



PROJECT TITLE	Investigation of Litter Size Trait in Akkaraman and Central Anatolian Merino Sheep by Genome Wide Association Studies Technique
PROJECT NUMBER	TAGEM/HAYSUD/5689
PROJECT LEADER	Şükrü DOĞAN
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START AND END DATE	01/06/2023 - 31/12/2024
PROJECT RESOURCE AND BUDGET	TAGEM / 339.000,00 TL
PROJECT DEPARTMENT	Department of Livestock and Aquaculture Research
SUMMARY:	<p>Reproduction is an important trait that ensures the continuation of the generation in sheep breeding and other farm animals. Yield characteristics of economic importance in livestock generally begin with reproduction. Despite its importance, the genetic mechanisms of lamb production in domestic sheep (<i>Ovis aries</i>) are still not fully understood. With this project, genes and genomic positions affecting fecundity in Akkaraman and Central Anatolian Merinos will be investigated by microarray-based Genome Wide Association Study method. In this way, it is expected to determine genomic variants that affect intra-race and inter-racial variation in terms of fecundity and specific to our domestic sheep breeds. Within the scope of the project, herds belonging to 2 different farms were determined, which showed efficiency above their own breed characteristics in terms of lamb yield. It was determined that the average litter size in the Akkaraman sheep breed was 1.43, and the same trait was 1.34 in the Merino breed. It is thought that the reproductive efficiency of animals exposed to the same care and feeding conditions in the same farm is caused by individual differences and the genetic effect has a high effect on this situation. The sheep in the project material will be required to have 3 or more birth records. Sheep that regularly give birth to single or multiple births will be determined as project material and will be divided into 2 groups (Group 1: Continuously single-birth, Group 2: Continuously multiple-births). The research will consist of a total of 380 sheep material, 90 Akkaraman and 100 Merino sheep in each group.</p> <p>With the presented project, the hypothesis that there are different gene regions that provide this ability in the project material sheep with genetic ability on litter size or that it results from their interaction is emphasized. It is thought that the results of our hypothesis will be clearly revealed by the sampling of sheep with individual talents.</p> <p>The project results are expected to have a widespread impact in Turkey. If the genetic mechanisms underlying the variation in lamb yield are discovered, it is possible to obtain more lambs per unit animal by increasing the amount of individuals with this ability in the population. If the genetic mechanisms underlying the variation in lamb yield are discovered, it is possible to obtain more lambs per unit animal by increasing the amount of individuals with this ability in the population. The situation of getting more yield per animal without increasing the number of animals can make increase the coverage ratio of red meat need from domestic sources.</p>
KEY WORDS:	Akkaraman, Central Anatolia Merino, Reproduction, Twinship, GWAS