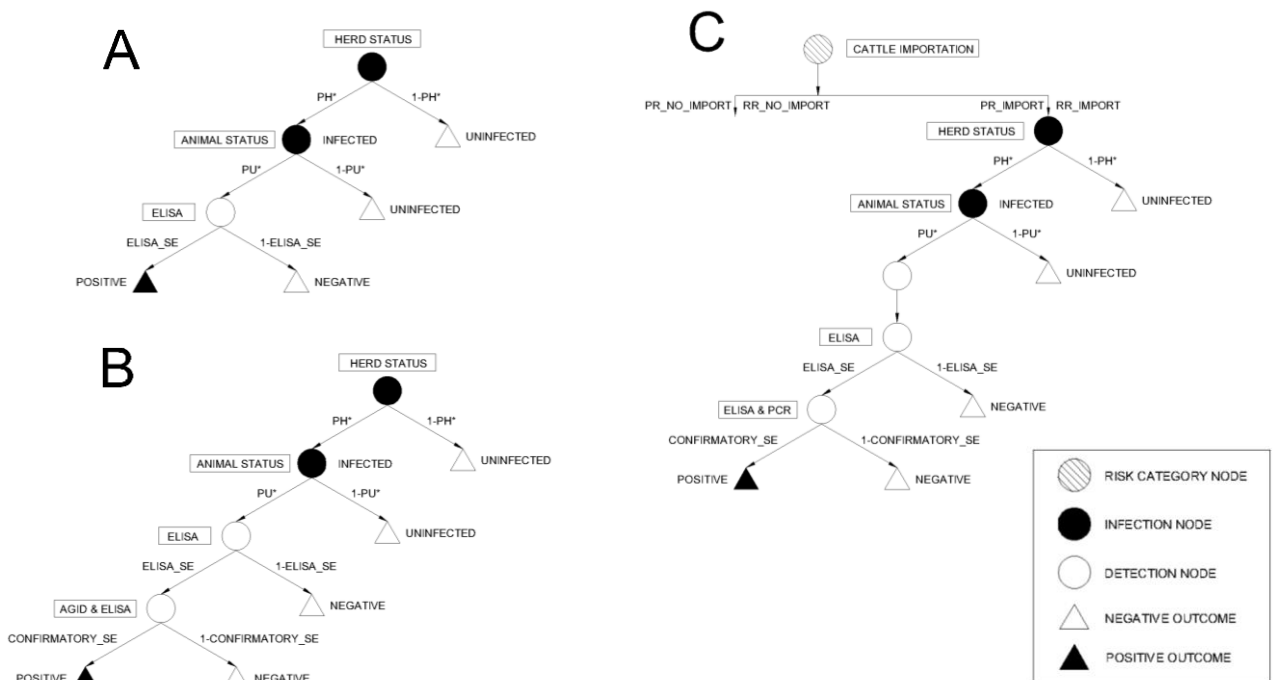


Scenario tree models illustrating the active surveillance system for EBL in Ireland (A), Italy (B) and Slovenia (C) 2018-2021. For Italy the structure of the tree was simplified considering only 2 diagnostic nodes and the most common screening method.
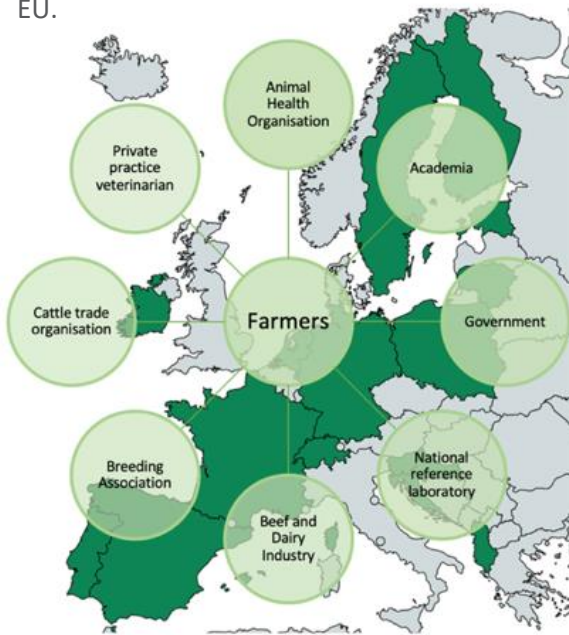
# Selected topic

**Who are the stakeholders involved in the decision-making process regarding intra-EU cattle trade?**

Rachel Cerf, France

When a farmer decides to buy one or more cattle from another EU country, different stakeholders are likely to have some influence on the decision-making process. My work aims to better understand which stakeholders are more likely to influence the decision-making process.

