



# DECIDE

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## Newsletter #1

Welcome to the first issue of the bi-annual newsletter of the DECIDE project. The newsletter serves as a resource to share recent updates and developments of the DECIDE project, exciting results, milestones and insights into the work within the consortium. DECIDE is a five-year Horizon 2020 project, developing data-driven decision support tools for endemic contagious diseases in pigs, poultry, calves and salmon.



## Foreword.

This first newsletter provides you with a taste of what the DECIDE project is about. We foster collaborations across scientific disciplines to design the best possible data-driven decision support tools for the users. The many collaborations across disciplines are showcased by two of the PhD students in DECIDE. As the coordinator of the project my task is to stimulate and support those collaborations and create an open atmosphere for discussions and feedback, which is not a difficult task with such a great team. In this newsletter, you can also find some recent scientific publications and events in which work from DECIDE is presented. More can be found on our website: [www.decideproject.eu](http://www.decideproject.eu). Feel free to contact us with questions or suggestions. The team has three more years to reach the overall goal in DECIDE: create data-driven tools with which farmers, veterinarians and animal health managers can improve endemic infectious disease control. We are well on our way!

- Project coordinator Prof. Dr. Gerdien van Schaik



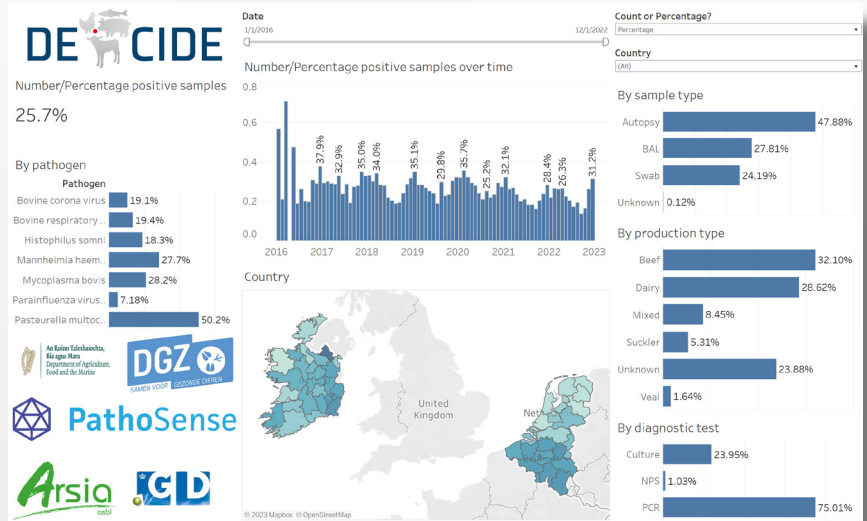
# DECIDE Barometer: Navigating Europe’s pathogen landscape for livestock health.

Within the DECIDE project, we have been transforming an existing national tool called “the Griepbarometer” developed in Flanders (Belgium) into an international tool applicable across Europe: the barometer.

The main goal is to give an overview and raise awareness about the circulating pathogens, and emphasize the importance of sampling of diseased animals. Next to this, we aim to develop early warning systems, which will alert veterinarians and farmers to potential epidemics, enabling timely vaccinations and providing (purchase) support for their livestock. Our journey began showing descriptive insights: we started by collecting laboratory data from different countries in cattle and poultry. The data included test results for pathogens such as bovine respiratory disease [BRD] pathogens, infectious bronchitis virus [IBV] in broilers, sample types, diagnostic methods, and geo-location.

Then, we navigated ourselves through all the available data and narrowed it down to relative abundance – how often a specific pathogen was detected relative to the total number of tests done on a unique farm (cattle barometer) or circulating strains (poultry barometer). Finally, all was visualised in an interactive dashboard.

**Curious to find out what we are talking about?** [Visit the use case website](#) to access the dashboards that allow you to explore the data visually. It’s like a map for navigating the world of BRD pathogens and IBV in broilers. Simply click, filter and explore to gain insights. Not only the dashboards, but also tutorials on how to contribute, how to clean and wrangle laboratory data and add anonymisation steps, are offered on this website. However, we are not stopping here! The website will be updated frequently, as we plan to include data from more European countries and species (e.g. swine), and start working on the early warning component to help you stay ahead of potential outbreaks.



Screenshot, the DECIDE barometer.

