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Newsletter #2

Welcome to the second 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.

In the DECIDE project, we develop data-driven decision support tools that farmers, veterinarians and other health managers can use to improve animal health. As a veterinary epidemiologist and with my own experience of farming practices, I have a perception of useful tools for vets and farmers. However, as a researcher, used to analysing data and looking at graphs and tables, my perception may be completely wrong. Therefore, I'm very happy with the social scientists in the DECIDE project. Together with, amongst others, the leaders for the four species (pigs, cattle, poultry and salmon) in DECIDE they are working hard to find out what the users want. How do farmers and veterinarians see data-driven tools, what are drivers and barriers to use them? An important aspect is the design of a tool. This newsletter highlights a study to determine the effect of colour coding in a fictitious, salmon producing country. Have a look at it and enjoy the creativity that is part of the DECIDE project! When you want to know more, please have a look at the website (www.decideproject.eu) where you can find information about the project and the tools we develop. Feel free to contact me with questions or suggestions for the project.

- Project coordinator Prof. Dr. Gerdien van Schaik

# Health and welfare decision making – what's traffic lights got to do with it?

How do color codes and dashboard design influence risk perception and decision making in fish health management? The DECIDE project's WP5 explores this through an innovative, user-focused approach, testing intuitive solutions like traffic lights to enhance clarity and effectiveness.

Technological innovation is successful when it is driven and informed by the needs and challenges of the prospective users. In the DECIDE project, emphasis is put on the co-creation of the data-driven decision support tool with the people that will hopefully use them some day. Part of this is to also design the look and feel of the tool optimally. The way on-farm health or welfare risks are communicated (e.g., as probabilities or verbal descriptors of probability), how data is displayed (e.g., text, figures, tables) and even design choices (e.g., colours, placement of buttons) can influence information processing and decision making.

In group discussions with stakeholders from the salmon industry, it was suggested that traffic lights (e.g., red, orange, green) might be more intuitive than other colour codes to display fish mortality. However, displaying a mortality level above 0 as "green" and thus, as good, was simultaneously described as problematic.
To inform the design choices of the dashboards and data tools developed in DECIDE, we designed an online experiment that tested the effect of colour choice on risk perception and decision making in a dashboard displaying fish mortality and morbidity. For this, the fictitious region of Salmonia served as a backdrop for the experiment. The participants were asked to imagine that they were responsible for the fish health on a salmon farm in the North-West of Salmonia. They were then shown different dashboards (see the picture below for two examples of the presented dashboards) and asked to rate the health of the salmon on their farm, whether they deemed specific actions necessary and how sure they were about their decision. We are currently analysing the collected data and insights will soon be made available. This much can be revealed, the colour code did influence our participants' responses. Stay tuned!

- Angela Bearth (ETHZ / HF Partners)
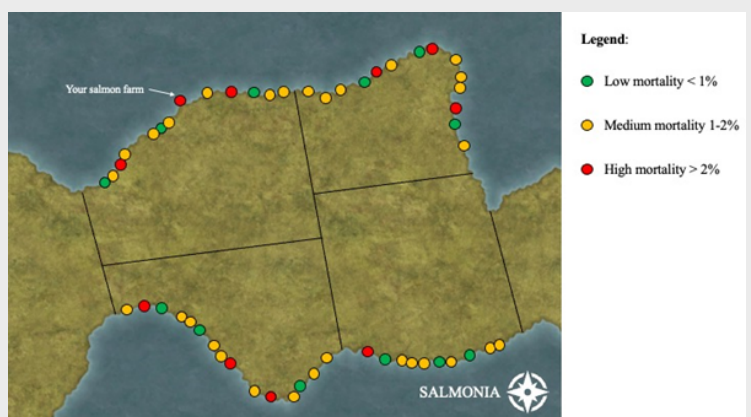
New explainer video: The DECIDE project

We are excited to announce the release of our new DECIDE explainer video, providing a first look into the DECIDE project. In the video, DECIDE coordinator Prof. Dr. Gerdien van Schaik offers a comprehensive overview of the aims, objectives, and focus of the project over the years. The video captures the essence of the ongoing work within the DECIDE project, showcasing the principles and milestones that were achieved so far - and those that lie ahead. We hope that this short video contributes to the understanding of our aims, objectives and progress achieved within the DECIDE project. Click on the button below to watch the video!
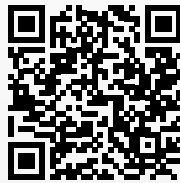
Prof. Dr. Gerdien van Schaik
DECIDE Coordinator

Universiteit Utrecht

Watch now

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Recent results and publications.

