



GOAT-TSE-FREE, a European project for eradication of scrapie in goats

National Work-Document for the Netherlands

Project Period: September 2012 - August 2015

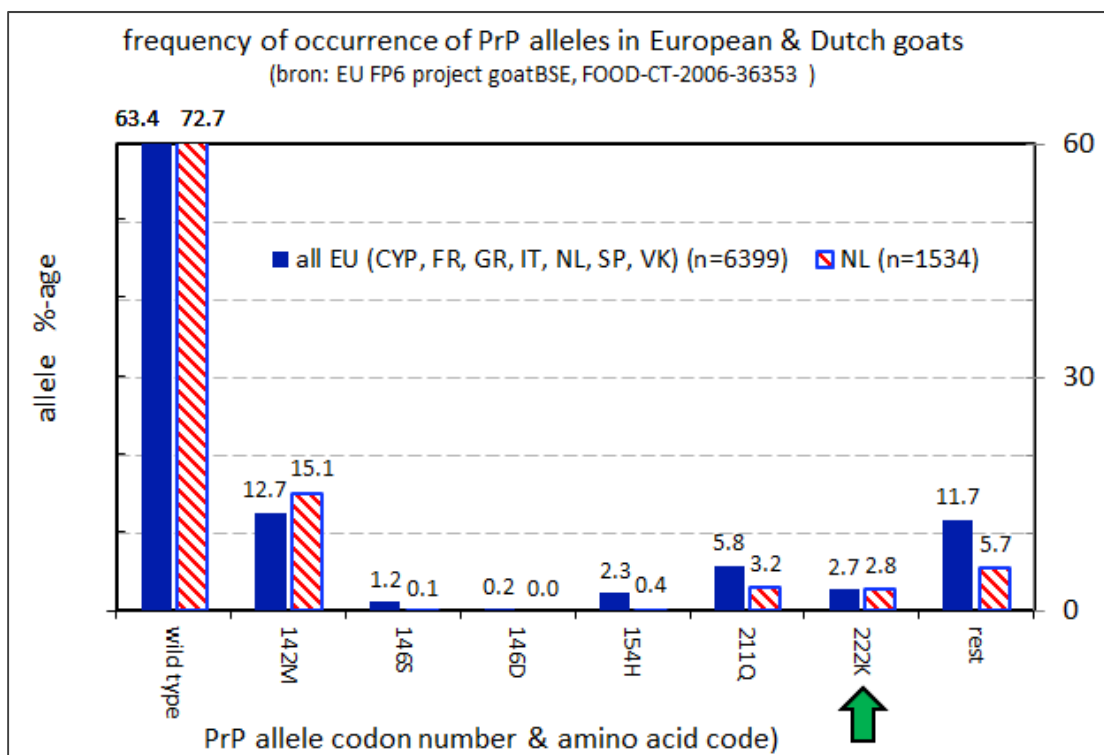
Project co-ordinator: Jan P.M. Langeveld, Central Veterinary Institute part of WageningenUR (CVI).

OBJECTIVE: Towards scrapie resistant goat holdings.

ACTIVITIES:

Introduction – After nearly 10 years of research it has been established that there exist “222K goats” that are genetically highly unsusceptible for scrapie. This “resistance” is enclosed in the protein PrP (prion protein) on amino acid 222 which in these goats is K (lysine) instead of the usual Q (glutamine). The frequency of occurrence in a representative selective test is between 2-3% in the Netherlands. See the graph for the Dutch situation compared to that in Europe concerning the most frequent codon variations in this 256 amino acids long protein. Until now, Saanen and Alpine breeds are always harvesting carriers. The genetic inheritance of this 222K property is simple, following exactly Mendelian laws. Also, the resistance is already highly enhanced at heterozygosity. For more information how this knowledge has been obtained: a final report from the 6-years EU funded project GoatBSE is available on request.

Plan – Carriers of the 222K allele in our country have to be found to enable goat holdings to make plans for safeguarding these animals and start plans for breeding. Participant parties are: CVI and LR of WageningenUR, Animal Health Services in Deventer (GD), and goat holdings with a proper book keeping such as production farms, breeders, artificial insemination holdings. The ministry of Economic Affairs is the direct funder.



Aspects of the work:

The following steps are planned:

1. Getting holdings interested to participate.
2. Analyse breeding history to efficiently select the candidate animals for genetic analysis and eventual subsequent breeding (aspects are: prevention of in-breeding, production traits, health aspects, breed aspects).
3. Genetic analysis: collect blood samples of candidate bucks and goats; also samples from a general selection of samples representative of the Dutch goat population will be included.
4. DNA analysis of the samples for establishing the whole PrP sequence.
5. Based on the findings of the occurrence of the 222K carriers a plan will be made for and in consultation with the holdings and interested organisation(s) concerned to decide how to safeguard and propagate these 222K goats.
6. Finalizing the project with a proposal for future breeding strategies with which the interested parties (together potentially with the GD) can continue in the future. This will be part of the final report and offered to the ministry of Economic Affairs.

TIMING of ACTIVITIES:

Start project 1 september 2012

Years 1 and 2 – acquiring interested holdings, breeding history analyses, advises for sample collection to holders, sampling, DNA analyses. At the same time, it will be advised to remove eventual 154H carriers because of its association with a risk for atypical scrapie.

Year 2 and 3 – Safeguarding and enhancement of 222K carriers. Follow breeding and health traits. Transfer of responsibilities towards the stakeholders. Development of a practical genetic analysis system to evaluate the 222K inheritance.

PARTNERS:

- Central Veterinary Institute (CVI) of WageningenUR at Lelystad
- Animal Health Services (GD) at Deventer
- Livestock Research (LR) of WageningenUR at Lelystad
- Stakeholder organisations and goat holdings.
- Ministry of Economic Affairs (EZ), The Hague.

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