

22/09/2022

Automated at-slaughter monitoring of chicken and pig welfare

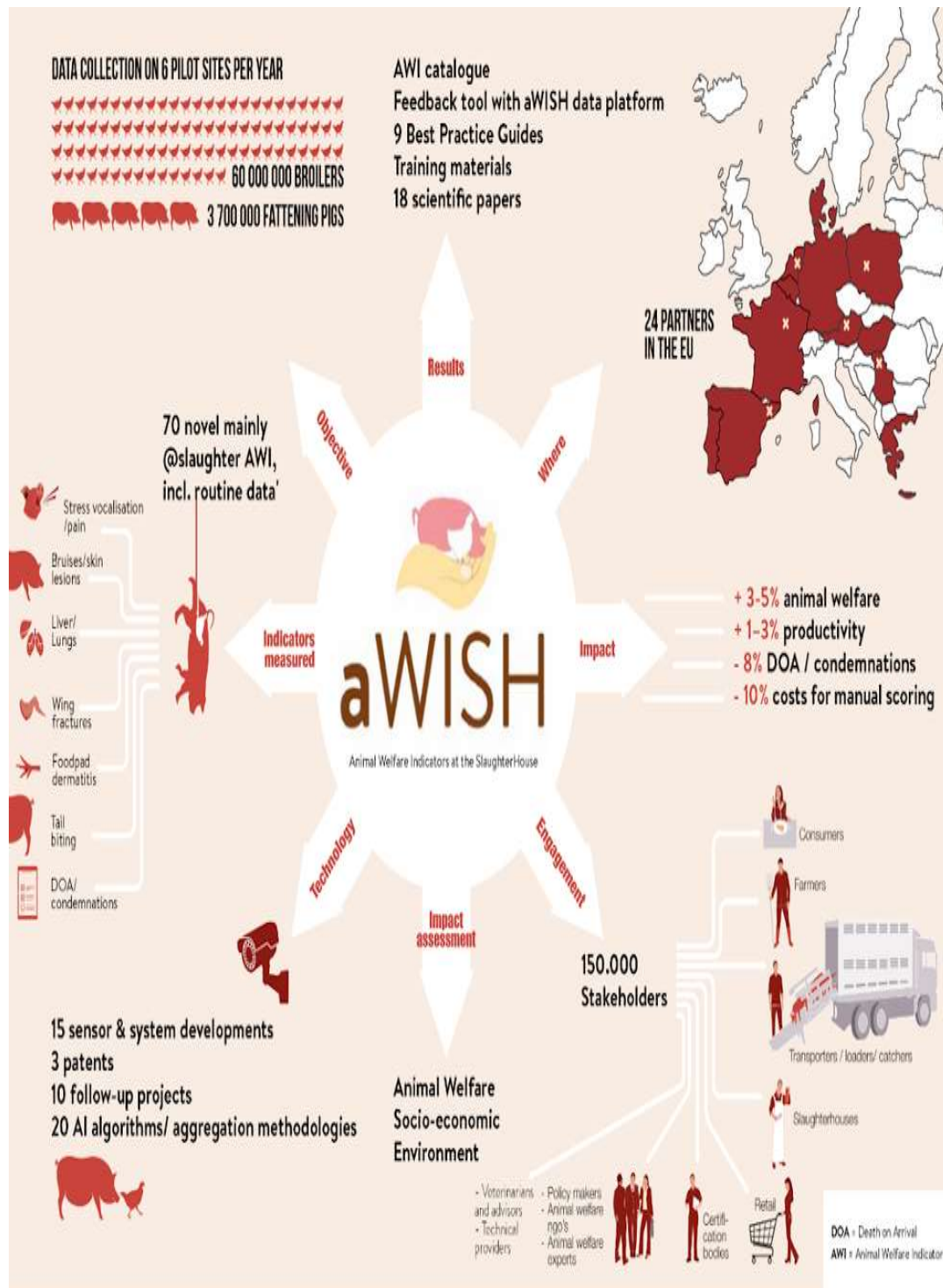


The Faculty of Veterinary Medicine of the UAB, Batallé Group and INNOVACC cluster, are part of the Consortium to carry out the aWISH project, dedicated to pork welfare, and participate in one of the 6 pilot groups of the initiative.

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At the heart of the aWISH project (Animal Welfare Indicators at the SlaughterHouse) is the large-scale, automated at-slaughter monitoring of animal-based welfare indicators for quantifying welfare status on-farm, during (un)loading, transport and slaughter. Novel sensors and accompanying artificial intelligence decision tools and algorithms will be developed and tested to measure these indicators, so data can be collected continuously and automatically. The aim is then to use this data to give feedback and advice on best practices to those responsible for the chicken and pigs throughout their lifetime (farmer, transporter, slaughterhouse). This approach will be developed and evaluated in close collaboration with all actors involved, from the livestock farmers up to policy makers and citizens.