A qualitative survey approach to investigating beef and dairy veterinarians' needs in relation to technologies on farms

Charlotte Doidge, Alison Burrell, Gerdien van Schaik, Jasmeet Kaler. animal Volume 18, Issue 4 (2024).

There is little literature on veterinarians' perceptions towards data and technology on farms. This study aimed to collect and understand their perspective and experiences on data and technology on beef and dairy farms, utilising a qualitative online survey. From the reflexive thematic analysis of the data collected from the 36 British and 24 Irish veterinarians, four themes were generated: Improving veterinary advice through data, ensuring stock person skills are retained, longevity of technology, and solving social problems on farms. We show that technology and data improve veterinarians' confidence when advising farmers. However, the information gathered from cattle farms varied a lot in both quality and quantity. Veterinarians suggested that technology was helpful as herd sizes were increasing and employees had varied skillsets. They also suggested that technologies may help to improve working conditions. Future innovations should aim to fulfil the veterinarians' needs to apply expertise, influence farmers' behaviour, and minimise risks.

Developing agricultural technologies rarely includes the end-user in the early stages. The aim of this study was to understand dairy farmers' needs of data use, technology use, and disease management to improve herd health and inform innovation development. Eighteen focus groups were conducted with a total of 80 dairy farmers across six European countries. From the collected data, using Template Analysis, six key themes were generated that represented the farmers' fundamental needs: autonomy, comfort, competence, community and relatedness, purpose, and security. Consequently, farmers preferred technologies that provided them with convenience, support their knowledge of problems, and promote self-sufficiency. The barriers with technology use were associated with software usability and sharing or accessing data. Moreover, difficulties around labour management, recruitment, and overseeing the barn environment, especially regarding youngstock, were burdensome. The demands identified in this study combined with a user-centric design approach could improve the satisfaction of farmers when integrating future technologies.

A Living Lab approach to understanding dairy farmers' needs of technologies to improve herd health: Focus groups from six European countries

Charlotte Doidge, Alison Burrell, Jenny Frössling, Laura Palczynski, Bart Pardon, Anouk Veldhuis, Jade Bokma, Petter Hopp, Maria Guelbenzu-Gonzalo, Natascha Meunier, Inge Santman-Berends, Gerdien van Schaik, Jasmeet Kaler. Journal of Dairy Science (2024).

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Recent results and publications.

Sea lice management measures for farmed Atlantic salmon (Salmo salar) in Scotland: Costs and effectiveness

Annette S. Boerlage, Shailesh Shrestha, Ilkka Leinonen, Mona Dverdal Jansen, Crawford W. Revie, Aaron Reeves, Luiza Toma. Aquaculture, Volume 580, Part 1.

Disclaimer: While this work is closely related to the ongoing work of the DECIDE project, it was not directly funded by the DECIDE project. The views and opinions expressed in this publication are those of the authors and do not necessarily reflect the official policy or position of the DECIDE project or its funding agencies.

Systems that manage farm animals' health face challenges in collecting, integrating, and analysing data. Taking advantage of the semantic web technologies for agricultural data is an important tool for data management and facilitates improved decision-making. However, current systems have problems such as lacking standardisation and reusability. The authors propose an ontology-driven framework to tackle these challenges. This framework includes a species-specific Livestock Health Ontology, Resource Descriptive Framework data generation, and makes sure that different systems can cooperate. This research aims to improve how diseases are spotted early in cattle, leading to better overall health for the animals. The chapter looks into the background information presents the methodology as a case study and talks about what could be studied next and the problems we might face.

