Conference title: 7TH EUROPEAN CONFERENCE ON PRECISION LIVESTOCK FARMING (EC-PLF)

Conference link: http://users.unimi.it/ecplf2015/

Prize: Best Paper Award

Paper title: Classification of nest-building behaviour in sows on the basis of accelerometer data.

Paper content:

The awarded paper presented the results of the first part of the PIGWATCH project. The objective of the project is to develop Precision Livestock Farming (PLF) techniques for automated, sensor based monitoring of pigs behaviour. The paper described a method for detection of nest-building behaviour in sows on the basis of accelerometer data.

In natural conditions female pigs build nests in order to protect piglets against heat loss, unfavourable weather conditions, predators, trampling by other adult pigs and to facilitate mutual bonding with the offspring. Conditions of modern, intensive pig production prevent much of the nest-building behaviour. Limited possibilities of building a nest in sows lead to increased plasma cortisol levels, oral and nasal stereotypies such as bar biting. In the crates, animals may grind their teeth, bite and root at the rails and change position frequently between standing and lying. Unsatisfied behavioural needs and idle activities can cause injuries and apparent exhaustion in the sow. Allowing the sow to perform nest-building, or at least some elements of it, leads to better health and welfare of both the sow and the piglets. Therefore, the possibility to perform nest-building behaviour should be offered to all sows in modern management systems.

The developed technique allowed to detect nest-building in an automated way with high accuracy and to predict the start of farrowing by several hours. The technique could be used as part of PLF automatic monitoring system. Application of the system on farms could give the possibility to keep sows non-crated until farrowing. Thus, sows only have to be crated in the first days of piglets' life when they are the most vulnerable to crushing by the sow. This would improve both sow welfare and piglet survival rate without the need for extra time for animal observation.