To better understand this process, I have developed the top-down approach with WG4. It aimed at gathering the input from various stakeholders that play a role in the cattle trade within the EU. The role of each stakeholder in the decision-making process was investigated. It also assessed the impact of the control programmes as perceived by different stakeholders. In general, few stakeholders have a decisive role in the decision-making process, although in some countries there are stakeholders that can effectively influence the process, e.g. the dairy industry in the Netherlands and Sweden. It is important to note that these stakeholders are driving the introduction of disease control programmes for which there is no mandatory regulation in the EU.

The questionnaire shows that various stakeholders in the cattle industry are concerned about the introduction of a disease into their country via the intra-EU cattle trade.

CPs seem to have an important role in building trust between trading countries. In general, it is not only the CPs but also the different health status in the countries that discourage trade. It should be noted that the difference between mandatory regulated and non-mandatory regulated diseases in Europe is not always clear in the minds of different people in the cattle sector. For this reason, many responses had to be removed from the analysis because respondents were talking about mandatory regulated diseases, which could distort the survey.

Countries call for more transparency in animal trade between countries, such as easily accessible information on the farm of origin, the health status of the animals and the country of origin.



Countries and different stakeholders involved in the study.



Rachel Cerf and her happy patient.
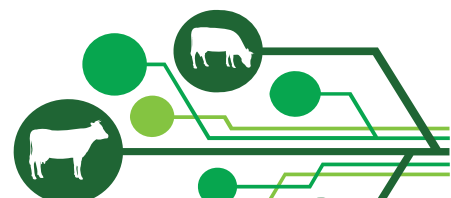
# Selected topic

**Data collection and analysis for the bottom-up approach across countries on the decision-making process concerning cattle trade**

Nienke Paarlberg, The Netherlands

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 better understand how individuals make their decisions related to cattle trade. Data were collected on topics such as cattle trade across borders, the effect of disease CPs on farmers' decision-making process and farmers' perception of disease risk. Seven European countries participated in this study by collecting farmers' responses to a survey that included questions on all of the above topics.

The main reason for farmers to buy cattle from other European countries was to start or improve genetics on their farm. Price was not reported as an important factor by 47.0% of the respondents. This could be because other factors are perceived as more important, such as health status or genetics. Further

investigation of the differences in farmers' characteristics would be interesting and relevant to understand farmers' decision-making processes. Of all the participating farmers, 13.9% indicated that they were not aware of the disease CPs in place in their country. 42.3 % responded that they were not aware of CPs in place in other countries. The participation of an individual animal in a disease CP was not important for 5.2% of the respondents. It may be relevant to explore whether this could all be due to a lack of awareness of the difference in risk between countries with and without control of cattle diseases, or whether other factors are simply more important to farmers when importing cattle.

