Short–Term Scientific Mission (STSM) Report

Cost Action CA15134

‹‹Synergy for preventing damaging behaviour in group housed pigs and chicken (GroupHouseNet)››

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Host institution: Department of Production Animal Clinical Sciences, Norwegian University of Life sciences (NMBU)

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STSM title: Broaden knowledge on immunology and modern breeding and management practices in the laying hen industry

STSM dates: 12/02/2018 - 25/02/2018

PURPOSE:

The purpose of this STSM is for the applicant to expand its knowledge on basic immunology and laboratory analysis and acquire experience in the field of production using non-beak trimming laying hens.

DESCRIPTION:

For this purpose, visits to two different laying hen farms were organized. The first one kept laying hens in furnished cages and the second one was an organic farm (pic.3).

Farm visits

Firstly, two day visits were organized to Moer Farm, one of the largest laying hen farms in Norway with 25.000 non beak trimmed hens reared in furnished cages. During the visits, a long discussion was made with the farmer about a number of nutritional, management and biosecurity strategies as an alternative to beak trimming and if this production system is feasible. Feather pecking can be a major welfare problem and when it is not done correctly birds can suffer from stress, acute or chronic pain and reduced ability to eat/drink. It is not only painful for the birds, but is associated with increased mortality. Implementation of a range of preventive practices is necessary. According to the farmer, often and thorough inspections in the house are a crucial key factor. Spending sufficient time with the hens to recognize normal and abnormal behaviour can prevent incidences of FP at the very beginning. As the farmer said: ‹‹ you must watch, hear and smell during the inspection››. Light controls are also important to minimize problems. Successful design of lighting control is to adjust the light, when needed, to calm the birds and construct the house in a way that

prevents the outside light in, especially during summer where there is light for many hours. Besides that, the farmer and his assistant are entering the house with a dim blue light during the night not to disturb the birds.

Moreover, biosecurity measures play a major role maintaining a pathogen free environment for the hens by controlling the persons that have access in the farm and apply strict regulations for the visitor's entrance (pic.1). In this farm, the manure underneath the caged was dried out so it was easier to handle and the levels of pollutants, such as ammonia, were kept low so there were no additional irritating factors.

Nutritional enrichment is another way to keep the hens 'busy'. In order to inhibit FP and cannibalism, they were experimenting with a new composition of the feed. The pellets were smashed and the different ingredients were exposed. Thus the birds were stimulate to practice pecking and in combination with frequent meals, made the time birds spend eating much more.

Secondly, an organic farm near Honefoss was visited, that had started to operate recently. The farm reared 7.300 hens that were 58 weeks of age. This aviary system is more focused on the welfare of the birds and offers several advantages over battery cages, as the birds are free to move inside the house which includes a floor litter area to promote foraging and fulfill their behavioral need to dust bathe. They also have access outside during the summer months allowing the birds to explore their surroundings. To encourage birds into the range, it needs to be enriched, that's why the area this farm used had big trees that worked as a shelter so that the birds can feel secure against predators. As the farmer mentioned, the hens prefer to spend their day outside and then the stocking density within the house is reduced. The influence of stocking density on feather pecking and aggressive behavior is also important. The regulations in organic farms limit stocking density up to 6 birds per square meter which reduces the prevalence of the incidences. In addition to this, the environment inside the house was enriched with pecking stones which is a natural way of providing a picking activity and supports natural behaviour.

The biosecurity measures were, in this farm, again a matter of great importance. To enter the farm we had to wear disposable clothes and shoes and in case of entering the chickens house were a new pair of disposable shoes and disinfect the hands.

Overall, we can conclude that signs of feather pecking were in both farms below the alert threshold, although the beaks were not trimmed. Although, there were some incidences that were more obvious in the furnished cages, perhaps due to the bars, it was not an alarming sign (pic.2). This is hopeful for the future of this practice and as Norway has almost never performed this practice can lead the way and contribute to animal welfare, as the experiences there indicate that laying hens can be successfully managed in furnished cages or in aviary systems without having their beak trimmed.

Nevertheless, there are several factors that we should be overcomed for effective implementation of this practice to the rest of the countries. First of all, the economic

condition of a country permits or prevents the farmers to deal more with the needs of the birds and have the improvement of the animal's welfare as a top priority.

Moreover, the selection of the hen genotype is crucial. In Norway the Lohman white hens is mostly reared whereas in Greece it's more dominant the Lohman brown . This is something to take under consideration as feather pecking is more common in certain layer breeds than in others.

Laboratory analysis

At the laboratory of the Department of Production Animal Clinical Sciences of the NMBU a lab training exercise was organised to become familiar with the use of Luminex Bead Array system (Luminex 200) for quantification of cytokines in pig serum. Luminex xMAP technology allows for the simultaneous analysis of multiple analytes in samples- including cytokines or total proteins. The work was done alongside with a PhD student that has starting her research in the field of health-behaviour interactions with pigs. (pic.4)

Other activities

During the STSM, I had the opportunity to take part at the animal welfare research group meetings about current research activity and upcoming projects and meet researchers from the field of animal welfare, exchanging ideas.
Furthermore, during the Journal club between the PhD student and her supervisor matters of statistical analysis were discussed that is essential knowledge to every researcher.

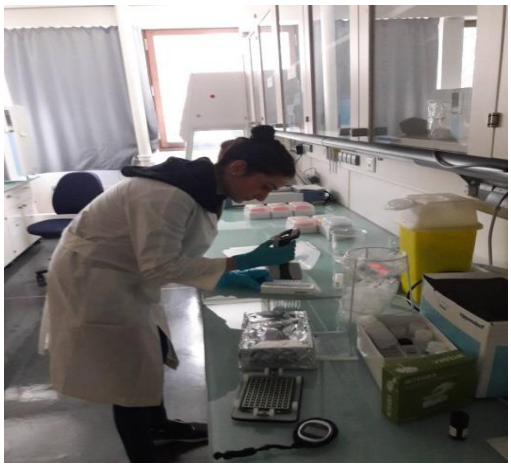
CONCLUSION:

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 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 Veterinary Research Institute of Thessaloniki and the Norwegian University of Life Sciences (NBMU) in the near future, in the field of animal welfare.

Pic.1 Cleaning and disinfection system before entering the poultry house.


Pic2. Feather pecking.

Pic.3 Furnished cage farm and organic farm.



Pic.4 Laboratory work.