SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA15134

STSM title: To determine a scientifically validated scoring protocol for assessment of plumage damage in laying hens

STSM start and end date: 13/12/2018 to 28/12/2018

Grantee name: Tahir Shah

PURPOSE OF THE STSM:

Feather pecking consists of one bird pecking at or pulling out parts of the plumage of another bird. Two types of feather pecking is distinguished (Keeling, 1994): i) gentle feather pecking; feathers are neither being pulled out nor do the recipient bird show a reaction to the peck and ii) severe feather pecking; feathers are sometimes pulled out and/or the recipient bird of the pecks react to the peck by abruptly moving away. Severe feather pecking is considered to be painful to the bird receiving the pecks (Gentle and Hunter, 1990). In addition, it may lead to cannibalism because the plucking of feathers can result in gustatory feedbacks (feathers, skin, and blood) that encourages more pecking and tearing, possibly of the skin (Schaible et al., 1947; Savory and Mann, 1997). For this reason, damage to the plumage of laying hens is very often used as a welfare indicator of injurious pecking.

Two overall methods are used for assessing plumage damage; 1) methods where the assessed hens are being handled and 2) methods where the hens' plumage is assessed as a whole from a distance to avoid handling the hens. The latter so-called non-intrusive method for assessing the plumage is therefore practical and easy to carry out (Keppler et al., 2005). However, the risk of obtaining an inaccurate measure of the level of plumage damage must be considered higher than when using

methods where the assessed hens are being handled. Furthremore, there are a number of scoring methods available, which involve assessing a variable number of body parts and a variable number of assessment scales. The more detailed the method is, the higher the possibility of obtaining a more accurate measure. This method maybe the most valid, however, if the method becomes too complicated, the method may not be as repeatable across a number of scorers, and the assessment may take more time.

The aim of this STSM was to learn to use the 5 major welfare scoring protocols for assessment of plumage damage in laying hens under the supervision of Dr. Anja Brinch Riber at the Department of Animal Science, Aarhus University. Two non-intrusive methods and three methods requiring handling of the birds were used to assess plumage damage.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

The work I carried out comprised of learning five different scoring protocols for assessment of plumage damage caused by feather pecking in laying hens. The techniques that I learned during this STSM were the different methods used in the study.

The methods used in the study distinguish themselves by the level of detail and/or by involving handling of the assessed individuals:

- The Organic method: Assessment from a distance. The body is assessed as a whole on a 3-point scale (The Danish Agricultural Agency).
- The Welfare Quality method: Assessment from a distance. Three body parts are assessed on a 3-point scale (Welfare Quality, 2009).
- The Bright method: Assessment from a distance. Five body parts are assessed on a 5-point scale (Bright et al., 2006).
- The Tauson method: Catching and handling of individuals. Five body parts are assessed on a 4-point scale (Tauson et al., 2005).

- The Bilcik method: Catching and handling of individuals. Eleven body parts are assessed on a 6-point scale (Bilcik & Keeling, 1999).

Once I had learnt the scoring methods and the five scorers had completed the project assessment, I was responsible for entering all the project data into excel sheets. I then learnt how to analyse qualitative data and presented the rough idea of inter observer difference in tabular and graphical form to the research group. This also aided further detailed statistical analysis.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

In this project I learned how to assess plumage damage due to feather pecking in laying hens using 5 different scoring protocols (Organic method, Welfare Quality method, Bright method, Tauson method and the Bilcik method). These are fundamental skills necessary for my upcoming experimental PhD research projects, such as an investigation into the prenatal effects of light and heat on the development of damaging behaviour in birds. Furthermore, before I undertook this STSM, I carried out an experiment looking at the impact of different levels of fibre in laying hens. Now I plan to extend this project and will be able to use the feather scoring methods I learnt as a key welfare indicator. Learning how to feather score and gain experience of the pros and cons of each scoring method will help me decide which feather scoring methods are most appropriate for use in my own up and coming experiments. Furthermore, in Turkey there is no on farm feather scoring method for producers or industry to use to assess and take action to reduce injurious pecking. Now I have become fluent in the various feather scoring methods, I plan to train my research team and facilitate the putting together of a practical feather scoring guide for farmers and industry to use on farm, in order to raise awareness of injurious pecking within the industry and work to facilitate on farm scoring of injurious pecking. This could in time work as a tool for farmers and vets to discuss and apply interventions to reduce injurious pecking. Therefore, carrying out this STSM and continuing with my proposed PhD work will contribute to the wider work impact of the GroupHouseNet Cost Action project.

FUTURE COLLABORATIONS (if applicable)

This was a very useful STSM for me for a number of reasons. This placement created the opportunity to observe how similar research is being carried out in a different institute and I gained valuable experience working within a different research team. This STSM enabled me to work with

and learn from other like minded researchers, expanding my professional network and has empowered me to pursue continued collaboration between our two institutions. I look forward to keeping in touch and pursuing research collaborations in future which can maximize our resources, and enhance our application and impact in this field.

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