Genomic evaluation validation test proposed by Interbull is necessary but not sufficient because it does not check the correct genetic trend

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At the end of the year 2013, reference populations, genotyped with the Illumina OvineSNP50 BeadChip, reached 4841, 509, 331 and 1424 AI rams respectively in Lacaune, Basco-Bearnaise, black-faced Manech and red-faced Manech breeds. It allowed us to test methods and models to compute GEBV in these 4 French dairy sheep breeds.

In the case of the Lacaune breed, an Interbull validation test was performed for 600 young AI genotyped rams born in 2008 and 2009 using a single-step genomic BLUP (ssGBLUP): the reduced data set contained 3,822,000 lactations for 1,262,000 animals and 1600 training genotyped rams born between 1999 and 2005; the full data set contained 4,431,000 lactations for 1,436,000 animals. Two ssGBLUP models were used: model 1 and 2 omitting or including groups of unknown parents. These 2 models passed the Interbull GEBV validation test. But the genetic gain for milk yield, computed over the last 15 years, was overestimated by 50 % for model 1 compared to the true estimate provided by model 2. Similar results were obtained with Pyrenean breeds.

Thus the GEBV validation test is relevant for the ranking of young rams from the last few years, but not for the ranking between cohorts of rams over 10 years. Therefore it would be useful to complete the present GEBV Interbull validation test by other Interbull tests validating estimates of genetic trend.

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