The data analysis process is currently in its final stages. We are planning a scientific publication including an overview of all relevant results.
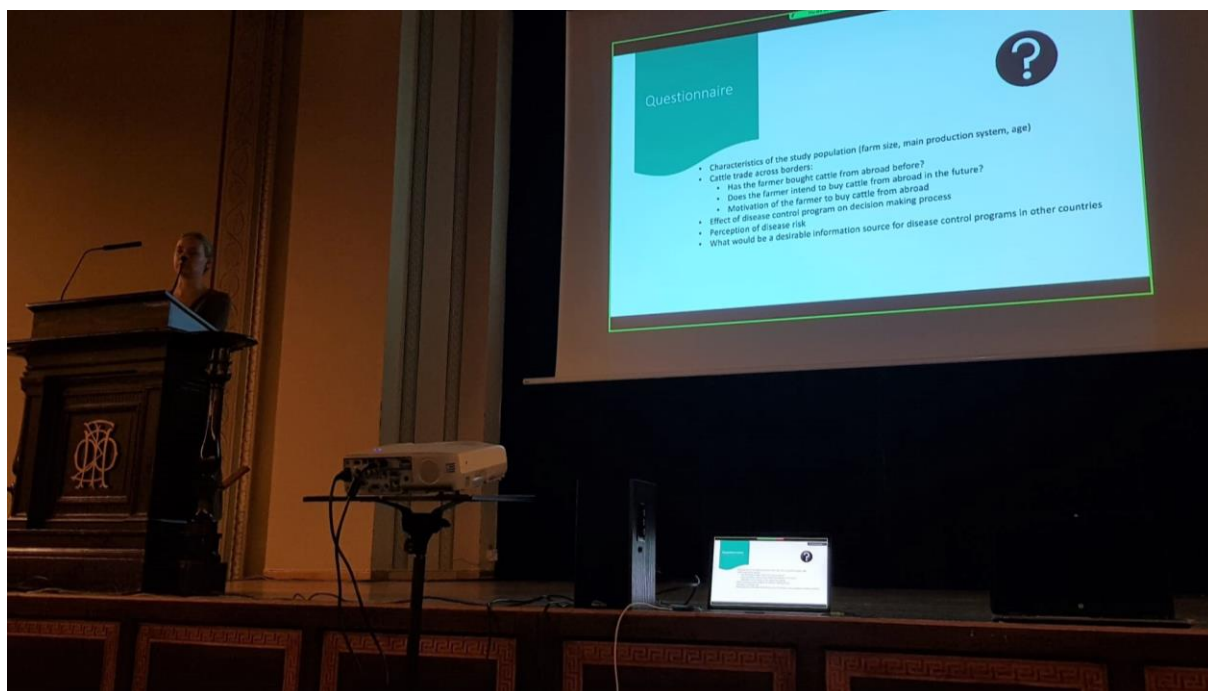


Nienke Paarlberg presenting her work at the final SOUND control conference in Athens.
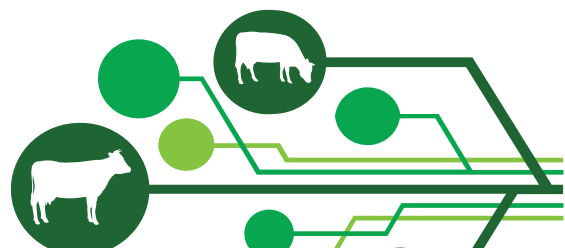
# Selected topic

## Towards output-based surveillance of transmissible cattle diseases: challenges and opportunities

Tanja Knific, Slovenia

Currently CPs for transmissible cattle diseases usually consist of a detailed action plan from sampling and testing framework to data collection and reporting. These CPs are so-called input-based. Apart from the mandatory input-based CPs required by the EU, the CPs' design varies both between and within countries. This hinders the comparability of the results and use of the results by different stakeholders involved in cattle trade or disease control.

The objective of the SOUND control was to examine the current state of cattle disease CPs, assess the potential of mathematical and statistical methods to support an output-based framework (OBS), and address the potential challenges in implementing such CPs. Several meetings, workshops, discussion groups and surveys with experts and other stakeholders from 33 countries were organized. The goal was to gather the required information and to synthesise the results into an overview of the challenges and opportunities we face as we move towards OBS.

The first steps that need to be taken to support the implementation of the OBS are timely and reliable data collection, as the results of the mathematical models are only as good as the available data. The second important issue is capacity in terms of infrastructure and experts' availability to carry out such work. Methods already exist and new ones are being developed, but modellers face challenges related to country-specific disease states, validity, confidence and uncertainty, and how models and data collection can be linked and made sustainable. OBS is both a desirable and an attainable goal, that would enable better use of available data, comparable results and informed decision-making on cattle trade.

