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Across-country genetic selection for feed efficiency indicators in Lacaune sheep from Greece and France

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Improving feed efficiency of small ruminants is a desirable breeding goal to maximize farm profitability, increase productivity and reduce environmental impact. Milk yield and composition could be used as proxy traits of feed efficiency. Genetic selection for these traits using data from different countries could increase progress and benefit breeding programmes particularly in small ruminant production systems that are characterised by great diversity across-countries. Therefore, a study was undertaken within the SMARTER project (www.smarterproject.eu) to investigate the feasibility of genetic evaluation and selection for feed efficiency indicators in purebred Lacaune sheep reared intensively in Greece (n=1,658) and semi-extensively in France (n=4,859). Results showed a strong genetic correlation for milk yield and protein content and a relatively high correlation for fat content between animals raised in the two countries. Consequently, there is no evidence of genotype x environment interaction across country x system. This suggests that a joint genetic evaluation of Lacaune sheep in Greece and France is feasible. However, the observed variation in fat content is most likely related mainly to the different feeding practices in the two countries and to a lesser extent in the rams used for artificial insemination. In conclusion, breeding strategies should be tailored to the needs and conditions in each country subject to accurate and systematic recording of phenotypes of individual animals to improve feed efficiency.

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