- Jade Bokma, Bart Pardon, Miel Hostens.



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*For this section, we asked members of the DECIDE consortium to describe their day-to-day work with and among their fellow consortium members. Read their impressions below to gain insights into the work behind DECIDE.*

## A look inside the consortium: Collaborations.

### Marloes Boeters, Utrecht University

Within the DECIDE project, I carry out part of the work on the economic burden of endemic respiratory and gastro-intestinal diseases, with a specific focus on pigs. This work on the economic burden is meant to be linked to several of the other work packages within DECIDE, in order to develop integrated and practical decision support tools for pig farmers and veterinarians. This leads to very fruitful and enjoyable meetings and collaborations with colleagues within (and also outside) the project. For example, in the previous year, I collaborated with **Beatriz García Morante, researcher at IRTA, Barcelona**, who is the data leader for the pig pilots within DECIDE. Where my expertise mainly lies with economic methods and analyses, her knowledge of endemic respiratory diseases in pigs was a very valuable contribution. We worked together for over a year, including two weeks of close collaboration in person, at **IRTA**. This is not where our collaboration ended, as we are currently exploring working together with **INRAE** to develop and expand disease transmission models with components for estimating losses in production and profits resulting from our target diseases. During the next year, I also foresee collaborations with colleagues developing tools in DECIDE's work package (WP) 3 in which the results from our economic research could be incorporated, as well as with the social scientists in WP5, to help with evaluating data-driven tools with users. These are areas that I am not yet familiar with but would love to learn more about. In short, **there is a wide range of expertise available within the project, and I very much enjoy the interdisciplinary nature of the DECIDE goals, as they offer many opportunities to join forces and learn from each other's expertise and skills.**



*– Marloes Boeters*



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## Carolina Merca, University of Copenhagen

Embarking on my journey within the DECIDE project a year and a half ago marked the beginning of an exciting academic chapter. Within the Modeling Group (WP2), my role revolves around the construction of multivariate and multi-level models. Specifically, I am tasked with developing these models to establish early warning systems aimed at enhancing European livestock production.

Working closely with DECIDE members from diverse teams and backgrounds has been a key aspect of this experience. My primary focus within the project so far has been monitoring the mortality of maricultured salmon in Scotland, which required a deeper understanding of the salmon industry. **In DECIDE we have the advantage of working with a salmon expert based in Scotland's Rural College (SRUC). Dr. Annette Boerlage** helped us in our project by providing specialized knowledge and insights essential for accurate salmon mortality modeling. More recently, we also started a collaborative work within WP2. At **INRAE, Dr. Pauline Ezanno's** team works with mechanistic models in Bovine Respiratory Disease (BRD). These models enable simulating pathogen spread according to different scenarios (number of infected animals, vaccination rate, treatment, etc.). This type of models are useful for farmers because they can test different scenarios and make the best decision for their farm. Both early warning systems and mechanistic models are used in practice but not together in a complementary way. Therefore, combining both models seems to be a promising and original way of providing a complete tool to the farmers. This collaborative work necessitates close coordination.

**INRAE's PhD student Baptiste Sorin spent three months working with our team in Copenhagen to establish a system where two different models are used simultaneously. Later this year, I will be heading to Nantes to finalize the integration of early warning systems (UCPH) with mechanistic models (INRAE).**

These synergies have allowed us to approach problems from multiple angles, leading to holistic solutions and innovative insights into the complexities of decision-making. This project exemplifies the power of collaboration and diversity in driving innovation. I am excited to see how our collective efforts will continue to make a positive impact in the field of animal decision support tools.

– Carolina Merca





## Recent results and publications.

### The economic impact of endemic respiratory disease in pigs and related interventions - a systematic review

Marloes Boeters, Beatriz Garcia-Morante, Gerdien van Schaik, Joaquim Segalés, Jonathan Rushton and Wilma Steeneveld. *Porcine Health Management* 45 (2023).



Understanding the financial consequences of endemically prevalent pathogens within the porcine respiratory disease complex (PRDC) and the effects of interventions assists decision-making regarding disease prevention and control. The aim of this systematic review was to identify what economic studies have been carried out on infectious endemic respiratory disease in pigs, what methods are being used, and, when feasible, to identify the economic impacts of PRDC pathogens and the costs and benefits of interventions. The outcomes and discussion from this systematic review provide insight into the studies, their methods, the advantages and limitations of the existing research, and the reported impacts from the endemic respiratory disease complex for pig production systems worldwide.

