Towards breeding of goats for genetically determined TSEs resistance in Great Britain

NATIONAL WORKING DOCUMENT

Aim

The overall aim of the project is to develop breeding strategies for the GB national herd by detecting and registering goats carrying resistance-associated versions of the prion protein gene (*PRNP*), in particular the K222 allele.

The outputs of the project will inform an assessment of the feasibility of implementing breeding for resistance programs in GB, which will be made available to the farming community and other stakeholders. Another benefit will be the increase of the awareness of scrapie and the dissemination of knowledge and information about breeding for scrapie resistance in goats amongst British farmers.

This project is implemented as part of a European consortium consisting of 8 partners from seven countries and one extra collaborator. The activities of the project are funded via the EMIDA Eranet Research Call 2011-08-03 and will be implemented until 31 August 2015.

Activities

A national goat genotyping survey will be conducted to determine the frequencies of alleles conferring resistance to classical scrapie at the national level in anticipation of the potential implementation of breeding for resistance strategies in GB.

Specific alleles of *PRNP*, including K222, S146 and D146 will be recorded along with alleles associated with partial scrapie resistance, namely M142 and Q211. This will lead to the identification and retention of genetically suitable males and females carrying resistant alleles for future breeding strategies, complementary to initiatives proposed by the EMIDA consortium partners.

Holdings with 10 or more goats as in the Sheep and Goat Inventory 2011 in Great Britain (www.defra.gsi.gov) will be used as sampling frame.

A maximum of 117 herds will be selected randomly and approached to obtain voluntary participation in the survey. Blood samples from a maximum of 30 adult animals will be collected per herd, including all males. With the current distribution of herd size in the sampling frame, some 2300 animals will be sampled and genotyped.
A genetic database of all goats will be developed linking individual and herd data to genotypes. Carriers of the K222 allele will be identified for future breeding programmes.

Participation of farmers will be voluntary. All costs will be borne by the project. Genotype certificates will be returned to participating goat keepers with details of the genotypes of sampled animals, as an incentive to retain animals with resistant genotypes and breed for resistance.

Partners

Every effort possible will be made to maintain a good collaboration with the Goat Veterinary Society (GVS), the British Goat Society (BGS) and other breed and goat farmer societies to ensure their support to the National Survey and participation if requested. We will approach selected farmers via these organizations to obtain written consent.

We will seek the help of these organizations and other stakeholders to promote the aims and potential benefits of genetic resistance and to encourage participation in the activities of the project.

Dissemination

As part of the dissemination of the activities of this project and those of the whole EMIDA consortium, we will provide timely individual annual reports & maintain a UK info site on the public website www.goattse.eu

Goat breeder associations and stakeholders will be encouraged to participate and an extension campaign to disseminate project activities in the farming media (Farmers' weekly, GVS Journal, the BGS Monthly Journal) will be implemented.

Planning

31-May -2013: Design of National Survey ready. List of selected farmers ready

July 2013- May 2014: Samples from National Survey collected

31- August - 2014: Genotype results available and returned to participating farmers. List of goats with resistant alleles available

Contacts

Dr. Angel Ortiz Pelaez
Epidemiology, Surveillance and Risk Group
Animal Health and Veterinary Laboratories Agency (AHVLA)
New Haw, Addlestone
T: +44 (0) 1932 357469
F: +44(0) 1932 349983
E: angel.ortizpelaez@ahvla.gsi.gov.uk
www.defra.gov.uk/ahvla

Mr. Mike Dawson
TSE Department
Animal Health and Veterinary Laboratories Agency (AHVLA)
New Haw, Addlestone
Surrey, KT15 3NB
T: +44 (0) 1932 357621
F: +44(0) 1932 349983
E: mike.dawson@ahvla.gsi.gov.uk
www.defra.gov.uk/ahvla

Dr. Wilfred Goldmann
Neurobiology Division
The Roslin Institute & Royal (Dick) School of Veterinary Studies, University of Edinburgh
Easter Bush, Midlothian, EH25 9RG
T (switchboard): +44 (0) 131 651 9100
T (direct): +44 (0) 131 651 9111
F: +44 (0)131 651 9105
E: wilfred.goldmann@roslin.ed.ac.uk
www.roslin.ed.ac.uk

Dr. Otto Windl
Veterinary & Science Policy Advice
Animal Health and Veterinary Laboratories Agency (AHVLA)
New Haw, Addlestone
Surrey, KT15 3NB
T: +44 (0) 1932 357766
F: +44(0) 1932 359525
E: otto.windl@ahvla.gsi.gov.uk
www.defra.gov.uk/ahvla