FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health

EMIDA ERA-NET

Goat-TSE-Free EMIDA project

National Work Document, Germany, FLI

Contact:

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Introduction:

Although the wild type amino acid sequence of goat and sheep prion protein (PrP) is similar, the PrP genetics in goats is much more variable. In goats more than 40 polymorphisms of the caprine prion protein gene (PrNP), resulting in amino acid changes, have been found in different countries and breeds. Among these the haplotype 222K is associated with protection against classical scrapie in several breeds and countries. Therefore it is considered as candidate for TSE resistance breeding and eradication programs for goats. However, the frequency of occurrence in the EU is very low.

Germany consists of a growing population of goats, but an examination of the indigenous genotypes has not been done yet. To clarify the occurrence of genetic risk groups respectively genetic resistance groups the PrP coding region of animals from German goat herds will be analyzed using blood samples. In 2010 in total 11.219 goat farms with 150.000 goats, including 75.444 ewes, were registered (http://epp.eurostat.ec.europa.eu). These are dairy goats, meat goats and breeding animals. The most common breeds are listed in figure 1.

Additionally there are large differences concerning the distribution of goats in the Federal states of Germany, for example more than 30% of the population are registered in the southern parts (mostly Bavaria, Baden-Württemberg), but exact data are not known and have to be collected first.

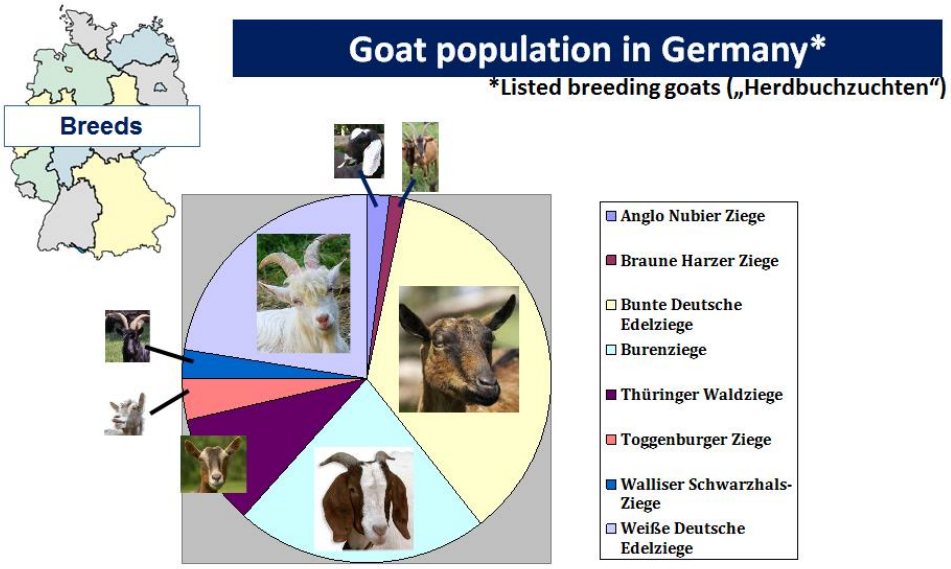

Figure 1: The most popular goat breeds in Germany

Activities:

1. **Collection of data:**
   a) Total number of goats in the different Federal States of Germany including information concerning dairy goats, meat goats and breeding animals
   b) Total number of the different breeds as well as their distribution in the Federal States of Germany
2. **Calculation of adequate sampling:**

   Depending on the data mentioned above a working plan has been developed in cooperation with a biomathematician from the FLI to ensure that a representative amount of samples will be examined.
3. **Collection of blood samples:**

   In cooperation with governmental institutions (“Tiergesundheitsdienste”, “Tierseuchenkassen”) and universities (TiHo Hannover, JLU Gießen) blood samples from all Federal States will be taken with particular interest on breeding goats.
4. **Genotyping:**

   The ORF region of the PrP will be genotyped. After isolation of genomic DNA, PCR amplification and sequencing of the entire coding region of the *PrP* gene will be performed.
5. **Database**

   A database containing all necessary information on breed, country of origin, genotypes and if possible age will be generated.
6. **Safeguarding:**

   In case resistance allele carriers, in particular bucks, are found, the animals will be documented and as possible specially earmarked. The holders will be consulted concerning future breeding programs.

Schedule:

1.1.2013	Start of project
2013	Collection of data
2013 and 2014	Collection of blood samples, Genotyping, Database
2015	Safeguarding, Development of breeding programs with stakeholders

Partners:

Clinic for Swine and Small Ruminants, University of Veterinary Medicine Hannover, Foundation, Hannover, Germany. (Prof. Dr. Ganter)

Justus Liebig University Gießen, Clinic for Obstetrics, Gynecology and Andrology, of Large and Small Animals, Justus-Liebig-University Gießen (Dr. Henrik Wagner)

Tierseuchenkassen from Baden-Württemberg, Saxonia, Saxony-Anhalt,

Tiergesundheitsdienste from Bavaria, Hesse, North Rhine Westphalia, Thuringia