

FINAL REPORT
SHORT-TERM SCIENTIFIC MISSION (STSM)
COST ACTION FA1404

Applicant: Johan van Riel, Wageningen UR-Livestock Research, Wageningen, Netherlands

Host: Dr Jonathan Guy, Newcastle University, Newcastle upon Tyne, NE1 7RU UK.

Period of stay: 20 Nov-5 Dec 2015

Purpose of the visit

This short STSM took place without an ongoing project, but historically there was collaboration with the Host Institution (Dr Jonathan Guy) on prevalence of *Dermanyssus gallinae* in laying hens. The aim of STSM was to acquire knowledge of the implementation of IPM in poultry husbandry against *Dermanyssus gallinae* in general, and more specific to identify the scientific knowledge necessary for an economic based decision support of IPM in layer farms against *Dermanyssus gallinae*. This visit will provide the applicant both the basic knowledge and more in depth knowledge about IPM, as well as the type of damage on poultry that should be taken into account with a decision support system.

Description of the work carried out during the visit

Firstly, a short review was made of the available information in literature, in order to have a picture of current information about economic damage due to *Dermanyssus gallinae* and more precise, the slope of the relationship between severity of mite infestation and different production traits of hens. The scientific literature reports only a few experiments with comparison of productivity and mortality of hens in different mite infestation levels (Kilpinen, 2005; Kaoud, 2010) as information is mainly sourced from the industry and is not well documented. It was also suggested in literature that differences in resilience among flocks is a factor that can cause differences in effects of *D. gallinae* on hens.

Description of the main results obtained

During the visit the possibilities for receiving more information about effects of *D. gallinae* on hens was discussed with different researchers, farmers, extension service and industry. Also methodology for finding threshold levels of infestation for optimal economic performance of treatment was discussed with different researchers and experts. Experimental research in UK with information about correlations between mite infestation and productivity of hens is in the stage of 'bringing together now', where contacts have been made during this week

Future collaboration with host institution

Future collaboration will involve the gathering of information about mite infestation and loss of productivity of hens on practical farms, and from local experimental studies in both countries. This information will be used in a scientific paper about real-time decision support for treatment against *D. gallinae* in laying hens. Also the use of expert opinions will be investigated.

Foreseen publications

Applicant and Host aim for a joint publication about methodology to estimate costs of red mite and do decision support for treatment on the farm level in case of monitoring the red mite population as well as production of hens.

References

Kilpinen, O. , Roepstorff A., Permin A.,Norgaard-Nielsen, G. , Lawson, L.G. and Simonsen H.B.(2005): Influence of *Dermanyssus gallinae* and *ascaridia galli* infections on behaviour and health of laying hens, *British Poultry science* 46(1):26-34.

Kaoud. H.A. and El-Dashan A.R. (2010): Effect of Red Mite infestation on the performance and immune profile in vaccinated broiler breeder flocks, *Journal of American Science* 6(8):72-79