The aWISH project is funded by the European Commission by Horizon Europe program and will run from 1st of November 2022, for 4 years in total. The project is led by ILVO (Flanders Research Institute for Agriculture, Fisheries and Food, Belgium) and has 24 partners from 13 European countries. At the core of the project are 6 regional chicken and pig production chains or pilots, spread across Europe (FR, PL, ES, NL, AT, RS), where the aWISH developments will be tested and validated.



The project focuses on broiler chickens and fattening pigs for several reasons. Both sectors are very important economic segments of the EU and world food production. However, they also deal with large numbers of animals, that require individual attention to optimize their welfare. Broiler chickens and pigs are the farm animals with the most concerns expressed by EU citizens. Also, on-farm animal welfare monitoring is difficult and time-consuming for these species. With our automated methods concentrated at a central location, which is the slaughterhouse, we can help overcome this challenge. By demonstrating and evaluating the overall concept for these two farm animal types we also believe a spread of knowledge and technologies to other types of meat-producing livestock can be expected, such as cattle,

turkeys, or ducks.

aWISH uses a lean multi-actor approach focusing on user acceptability and co-creation with the different stakeholders. The 6 pilots (see map) are led by multi-disciplinary teams and will develop and test novel animal welfare monitoring technologies, collect the necessary animal welfare data in their specific region and test the aWISH feedback tool. Besides this animal welfare assessment, also an environmental assessment will be conducted to detect synergies and minimize trade-offs between animal welfare improvement and environmental impacts.

Combinations of innovative animal welfare options with high ecologic efficiency and reduced resource consumption along the whole production chain will be explored. A catalogue of animal welfare indicators will be developed for any stakeholder to use, to assess the welfare of fattening pigs and broiler chickens. Also 9 best practices guides will help external actors to deploy the aWISH technologies and feedback tool and improve animal welfare across Europe.

The Spanish partners, all of them located in Catalonia, of this project are:

- Selección Batallé SA – BATALLÉ GROUP (pig and pork production)
- Universitat Autònoma de Barcelona UAB (university & research institute).
- INNOVACC Clúster català de la carn i la proteïna alternativa (Cluster association) with more than 120 members from the entire meat value chain and alternative protein (livestock, slaughterhouses, cutting rooms, meat processors, machinery manufacturers, logistics services, additive manufacturers, treatment and recovery of by-products, engineering, consulting, health laboratories and hygiene solutions...).

The Universitat Autònoma de Barcelona (UAB) is committed to innovation and to developing knowledge in the areas of Animal Science, Food Safety, and Food Technology. Participants from UAB have conducted research in various aspects related to animal welfare, among them (1) welfare problems during transport and at slaughter; (2) on farm welfare assessment; (3) social behaviour; (4) maternal behaviour and neonatal mortality, (5) pain assessment in farm animals.

The UAB will participate in several projects' tasks, some as a lead and others as a partner. These tasks consist of the systematic review of the existing scientific information, including validation results and accuracy of proposed technologies. The information obtained from the indicators measured will be put together to obtain a catalogue for pigs and broilers. The catalogue will include a list of welfare indicators, a description of the methodology and possible technologies to measure each indicator, and any additional information needed to be able to select and/or assess the catalogue.

The UAB will also support with the automated and routinely collected data for monitoring of pig/broiler welfare at the pilot sites and their supply chains will be analysed in order to investigate and illustrate their potential for improving animal welfare at the various stages of production (on-farm, transport, slaughter) and at farm level. Also, will participate in the expert panel will have the function to retrieve and share feedback on technology, processes, farming practices, industry, sector regulation and markets, or society and perceptions.

BATALLÉ will lead the pig Pilot in Spain with UAB as scientific co-leader. Needed technologies of high TRL level (≥ 7) will be installed in Batallé slaughterhouse for data

collection. Novel technologies (TRL 2-5) will be developed and then tested and piloted on-site: camera systems for skin lesions, swollen knees/bursitis and loin bruises, audio system for directional stress vocalization detection, activity sensor for stress and a long-term stress level, camera monitoring system for tear staining or an automated lung and liver monitoring system.

INNOVACC is responsible for coordinating the work package dedicated to Communication, Dissemination and Exploitation, which aims to promote interaction with all stakeholders (from farm to fork) to ensure the sharing and transfer of knowledge through clear communication and dissemination, and subsequent exploitation of the project results at a European level.

Societal concern over the welfare of animals has increased the last years in a growing number of citizens in many countries. Parallel to this European research project, aWISH, the Spanish Government has recently approved a new law that guarantees compliance with legislation on animal welfare with the mandatory implementation of video surveillance systems in Spanish slaughterhouses.

The objectives of the project are in agreement with the real societal concerns for the welfare of animals that more and more citizens in many European countries manifest.

Xavier Manteca, Pol Llonch

Department of Animal and Food Science

Universitat Autònoma de Barcelona

xavier.manteca@uab.cat, pol.llonch@uab.cat

References



Funded by the
European Union

Funded by the European Union (grant agreement n°101060818). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the granting authority. Neither the European Union nor the granting authority can be held responsible for them.



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