

## SHORT TERM SCIENTIFIC MISSION (STSM) – SCIENTIFIC REPORT

**Action number:** CA15224

**STSM title:** The statistical analysis of data on emotional responses in birds with and without keel bone damage

**STSM start and end date:** 28/02/2018 to 30/03/2018

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### **PURPOSE FOR THE STSM**

The level of emotional reactivity can influence the perception of emotional valence in farm animals. There are indicators that fearful birds are more likely to develop keel bone damages (KBD). In our project, we are investigating this possibility. Different methods for assessing emotional reactivity and fearfulness in laying hens were used at the Biotechnological Faculty of University in Ljubljana, Slovenia. This idea continued its development through this STSM at Agricultural Institute in Stara Zagora, Bulgaria. We want to provide evidence for the existence of a specific discrimination of different emotional reactivity (levels of fearfulness) with the same valence trying to elucidate the emotional part of the keel bone damage problem in different fear groups (High, Intermediate or Low) established in hens. So the purpose was to finalize the statistical analysis and to work on the article about this topic. By the present STSM, we wanted to work on tests which should be carried out on Slovenian Styrian laying hens. Also, we intended to finalize abstract titled: Being fearful or calm individual predisposes the different development of keel bone in laying hens, for XV European Poultry Conference. Latter will be carried out in Dubrovnik, Croatia from 17th September to 21st September in 2018.

### **DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS**

At present, the effect of underlying mechanisms of affective states in laying hens, particularly their positive and negative attributes on keel bone damage predispositions and developments are far from clear, so we focused on different standard methods specifically designed to assess fear, frustration, pleasure, social and exploration-related behaviours to assess personality and underlying temperament in laying hens. Regarding the Open field test, the results were statistically processed and analysed, and some of them were presented in an abstract. The abstract was sent to the XV European Poultry Conference, Dubrovnik, Croatia from 17th September to 21st September in 2018. Special attention was paid to the development of tests assessing: i) different specificity of fear reactions by means of Aerial Predator test (APT); ii) conflict between food and social companion motivation through the Social test (ST) and iii) orientation to food in isolation circumstances by formation of Food Pavlovian Conditioned reflex (Food tests) – Orientation, Formation of a conditioned reflex, Change of feeder, Reverse change of feeder, Food deprivation test. The most important traits of the temperament for instance strength, balance and mobility were considered. The APT, ST and Food tests will be carried out in the same hens in Ljubljana University between April and June 2018.

### **DESCRIPTION OF THE MAIN RESULTS OBTAINED**

The first draft of the article was written. The title is yet unknown but for now, it reads as follows: Affective status in terms of the emotional part of the keel bone damage problem in laying hens. We wrote and finalized design and parameters for Food, Social and Aerial predator tests. Also, other subchapters were written such as a description of animals and

housing, the method we use for detecting keel bone damage, description of an experimental platform and its sketch was done in drawing software. For the first test which was carried out in Slovenia, the results were written and latter used in the article and in the abstract for Poultry Conference in Dubrovnik.

For the article, we wrote and finalized the chapter materials and methods. We have written the behaviour tests which were carried out in Slovenian laying hens, immediately after the end of STSM. We followed standardizing methods, so the materials and methods for Social and Food tests as well as Aerial predator test were done. Also, the introduction and results of the first test were written. We also prepared and send the abstract for the XV European Poultry Conference. There we would present how different keel bone damage is associated with different fear groups established in hens.