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: Development of an ethogram for subtle social behaviours in pigs
STSM start and end date: 13/04/2019 to 24/04/2019
Grantee name: Irene Camerlink

PURPOSE OF THE STSM:

(max.200 words)
In January 2019 the grantee carried out a short STSM in Portugal while visiting the agricultural and veterinary universities of Lisbon, Elvas, Porto and Vila Real. Valuable contacts were made in Elvas and in addition the farm where a workshop was organized for the STSM showed to be an excellent location for further data collection. Hence this second short STSM took place in Elvas, Portugal.
The aims of this STSM were

1) to work on a new detailed behavioural ethogram of social interactions between pigs, this will also aid in the study of aggression and biting behaviour.
2) to follow-up on the previous STSM for collecting videos for a video ethogram which will aid in scientific methodology (including teaching materials)
3) to continue the collaboration between Vetmeduni and the Polytechnic Institute of Portalegre, Elvas.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

(max.500 words)
The grantee held a lecture at the Polytechnic Institute of Portalegre, Elvas for a group of students of Integrated Production Systems. The grantee then joined the remaining lecture that day.
The remaining days were spend doing behavioural observations on pigs and recording videos of various behaviours. Also images were taken of different tail postures.
In total 32 growing pigs were observed for 30 minutes per animal in a semi-wild setting. The pigs were randomly chosen (balanced for males and females) from a group of 80 free ranging pigs that have a 41 hectare of grass/wood land to roam in. Observations took longer as expected as the pigs walk on average 2-3 km during the observation block and may go out of sight. From the pigs only sex was recorded (no records of body weight).
On the same farm 16 sows were observed for 30 minutes per animal. These sows were lacating but were put on a pasture, separated from their piglets, for 2.5h in the afternoon to facilitate gradual weaning. During this block, sows were mostly active and they could easily be obsevered by their back number. From the sows information was recorded on whether they were primiparous or multiparous, an estimate of their relative size compared to the average of the group, their number of piglets, and whether they had a nose ring or not.
For both growing pigs and sows a new ethogram was used that included 35 behaviours, among which 30 microbehaviours, 5 types of vocalizations and 5 ‘macro’behaviours. Microbehaviours are short subtle behaviours in social interactions. They distinguish between the fine difference between close proximity or contact. For example the distinction between nose proximity, light nose contact or nose pressing. The

macro behaviours are the ones commonly observed in ethology, such as locomotion, lying, eating, and agonistic behaviour. By including the macrobehaviours in addition to microbehaviours it is possible to construct a Markov Chain of the sequence of behaviours. Behaviour was recorded using the app Animal Behaviour Pro.
Data were immediately uploaded and sorted. The data analysis and preparation for publication will take place after the STSM, within the time course of the COST Action (before end 2019).
Videos of pig behaviour were collected (using 3 different cameras to create different perspectives). The aim of this was to record behaviour for an online available video ethogram that can be used for reseach on pig behaviour and for training of students. A large number of images and videos were collected and sorted and edited within the STSM. Several are already uploaded on the Animal Welfare Science YouTube Channel. For example 'Grazing pigs'.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

Tail biting
On the first STSM it was noted that several of the finisher pigs had short tails whereas tail docking does not occur. The farmer speculated that it could have been due to the sow or due to tail biting. My hypothesis was that they may have had a mycotoxin problem as the pigs may lack some nutrients in their feed. The initial plan was to observe these pigs with shorter tails to see if tail biting occurs. The question surrounding the shorter tails has now been resolved. Tail biting does not occur at this farm. The shorter tails are due to a sow, at least one, who grasps piglets by their tail (and also snaps at them). It is unclear whether she snaps of the tail or that the tail breaks due to her pulling. One sow was observed with two young piglets with a reduced tail. One tail had a clear end and healed wound whereas the other had the skin pulled back with a bit of red flesh still visable. The position of where the tail was bitten was exactly the same as with the older pigs (where usually the tail is docked). By coincidence I recorded on video a sow (not sure if it is indeed the same sow) taking the tail of a newborn piglet in her mouth and pulling the piglet towards her. Although this forms no scientific data, at least the question of the reduced tails is solved and it is clear that there is no injurious tail biting in this outdoor farm. I do not count here non-injuries tail-in-mouth behaviour which does occur occasionally when the pigs lack foraging material, or aggressive biting which may occasionally happen to catch the tail. This emphasizes that research on tail directed behaviour and tail injuries in organic or outdoor settings should explore the various options and not draw too quickly conclusions on tail biting. Even if the outcome may be similar, the cause and expression of behaviour might be different.

Agonistic behaviour
Reports on natural behaviour of wild boars and pigs commonly report very limited aggression and when it occurs it is mainly between the males in the mating season. These semi-wild pigs showed a lot of agonistic behaviour but also injurious biting and short lived but intense fights, This contrasts the current literature. It might be that there is more aggression due to the larger group size or it might indeed be seasonal increases between males. Some information on this can be obtained from the data but for strong claims on the exact difference in fighting behaviour more detailed data collection would be needed as the specifics of fighting was beyond the scope of this project.

Although the data still need to be analysed, large differences were obvious between commercially housed pigs and these semi-wild pigs. First of all, in this spring season the growing pigs were active most of the daylight hours and they would usually not lie down until briefly at noon (this may off course be different in summer when it get above 40C in this area). Recording the distance, these pigs walk on averae 2-3 km in the 4h observation block in the morning. They forage continuously, alternated by locomotion (walking) and brief social interactions (nose / head proximity or nose contact). Nosing of the body hardly occurred during the observations and oral manipulation was not observed in the focal animals.

FUTURE COLLABORATIONS (if applicable)

The grantee will keep in contact with the host, Carolina Silva, for the possibility of organizing a yearly workshop of animal welfare in Elvas. The farm showed to be a suitable location for unique data collection, having a herd with the group structure of commercial farming (80 same age pigs) in semi-natural conditions (weaning at 60 days, roaming on 41 hectares). Although outside the scope of this project, it would be a very interesting location for social network analyses and I would recommend others going there for further data collection.