Appropriate management decisions are key for sustainable and profitable beef and dairy farming. Data-driven technologies aim to provide information which can improve farmers' decision-making practices. However, data-driven technologies have resulted in the emergence of a "data divide", in which there is a gap between the generation and use of data. Our study aims to further understand the data divide by drawing on social practice theory to recognise the emergence, linkages, and reproduction of youngstock data practices on cattle farms in the UK. The results suggest that the data divide exists because of three types of disconnect: a disconnect between elements within a practice because of tensions in competencies or negative meanings to perform a practice; a disconnect between practices because of temporal or spatial differences; and a break in the reproduction of practices because of lack of feedback on their practices.

### Exploring the data divide through a social practice lens: A qualitative study of UK cattle farmers



Charlotte Doidge, Laura Palczynski, Xiao Zhou, Angela Bearth, Gerdien van Schaik, Jasmeet Kaleer. *Preventive Veterinary Medicine* 220 (2023).



## Recent results and publications.

### Social and ethical implications of data and technology use on farms: A qualitative study of Swedish dairy and pig farms

Charlotte Doidge, Jenny Frössling, Fernanda C. Dorea, Anna Ordell, Gema Vida, Jasmeet Kaleer. *Frontiers in Veterinary Science*, Volume 10 (2023).



When developing innovations, it is important to anticipate potential consequences of their use, both positive and negative. Therefore, our study aimed to investigate the social and ethical implications of technologies that are used on pig and dairy farms. We did this by conducting focus groups (i.e. small discussion groups) with pig and dairy farmers in Sweden. We analysed the data by generating themes which represented patterns of shared meaning. The analysis showed that technologies can change and form the identities of farmers, their workers, and the animals, and make them conform to new norms. This is because the data that is collected increases the visibility of their behaviours. Emotions and morality played an important role in the way animals were managed and technologies were used by farmers. Therefore, our research suggests that changes to identity and emotional responses need to be considered when developing new innovations.

High mortality poses a significant challenge to sustainable Atlantic salmon aquaculture in Norway. Non-medicinal lice removal methods contribute significantly to this issue. Delousing aims to prevent lice transfer from farmed to wild salmon populations, involving techniques like heated water baths (thermal treatment), flushing/brushing (mechanical treatment), or fresh-water baths (alone or with thermal/mechanical methods). Thermal treatment is the most commonly used in Norway. Reports, both from the field and research, reveal that pre-treatment handling and non-medicinal methods increase salmon mortality and reduce appetite, resulting in biomass and financial losses for farmers. Considering this biomass loss in calculating non-medicinal treatment costs highlights substantial financial losses for farmers, emphasizing the economic incentive to prioritize prevention and improvement of these methods for salmon health and welfare.

### The Economics of Preventing, Replacing or Improving Current Methods for Delousing Farmed Atlantic Salmon in Norway



Cecilie S. Walde, Britt Bang Jensen, Marit Stormoen, Frank Asche, Bard Misund, Jostein Mulder Petterson. Available at SSRN (preprint), 2023.



## News and updates.



### Translating user needs into tools – DECIDE WP5 workshop

What do end-users of data-driven decision-making tools want? DECIDE's WP5 invited cattle group members and data leaders to a half-day workshop to work on these questions and share insights into their latest findings on stakeholder needs and perceptions of technology.

[Read more](#)



### DECIDE holds 2nd in-person General Assembly

From June 27-28, the DECIDE consortium gathered for the 2023 in-person General Assembly meeting. Bringing together just over 50 attendees from all 19 project partners, the event marked the successful start of the last three years of the DECIDE project.

[Read more](#)

[More news](#)

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## Upcoming presentations and events.

- “Innovation in Veterinary Medicine – practical approaches to using Big Data”, Jade Bokma (UG), **TOPRA Veterinary Medicines Symposium, 23-25 October 2023, Lisbon, PT.**
- “Data to support health management of maricultured salmonids in Scotland.”, Anette Boerlage (SRUC), **3rd International Conference on Aquatic Animal Epidemiology 29 November - 1 December 2023, New Delhi, IN.**

[More events](#)



This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 101000494. This document reflects views of author and the European Commission is not responsible for any use that may be made of the information it contains.