

Short–Term Scientific Mission (STSM) Report
Cost Action CA15134
„Synergy for preventing damaging behaviour in group housed pigs and chicken
(GroupHouseNet)”

Applicant’s Name: Zsolt BECSKEI

Title of the short STSM: Incidence of FP and TB and economic impact in Greece

STSM reference number: 38522

Period of the mission: 12.09-06.10.2017.

Host Institution: Veterinary Research Institute, Hellenic Agricultural Organization Dimiter,TK 57001 Thermi, Thessaloniki, Greece

Supervisor of the STSM: Dr Evangelia Sossidou, MC member of the CA 15134, Veterinarian-Senior Research Scientist

Purpose of the STSM:

For the applicant to be trained and acquire new knowledge and skills on modern animal breeding techniques, measuring the behaviour of swine and more specifically, on the assessment of tail biting in pigs;

For the institutions involved, to make a network of researchers in the field of animal breeding and welfare. Find out a new topics for further collaboration.

The main objectives of STSM was (a) to set up a new trial for monitoring the pig behaviour of Topigs hybrids under different microclimate conditions, with a main focus on tail biting; (b) analysis and interpretation of the slaughterhouse data derived from the assessment protocol set up by the candidate to evaluate the prevalence of tail biting and other skin lesions; (c)

writing of at least one scientific publication to be presented in some of the upcoming international conferences on animal welfare.

Description of the work carried out during the STSM

The first meeting with the researchers of the Veterinary Research Institute of the Hellenic Agricultural Organisation – DEMETER was introductory. At the briefing with the supervisor, the main goals of the further work (STSM) were discussed. More specifically, the two main goals of the mission were specified: a) install the videorecording and microclimate measuring system on the pig farm, in aim to assess the pigs behaviour under two different conditions, related to tail biting, and b) create and adapt an assessment checklist for scoring pigs welfare based on tail and skin lesions at the slaughterhouse and try to find a way to calculate the losses in pig production, regarding tail biting.

The goals were performed in four phases:

- a) collecting and reading the available publications and material dealing with pig welfare, more specifically assessment of tail biting and skin lesions on farm and in sloughterhouses,
- b) design and optimisation of an applicable protocol for assesment pig welfare (focus on tail biting) on farm and in the slaughterhouse,
- c) visiting the farm with two different types of finisher unit. Set up the videorecording system 24/7 simultaneously for both types of pens in the finisher unit. Also, installation of the system for continous monitoring (every 5 minute) of the microclimate in both pens,
- d) visiting the sloughterhouse and apply the protocol on slaughter pigs with the necessary optimisation of it, with special attention on the occurance and prevalence of the tail bites
- e) data analysis.

Based on specificities of the slaughtering and processing routines of the slaughterhouse, the animal welfare assessment protocol for slaughterhouse use was designed. As there is no documented data yet on occurance of tail biting in pigs in Greece, a detailed assesment protocol was designed for both the on-farm and the slaughterhouse visitation too. The protocols included a vider approach to get insight into pig welfare in the intensive pig

production, what is the most common type of production in Greece. Both of the protocols were designed as checklists based on the scoring of tested parameters.

Assesment of tail biting and welfare of the pigs in the slaughterhouse:

The assesment of pig welfare and occurrence of tail biting was done in Stravogianni AFOI AE slaughterhouse in Katerini, Greece. A total of 25 pig delivery was taking in accaunt with a total of 461 finisher pigs which were assessed. The age of the pigs was 5,5-6,5 months with average slaughter weight around 115 kg. The assesment was done by using a protocol designed, based on scoring system: lesions of the skin of tail, ears, skin of front, middle and hindquarters and legs were scored in accordance with the mentioned protocol. The assessment was done on the slaughtering line, after exsanguination of the pigs and before the skin removal.

Monitoring of finishers under different microclimate condition:

Two groups of pigs just moved from the grover part of the unit to finishers, each consist of 20 animals which were housed under different housing conditions. Each group was consisted of randomly selected 10 males and 10 females, same breed, age and origin. Both of the pens were the same size with half ot the total floor surface slatted. Pigs were feed with the same feed and watered with the same nipple system *ad libidum*. First group was housed in a darker pen, in the object which has small windows and closed doors, without accurate airflow. The other pen is in the bright object with double sized windows, open doors with good airflow. As it is known that the microclimat influences the behaviour of pigs and can have an impact on tail biting, sensors for measuring temperature and humidity were installed in both pens. To get better inight into analysis of behaviour of pigs under different conditions, cameras were installed for continously 24/7 monitoring the bigs behaviour, for the whole length . The videorecording of behaviour, also the microclimate is planned to end when finishers will be sent to the sloughterhouse. This were the first steps to on pig welfare assesement in Greece.

Interpretating the results and conclusion

The main findings as welfare indicators tested are summarized in Table 1.

Table 1. Occurance of some welfare indicators at sloughtered pigs

Parameter	Total porevalence n=461
Tail lesion	46,42%
Tail length loss	1,52%
Skin lesions	74,18%
Loin bruise	12,15%
Hind limb bursitis	42,52%
Ear skin lesion	16,49%
Ear part missing	2,17%
Ear haematoma	1,73%

It can be concluded that the prevalence of TB is more than present in pig populations in Greece, reaching high levels 46,42%. In comparation with other countries it is a high level of incidence. Other welfare parameter indicators, such as tail length los, skin lesions, loin bruise, hind limg bursitis and ear lesions were also reached high incidence. All those parameters assessed at the sloughterhouse suggests poor welfare conditions at farm level. Further investigations are needed to define the welfare status of the pigs on farm. The continous monitoring system (continous videomonitoring and microclimate check) will help us understand the behaviour of pigs and assist in making new policies in pig production to prevent and minimize tail biting as one of the important element of direct and indirect economic losses.

