Across-country genetic evaluations are feasible in small ruminants

Authors: J.M Astruc - IDELE, D. Berry - TEAGASC and all the partners of the WP6

In sheep and goats, compared to cattle, smaller within-country populations in selection and higher relative cost of genotyping and performance recording are among the main hindrances to the development of genomic selection. International cooperation and across-country genetic evaluation might generate great benefits for stakeholders in terms of genetic progress on resilience and efficiency traits.

Across country evaluation have been implemented in three case studies: one in meat sheep (Texel and Charollais breeds across Ireland and the UK), one in dairy sheep (Manech and Latxa breeds across France and Spain), one in dairy goat (Saanen and Alpine breeds across France, Italy, Switzerland and Canada). Main results showed that genetic correlations between the same traits in different countries are in most cases above 75%, suggesting that there is an existing connectedness between the populations pooled, and consequently that across country genetic evaluations are feasible.

We assessed the potential market and feasibility of an international evaluation through a comprehensive survey towards stakeholders. It appears that the stakeholders mostly agree to share data for international evaluation, and that many breeds are potentially interested. As a practical result, we laid the foundation for an international initiative in the next future. To give a frame to this initiative, a Reference Centre for harmonisation of performance and international genetic evaluation in sheep and goat, should be beneficial. This Reference Centre might be led by a consortium gathering Interbull and ICAR.

Manech tête rousse sheep

The SMARTER project has received funding from the European Union's Horizon 2020 Program for Research & Innovation under grant agreement n°772787.