The consortium recognised that the purpose of OBS is to "*provide information on freedom from a particular disease in animals presented for export that is sufficient for importers to make an informed decision about importing the animal*". To achieve this, OBS must be flexible, transparent, reliable and efficient. Therefore, trust and communication with the various stakeholders, especially decision-makers and trading partners, are centrepiece if OBS is to make cattle trade a less risky endeavour.
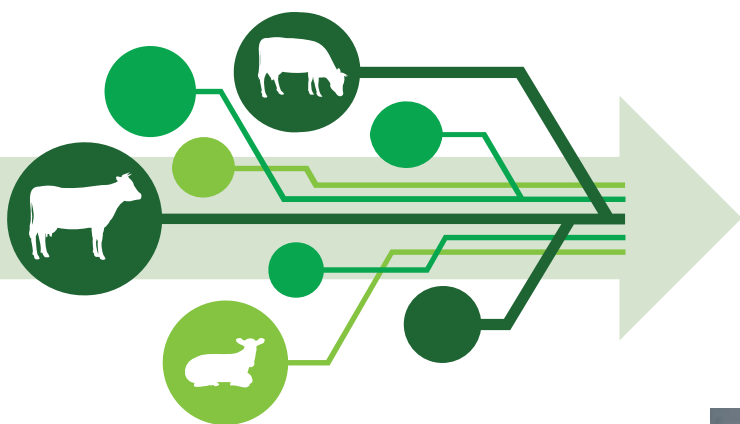


# SOUND control
COST Action CA17110

Tanja Knific and Aurore Carcel at the final SOUND control conference in Athens. At the meeting, Tanja presented the work she had done during the STSM at the University of Nottingham.

# Selected topic

## SOUND control story – how to write so that people want to listen?

Tanja Knific, Slovenia

The selected topics on the previous pages have been written in a typical scientific template, which is only appropriate when we are addressing a scientific audience. If we want to appeal to other stakeholders, we have to adapt our story to their interests and needs. It turns out that we do this by literally turning our approach on its head: Start with the conclusion that is interesting to your chosen audience. Do not try to tell everything at once, but choose a specific problem that is of interest to your target stakeholder. Also, keep it short, write a maximum of 500-800 words per story. Be sure to ask others (including non-veterinarians who are not involved in the project) for their opinion.

For more tips and tricks on how to write a good story, watch our webinar on storytelling. On this and the next page you can see an example of a draft and a written short SOUND control story for farmers.

| Plan your story first – write a draft using this template | |
|---|---|
| Audience – who is the stakeholder you want to address? | Farmers |
| Choose your platform – depends on your local situation | Professional journal for farmers |
| Choose an interesting aspect for your target group | How to reduce the risk of introducing diseases into your herd |

| The first paragraph - short, 3 to 5 sentences should suffice | |
|---|---|
| 1. What is the most important insight for your audience? For ongoing/new projects: What problem you are studying is of interest to this group?<br>2. Why is it important for this audience? | • Various stakeholders concerned about the introduction of a disease into their country<br>• It is not easy to obtain data on the disease status of a herd or animal for diseases for which there are no mandatory CPs in the EU<br>• Having such information reduces the risk of introducing a disease into your healthy herd by cattle trade |

| The second paragraph - include essential and only essential background | |
|---|---|
| 3. What has been the problem so far? | • No easily accessible database<br>• CPs are not comparable between regions |

| The body paragraph - let your academic side come out, but avoid scientific jargon | |
|---|---|
| 4. What do you actually do and how? Describe the parts of SOUND control activities that relate to the issue at hand | • We have investigated the current state of CPs in Europe - overview is available<br>• We have conducted two surveys to find out how decisions about trade are made |

| Last paragraph - go into more detail and end when you think your reader will get bored | |
|---|---|
| 5. Where is the research going?<br>6. Expand on "so what"? | • We have explored the challenges of implementing CPs that focus on outcomes such as being disease-free and thus enable safe trade |

