

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

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

Action number: CA15224

STSM title: Knowledge exchange Swedish best practices in laying hen welfare

STSM start and end date: 26/08/2019 to 31/08/2019

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PURPOSE OF THE STSM:

Current research shows that keel bone fractures affect 30 to 90% of laying hen populations, being one of the most prevalent welfare problems faced by the industry. Furthermore, current commercial breeding program strategies have led to increased bone fragility and susceptibility to fractures due to the high calcium requirement for eggshells formation.

Being able to properly identify, monitor and, most of all, develop strategies that help with prevention of keel bone damage (KBD), is of extreme importance. Therefore, the aim of this scientific mission was to expand existing knowledge on KBD by studying long-standing practices formed by the Swedish industry. Routine farm visits and welfare audits helped determine the feasibility of these programs for Dutch farmers. This helped in paving a new path for Dutch breeding and commercial farms as they start to transition from traditional to alternative housing systems for their laying hens.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

A number of farm visits were carried out with different purposes, such as visits alongside a local veterinarian performing Animal Welfare Audits and technical support visits for commercial laying farms and also rearing farms. A total of 6 commercial laying farms and 1 rearing farm, all with multiple flocks of different ages and different production types (Conventional, cage-free, organic, free-range, etc.), were visited. All the visits started with a discussion with the farmer and/or person responsible for daily care of the flocks, where information about the flocks were collected (Eg.: Production and mortality parameters, unusual activities within the flock (if any), management practices, etc.).

Following the initial discussion, we proceeded to walk inside the barns, accompanied by the farmer or responsible person, where different elements were observed: behavior of animals (i.e., stress levels when entering and walking along the barns, birds' habitability and willingness of moving through all parts of the housing system, response to activities being performed inside the barns, etc), feathering of birds, clinical signs of diseases that could impact the welfare and stress levels of flock, type and condition of housing system.

While walking through the barns, multiple birds were randomly selected for palpation and assessment of keel bone fractures and/or deviations and overall appearance. Farmers were then taught how to perform palpation of hens and identify possible fractures. As most commercial farms in Sweden have cage-free systems, it is important to carefully observe the behavior of birds inside the barns: usage of perches, platforms, movement of the laying hens within different levels of the aviary system. It was also emphasized that such practices should be performed routinely by the farmers or care-person. It is known that fractures appear in both cage and non-cage housing systems, therefore, advice on how to create a safer

environment for the hens varied according to the housing type in each farm. However, in all cases emphasis was given on the importance of avoiding increased stress levels among birds, attending nutritional requirements of birds by following a nutritional expert advice to prevent bone weakness and incidence of diseases, and appropriate lighting schemes.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

Reserchers all over the world are continuously investigating the possible causes and ways to prevent keel bone damage. Although much remains unclear on the subject, it is of extreme importance that different fields in the industry, i.e. breeding, nutrition, husbandry, etc, remain closely linked so that knowledge exchange is possible. Being exposed to the commercial poultry sector in Sweden has showed that, despite the housing system adopted by the farmer, a crucial step to be followed for maintaining a healthy flock, is that best feed and management practices must be followed from start of rearing to the end of a laying cycle. Being able to identify early signs of a problem and immediately act on it can not only prevent the farmer from undergoing additional financial costs with his farm but, most importantly, ensuring that birds remain healthy, stress-free and productive.

The incidence of KBD varied in each farm and, with that, it became clear the impact of different factors such as:

- Nutrition (E.g.: providing extra sources of calcium helps with bone health)
- Birds response to atypical events – Escape reaction - (E.g.: Employer entering the barns for daily activities);
- Housing systems design (Cages vs aviary systems; presence of perches and ramps; distance between different rows);
- Materials used in housing systems (Metal vs wood or rubber);
- Lighting intensity (Birds need enough light to perform a safe jump and land);
- Lighting transition (Gradual transition vs sudden changes);
- Predisposition of different genetic strains to fractures and keel bone damage;

By comparing all the factor above mentioned and incidence of KBD in each farm, it became clear that incidence of keel bone damage can be greatly reduced and, in some cases, even avoided. This was greatly reflected on the overall performance of the flock – hens with compromised welfare showed substantial drop in production or produced eggs of lower quality, whilst healthy hens produced more first quality eggs for longer.

Frequent visits of nutritionists, geneticists or technical support is routine in the Swedish laying industry. With that, proper advice, tailored to each specific flock, is provided to farmers to reduce or prevent problems that would lead to unhealthy birds and high incidence of KBD.

FUTURE COLLABORATIONS (if applicable)

This STSM has created the possibility for a future exchange taking place in the Netherlands, where a poultry specialist from Sweden will have the opportunity to learn about the Dutch industry, understand the challenges faced by farmers that are now transitioning from cage-systems to alternative systems, and also learn more about our Breeding Program and current approach to minimize KBD.