

Short Report: Short Term Scientific Mission ‘GroupHouseNet’ 2016

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Project Title: Precision Livestock Farming as a tool to monitor ear and flank biting behaviours

In intensive production systems pigs that are unable to cope with their environment and to perform their natural behavioural repertoire may develop abnormal behaviours such as tail, ear and flank biting which result in lesions on the body. Despite the fact that there are multiple known risk factors related to the occurrence of these behaviours, the specific aetiology behind these damaging behaviours is poorly understood. Specifically, little is known about ear and flank biting. The necessity to explore these behaviours is fundamental in order to find new strategies to deal with these welfare problems. The field of Precision Livestock Farming (PLF) is becoming an important approach to enable farmers to optimise livestock production through the use of ICT and automation technologies. Implementing the PLF approach to monitor damaging behaviours may shed a light on this important multifactorial issue.

During my STSM internship, I visited the M3-BIORES department of KU Leuven (Belgium) where the main focus of research is to integrate the dynamic responses of living organisms in the monitoring and control of biological processes. Specifically, they are one of the worldwide leaders in the field of PLF, a powerful tool which allows researchers and farmers to monitor and manage in real-time livestock herds with the support of modern technologies.

As a visiting student, I had the chance to acquire knowledge on PLF through the E-course in PLF developed by the host institution. Moreover, I was trained in labelling procedures and in the use of associated software (i.e. ‘Labelling Tool’ and ELAN software). This training was fundamental in order to carry out the video

analysis and to identify those behaviours related to ear biting behaviour. Such preliminary exploration allowed me to set up the main hypothesis of this project which was that there are specific behavioural patterns associated with ear biting events (i.e. before, during and after). The identification of such behaviours will help to find reliable indicators for the development of automatic monitoring systems to detect ear biting events. Three ethograms related to the two subjects involved in the ear biting event, the biter and the bitten pig, were produced.

The work undertaken at the M3-BIORES led to 2 abstracts submitted to the 68th EAAP conference and a literature review related to ear and flank biting and PLF technologies used to monitor behaviour in pigs which we expect to publish.

The valuable work started thanks to the STSM gave me the opportunity to enrich my skills in a different research area, which will enable me to apply a multidisciplinary approach to deal with damaging behaviours in pigs. Furthermore, it was an optimal occasion to develop new networks with researchers and PhD students. I will continue this collaboration to further progress the work on ear biting and PLF technologies and I believe that the collaboration started between Teagasc and the M3-BIORES (KU Leuven) will also be maintained after this STSM.

Kind regards,
Alessia Diana