# Selected topic

## SOUND control story for farmers: Making the cattle trade in Europe less risky

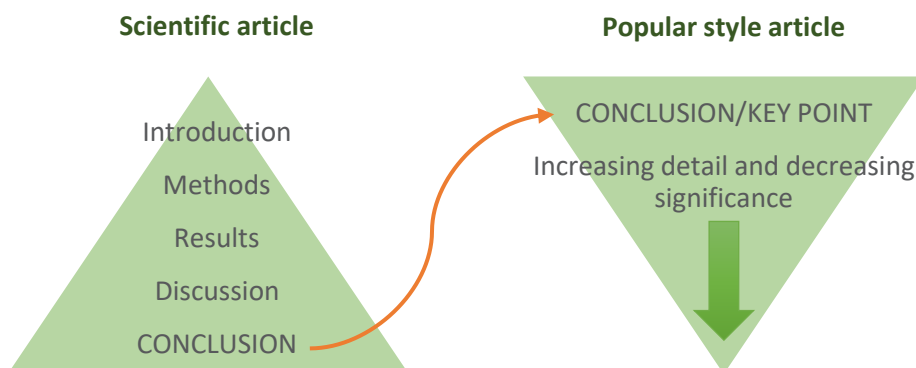Tanja Knific, Bojan Papić (non-veterinarian), Slovenia and Inge Santman-Berends, the Netherlands

Various stakeholders in the cattle industry are concerned about the introduction of a disease into their country through cattle trade. Farmers need information on disease status and whether diseases are being controlled in European trading countries in order to make an informed decision and reduce the risk of introducing a disease into their own healthy herds. However, this information is currently unavailable, especially for diseases without mandatory control programme in the EU.

In most European countries, many efforts are made to control certain cattle diseases. However, apart from the mandatory control programmes required by the EU, disease programmes vary both between and within countries. This makes it difficult to compare the results of the different programmes and to provide farmers with information on the magnitude of the risk of introducing a disease when they import cattle.

In the COST Action SOUND control, we investigated the current state of control of endemic cattle diseases in Europe. The collected information was made freely available through a dashboard that can be accessed via our website (https://sound-control.eu/). The app helps to search for specific diseases and enables the comparison of the availability of control programmes in different countries. We also investigated farmers' decision-making process when trading cattle and their perception of disease risk. Farmers from seven

European countries participated in this study. The most commonly mentioned reason for importing cattle was to introduce or improve genetics of their herds. Interestingly, across countries, 14% of farmers said they were unaware of disease control programmes in their own country and 42% were unaware of disease control programmes in other countries. Remarkably, the participation of an individual animal in a control programme was not important for about 5% of the farmers. This could be related to the reason for animal import and the intended use of the imported cow; improving the herd vs. fattening and sale to the slaughterhouse.

Current control programmes prescribe sampling plans, diagnostic tests and other measures, but not the desired outcome. However, for the farmer to make an informed decision about trade, the important information is whether the animal is free of a particular disease. We also looked at the role of other stakeholders in decision-making. In general, in some countries, only a few stakeholders play a decisive role in the decision-making process. In the Netherlands and Sweden, for example, the dairy industry can effectively influence the process and also drive the introduction of control programmes. Other stakeholders are not crucial for farmers' decisions. However, some farmers reported that they received information about cattle trade from other farmers, veterinarians and traders.
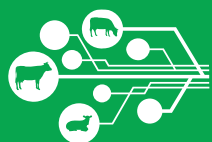
Scientific article                     Popular style article

Introduction

Methods

Results

Discussion

CONCLUSION

CONCLUSION/KEY POINT

Increasing detail and decreasing significance

Structuring a short article – inverted triangle template

# 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
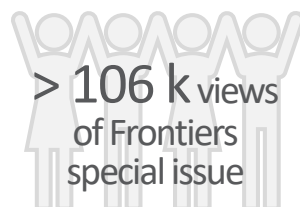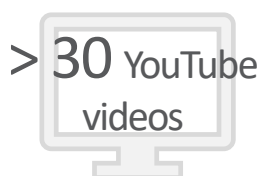
**CP/CPs**    Control Programme/s

# SOUND control

COST Action CA17110

# SOUND control in numbers

> 40 WG online meetings

110 active members from different fields

33 participating countries

9 face-to-face meetings

10 webinars

> 30 YouTube videos

> 106 k views of Frontiers special issue

20 STSMs

9 virtual mobility grants

5 newsletters

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