All around the world, wild and cultured salmon are affected by sea lice. In salmon-culturing countries, there are various measurements to manage sea lice levels. This study compares the cost-effectiveness of individual measurements in Scottish salmon farms, as well as comparing three management strategies that span across a whole production cycle. The analysis showed that skirts and in-fed medicine had the best cost-effectiveness ratio of the single measurement group. The next most effective measurements include cleaner fish, fresh or brackish water baths, thermolicer, hydrolicer, and medical baths. Furthermore, Tarpaulins have been shown to be more cost-effective than well boats, under the assumption that their effectiveness is the same. It is worth highlighting that this is the first study that tries to rank sea lice management measurements, and with remarkably little public data and a lack of standardisation amongst data sets, concluding definite results is risky.
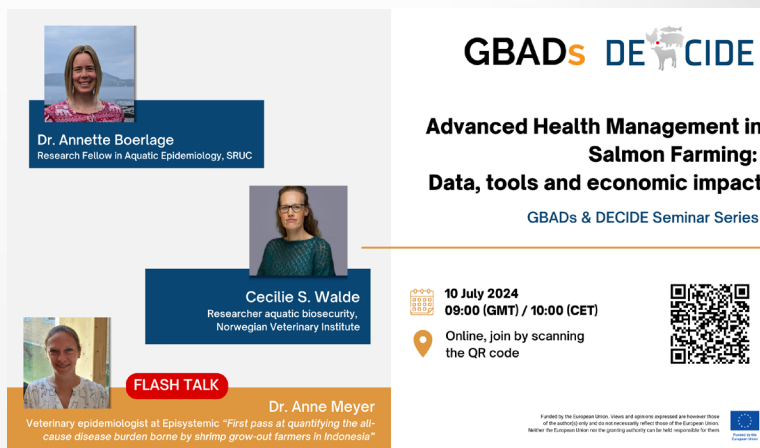
Agri Semantics: developments to improve data interoperability to support farm information management and decision support systems in agriculture

Saba Noor, Jade Bokma, Bart Pardon, Gerdien van Schaik, Miel Hostens. (2024). In Claus Grøn Sørensen. Smart farms: improving data-driven decision making in agriculture. Cambridge: Burleigh Dodds Science Publishing.

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News and updates.

Upcoming: GBADs & DECIDE Seminar Series #5

On July 10th, 2024 , the DECIDE and GBADs projects will host their 5th session of the GBADs&DECIDE Seminar Series. This time, Annette Boerlage (SRUC) and Cecilie Walde (NVI) will share inisghts into advanced health managament in salmon farming.

Join here

Introducing the cattle barometer at EBC and ECVM

Over the past months, the DECIDE cattle group has been introducing the cattle barometer, one of the DECIDE pilot tools, at international conferences around Europe, such as EBC and ECVM. Read their impressions and click through the gallery in the article below.

Read more

More news

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Upcoming presentations and events.

Interested in our research?

The DECIDE consortium partners will be presenting their latest findings at several key European and international scientific conferences this autumn, like the 75th EAAP Annual Meeting. (1.-5. September, Florence, IT) or ECPLF 2024 (9.-12. September, Bologna, IT). We are also delighted to be present at this years ISVEE conference in Sydney, Australia. We would be excited to meet you to discuss the future of data-driven decision support tools - find more about our planned talks and presentations below.

DECIDE at the 17th International Symposium on Veterinary Epidemiology and Economics.

- "Integrating animal production data in Europe: gaps and challenges for animal health scientists.", Camille Delavenne (AUSVET), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

- "Comparison of antibiotic use, mortality and footpad lesions between conventional and slower-growing broilers in the Netherlands, 2013-2021.", Yara Slegers (UU), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

- "The use of data to support health management of farmed atlantic salmon.", Annette S. Boerlage (SRUC), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

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• "Combining dynamic generalized linear models and mechanistic modelling to optimize treatment strategies for Bovine Respiratory Disease in cattle fattening farms." Carolina Merca (UCPH), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

• "Innovative Tool Development: Experiences from the DECIDE project.", Gerdien van Schaik (UU), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

• "From Models to Measures: Optimizing Biomass Estimates In Precision Fish Farming." Carsten Kirkeby (UCPH), **ISVEE 17, 11-15 November 2024, Sydney, AUS.**

More events