

Implementation of a French national genetic evaluation of beef cattle temperament from field data

E. Venot¹, J. Guerrier², P. Lajudie³, V. Dufour³, X. Boivin⁴, J. Sapa¹, F. Phocas¹

¹ INRA, UMR1313 GABI, 78352 Jouy-en-Josas, France

eric.venot@jouy.inra.fr (Corresponding Author)

² IDELE, 9 allée Pierre de Fermat, 63170 Aubière, France (jean.guerrier@idele.fr)

³ IDELE, MRA du Limousin, 87060 Limoges, France (philippe.lajudie@idele.fr)

⁴ IDELE, 9 rue A. Brouard 49105 Angers, France (vincent.dufour@idele.fr)

⁵ INRA, UMR 1213 Herbivores, Clermont University, VetAgro Sup, 63122 Saint Genès-Champanelle, France (Xavier.boivin@clermont.inra.fr)

Abstract

Since 1990, several studies have been conducted to define selection criteria for temperament discrimination in French Limousine calves and yearling animals: first, a “docility test” was set up in Limousine testing stations, but it was not suitable for use in standard on-farm beef performance recording system. Between 2007 and 2009, a specific experimental study was designed in 24 farms based on progeny of 12 bulls that were divergently selected for their station docility test values. Results led to the definition of two on-farm selection criteria for calf temperament: the temperament score (COMP) given by the technician scoring type traits at weaning in field conditions and the number of movements in constrained conditions during weighing at weaning (REAC). A specific beef technician training course on calf temperament recording was set up and since late 2011, these new scores have been collected in French cattle herds recording beef performance.

Data were extracted in 2015 from the French national database to estimate genetic parameters of these new traits for Blonde d’Aquitaine, Charolaise, Limousine and Parthenaise breeds. Parameters were consistent across breeds, with relatively low heritabilities (0.09 to 0.11 for COMP and 0.12 to 0.17 for REAC) and a positive but moderate correlation estimated between COMP and REAC (0.32 to 0.43). Both criteria should therefore be considered in genetic evaluation to assess the different calf temperament components in open (field) and constrained conditions.

Based on these results, genetic evaluation tests were performed in 2015 for the nine beef cattle breeds in selection in France. No significant genetic trend was found. After only three years of data recording, the number of potential publishable bulls is limited for most of the breeds, but will increase in the coming years. Genetic evaluations of COMP and REAC have been included in official beef cattle on-farm evaluations in 2016 and two new official EBVs (COMPsev and REACsev) are now available for French breeders to select breeding stock on temperament.

Keywords: temperament, docility, beef cattle, genetic evaluation