Other deliverables

During the STSM I had an opportunity to meet researchers from the field of animal welfare and made connections and exchanged ideas for further collaboration. I met Dr Michalis Kakanis, a national veterinary inspector, who is a MC Substitute in the GroupHouseNet Project of the COST Action. The collaboration with him was under supervision of Dr Evangelia N. Sossidou, and the common study, which included visits to pig farms and slaughterhouse was fruitful. Thanks to them, I gained my knowledge in the field of videoimaging and recording systems. All the installations of video cameras and software at the pig farm, also the microclimate recording system were set up by us. We agreed to continue our collaboration and extend the survey onto Serbian farms and slaughterhouses.

In the Veterinary Research Institute I used the available online tools of the library for collecting the latest and the leading articles, published in high impact factor Journals, regarding the topic of my visit. It helped me a lot for creating an applicable protocol for assessment of the tail lesions and other welfare parameters of pigs on farm and at the slaughterhouse.

The Veterinary Institute was the organiser of a two day International meeting of veterinary experts in the field of Reproduction. I had the opportunity to take the course and the workshop too. I was updated with the latest and the cutting edge news in the field of veterinary reproduction, regarding the topic of fertilisation of ova, the modern approaches in conservation, imaging diagnostic, immunofluorescence techniques, cryopreservation and in vitro insemination of the ova, etc.

The SANCO/2015/G3/SI2.701422 – “Animal Transport Guides”, three day Road Show in Greece was organized by the Veterinary Research Institute and Dr Sossidou, scientific coordinator at national level. This was also a great opportunity, not only for gaining theoretical knowledge at the lectures and improve practical skill at the roadshow, but also to meet policy maker people from the government, famous scientists from the field of animal welfare, animal producers, people from NGOs, truck drivers, animal handlers and slaughterhouse owners. The talk with all those people gave me the wider view and helped to improve and optimize the assessment protocol I firstly created. Also gave an opportunity to get a better insight into a field of my STSM.

Thank to hospitality of colleagues from the Department of Microbiology, Dr Konstantina Bitchava, Dr Evdoxios Psomas and Dr George Vafeas, I did bacteriological cultivations of the swabs taken from the skin lesions of the assessed pigs at the slaughterhouse.

Through this STSM cooperation I did not only establish a network of researchers, but gained experiences in the field of modern pig breeding and management of production, according to the principles of high standards of welfare and health. After returning from the "short term mission" there will be an opportunity for the implementation of the newly acquired knowledge and skills in the home country for the improvement of domestic pig production and welfare. At the same time this represents a paradigm of the new doctrine of animal breeding and management dictated by the modern consumer. Today's systems of keeping and breeding of pigs in Serbia are associated with an increased risk of causing undesirable behaviors in animals such as cannibalism, biting of tails, and aggressive behavior. The largest part of housing, managing and breeding pigs in our country takes place on conventional farms with a closed production cycle whose outdated technology does not provide the conditions in which the animals are able to fulfill their physiological and other needs. In such circumstances, these forms of harmful behavior are not uncommon and are the basis for significant economic losses. The knowledge on modern technological approaches, as well as the knowledge of animal welfare and genetic profile of highly productive pigs bred in countries with high animal welfare and productivity focus (holding the strict animal welfare legislation in EU), would contribute to their implementation and optimization in pig production in Serbia. Thus contributing to animal welfare, health and ultimately improved product quality. STSM would contribute to the strengthening and expansion of scientific and technological knowledge in these areas collected from existing experimental, breeding, and farming systems. The action taken would facilitate the exchange of knowledge in the above areas, based on which one could formulate the recommendations for modern breeding and production of pigs, which would be managed to prevent and eliminate specified harmful behaviors. Activities through STSM would take place through an open, output-oriented, transnational and multi-disciplinary approach. The establishment of a network of researchers is a priority on which the excellence the action is founded, and at the same time it meets the basic postulate of the Cost program.

Future collaboration with the host institution:

This STSM fostered the existing research network and the collaboration between the Veterinary Research Institute of Thessaloniki and the Faculty of Veterinary Medicine University of Belgrade, Serbia, with both institutions being currently concerned in finding new opportunities for common collaborations on research grants.

Foreseen publication resulting from the STSM

Following the data analysis made during my STSM, a draft of a scientific paper have been written to be presented on some of the upcoming welfare international conferences, with acknowledgements to the GroupHouseNet COST Action 15134.

Acknowledgements:

I would like to express my special thanks of gratitude to the GroupHouseNet COST Action 15134 organization committee for all support. Special thanks for all the effort made and altruistic help during my stay, to Dr Evangelia N. Sossidou, my supervisor and friend.

Picture 1: Jounq researchers with their supervisor at the Veterinary Research Institute, Thessaloniki

Picture 2: Laboratory work in the Microbiology section of the Veterinary Research Institute, Thessaloniki

Picture 3: Field work at the pig farm

Picture 4: Discussion at the slaughter house



Belgrade,
2017.10.23.

STSM candidate:

Dr Becskei Zsolt