



Re-Livestock
RESILIENT FARMING SYSTEMS

4th EAAP Regional Meeting – Mediterranean Region

20-22 May 2026, Sassari, Italy

Re-Livestock Abstracts

COMPUTER VISION-BASED MONITORING OF PIG BEHAVIOUR IN MEDITERRANEAN FARMS DURING HOT PERIODS.....2

N. HLEL¹, D. ALEXANDER MENDEZ¹, X. DÍAZ DE OTÁLORA¹, F. ESTELLÉS¹, S. CALVET¹, D. LIU², T. NORTON²



**Funded by
the European Union**

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





Re-Livestock
RESILIENT FARMING SYSTEMS

Computer vision–based monitoring of pig behaviour in Mediterranean farms during hot periods

N. Hlel¹, D. Alexander Mendez¹, X. Díaz De Otálora¹, F. Estellés¹, S. Calvet¹, D. Liu², T. Norton²

¹Institute of Animal Science and Technology (ICTA), Universitat Politècnica de València, Camí de Vera, 46022 Valencia, Spain

²Department of Biosystems, Division M3-BIORES: Measure, Model & Manage Bioresponses, Catholic University of Leuven, Kasteelpark Arenberg 30, Heverlee, 3001 Leuven, Belgium

Abstract

Heat Stress is a major challenge in Mediterranean pig production, and animal behaviour is a crucial indicator of thermal discomfort. The use of precision Livestock Farming (PLF) offers new opportunities for continuous monitoring and early decision-making. This work evaluated the effects of warm temperatures and heat mitigation strategies on pig behaviour, using behavioural data from the M3PIG Pipeline (<https://gitlab.kuleuven.be/m3-biores/public/m3pig>). The study was conducted on an experimental farm under commercial conditions, where eight cameras were installed in top-view in eight pens, each with eight pigs. Pens differed in flooring design: four had fully slatted floors, while four had partially solid floors equipped with air-stirring fans. Animals were continuously monitored for one month. Video data were analysed at one frame per second using the M3PIG pipeline, with the main outputs being animal postures (lying, standing and sitting) and resource use (feeding and drinking), which are recognised behavioural indicators of heat stress and comfort in pigs. Behavioural indicators were derived at the group level, aggregated into 5-minute bins, and averaged daily using Python 3.12. Preliminary results showed that pigs spent most of their time lying (83.1%), followed by standing (15.2%) and sitting (1.7%), reflecting a shift toward increased lying under heat stress. Daily feeding and drinking activities averaged 44 and 25 minutes per pig, respectively. Results also indicated that pigs showed increased use of the solid floor area, with a positive correlation with the Temperature Humidity Index ($r = 0.32$), indicating a preference for cooler resting areas that facilitate heat dissipation and help maintain thermal comfort and welfare. These findings demonstrate that camera-based PLF enables robust, continuous monitoring of pig behaviour under summer conditions, providing valuable information to support management decisions aimed at improving animal welfare.



**Funded by
the European Union**

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

