

STSM REPORT

BASIC DATA

Period: 2018-02-01 to 2018-02-28

COST Action: GroupHouseNet-CA15134

STSM type: Regular (from Serbia to the Netherlands)

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STSM Topic: Automatic tracking – linking phenotype to technology, exploratory analysis.

Host: T. Bas Rodenburg, Associate Professor. Wageningen University & Research (NL), bas.rodenburg@wur.nl

PURPOSE OF THE STSM

Serbia is a small country with a developing potential, where behavioral problems of poultry isn't enough investigated. Current Law on animal welfare (Official journal RS 41/09) doesn't stipulate explicit ban on housing of layers in battery cages. In the Law it is stipulated that animal owner, i.e. keeper is responsible for provision of adequate and safe housing of the animal, including micro-climatic conditions, hygiene, sufficient space, freedom to move, food and water adequate to species, breed, sex, age, physical, biological, production requirements and behavioral requirements of the animal.

Chronic social stress in chickens reared in high-density environments, such as a battery cage system, may be a major problem in the modern poultry industry, because social stress has a large impact on the chickens' welfare and performance. Inability of chickens to adapt to their social environment results in a greater susceptibility to disease and increases the frequency of hostile behaviors, such as cannibalism, aggression, and feather pecking.

Investigations show that aggression and feather pecking or plucking are the two most common behavioral problems in chickens. Both conditions may be related with and have similar basic components, such as stress, overcrowding and competition over food and water. In order to avoid aggressions, such as cannibalism and feather pecking, it is necessary to provide enrichment and change the social structure in conventional cages.

It is well known that concern for animal welfare varies across Europe, being generally stronger in the north and weaker in the south. Transition to alternative housing systems, results in considerable increase of production costs, which subsequently seriously endangers the profitability of production and competitiveness of eggs produced in this way. Consumers in developed countries are willing to pay a higher price for such eggs, which provides the economical justification for the production.

In Serbia, there is still no significant market production of table eggs in non-cage systems. This is consequence primarily of the absence of regulations which would require the producers to change the housing conditions and system. However, according to the most recent regulations from 2014 in Serbia, laying hens can be reared in not enriched battery cages until December 31th 2020.

Aim of this STSM was to get introduced with automatic tracking software in order to be able to track and analyze behavioral problems in poultry welfare.

DESCRIPTION OF THE WORK CARRIED OUT DURING THE STSM AND INTRODUCING WITH PHENOLAB SOFTWARE

During the short term scientific mission, I visited Dr. Bas Rodenburg at the Behavioural Ecology Group of Wageningen University, who, together with his team, is currently investigating behavioral, physiological and immunological differences between two genetic lines of laying hens selected divergently for feather pecking behavior. I had the opportunity to work with a unique system for automatic recording of behavior called the PhenoLab.

The change to non-cage systems is positive for laying hen welfare, as hens have more space and can perform more natural behaviors. However, the large flock size in non-cage systems poses a risk for outbreaks of feather pecking, cannibalism and mortality increase. In large groups of hens it may be difficult to identify individuals that perform aggressive behaviors by traditional behavioral observations. Recent developments in sensor technology offer new possibilities for automatic tracking of behavior of individuals. One such tracking system is the PhenoLab, consisting of TrackLab, EthoVision and Observer.

Using TrackLab and video-tracking EthoVision differences between three lines divergently selected on feather pecking (unselected control, high and low feather pecking lines) were explored, as well as between phenotypes within lines (feather peckers, neutrals and victims). Tests show that for distance moved TrackLab system provides data that are 96% similar to data collected with automatic video tracking using Etho Vision. Analyses conducted with this system confirm previously found line differences in activity and use of space between the HFP, LFP and control line. Also, using the TrackLab system it is possible to analyze differences between individuals within the same group. This revealed that, similar to the line differences, birds characterized as feather peckers were more active.

FARM VISITS

During my stay I visited a Kipster farm, one of the most modern laying hen farms in the Netherlands. The farm is located on the Wusterveld in the town of Venray. Capacity of the farm is 24000 hens and thanks to the modular structure it is possible to expend a capacity up to 96000 hens. The farm is designed on the basis of the chicken's instincts and needs. Chickens are surrounded with courtyard with fresh air, daylight, trees and shrubs. The

welfare is fully respected at this farm. The hybrid that is present on the farm is Dekalb White. The second layer farm I visited is Roundel farm. I also had a chance to visit broiler breeder experiment, where PhD student compare nest use of the different nest designs.

OTHER ACTIVITIES

I have participated at the WIAS Science Day, one-day symposium organized by PhD-candidates of Wageningen Institute of Animal Sciences (WIAS). The theme of the WIAS Science Day was “WIASS: Work on your Impact in Animal Sciences and Society”. The WIAS Science Day conducted of oral and poster presentations.

CONCLUSION

Overall, the experience was worthwhile. It was an opportunity for me to enrich my knowledge in poultry production area and was an ideal occasion to increase my network with researchers and PhD students. It was motivating working in a new environment discovering new viewpoints and ideas and this STSM will be of high value for a further research career. After returning to my home institution with the newly acquired knowledge, we hope to expand the collaboration between the Scientific Veterinary Institute Novi Sad and the Wageningen University & Research in the near future, in the field of animal welfare.

FORESEEN PUBLICATIONS ARTICLES RESULTING FROM THE STSM

The results of this STSM will be published as a paper in a peer-reviewed journal.

PICTURES FROM KIPSTER FARM:



