



**HAL**  
open science

## **Work in progress on genomic evaluation using GBLUP in French Lacaune dairy sheep breed**

Guillaume G. Baloché, Helene H. Larroque, Jean-Michel Astruc, J.M. Babilliot, M.Y. Boscher, P. Boulenc, Céline Chantry-Darmon, Catherine de Boissieu, Gilles Frégeat, B. Giral-Viala, et al.

### ► **To cite this version:**

Guillaume G. Baloché, Helene H. Larroque, Jean-Michel Astruc, J.M. Babilliot, M.Y. Boscher, et al.. Work in progress on genomic evaluation using GBLUP in French Lacaune dairy sheep breed. 62. Annual Meeting of the European Federation of Animal Science (EAAP), Aug 2011, Stavanger, Norway. 529 p. hal-02746669

**HAL Id: hal-02746669**

**<https://hal.inrae.fr/hal-02746669>**

Submitted on 3 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

**Genetic parameters for live weight, ultrasound scan traits and muscling scores in Austrian meat sheep**  
 Maximini, L.<sup>1</sup>, Brown, D.J.<sup>2</sup> and Fuerst-Waltl, B.<sup>1</sup>, <sup>1</sup>University of Natural Resources and Life Sciences Vienna, Department of Sustainable Agricultural Systems, Division of Livestock Science, Gregor-Mendel-Str.33, A-1180 Vienna, Austria, <sup>2</sup>Animal Genetics and Breeding Unit, University of New England, Armidale, NSW 2351, Australia; [lina.maximini@boku.ac.at](mailto:lina.maximini@boku.ac.at)

Heritabilities and genetic correlations were estimated for live weight (lw) and average daily gain (adg) (n=13,634), ultrasound measured eye muscle depth (emd) and back fat depth (fat) as well as muscling scores for shoulder (shoul), back (back) and hindquarters (hind) (n=6,110) in Austrian meat sheep. An across breed analysis was carried out using performance records of Merinolandschaf, Suffolk, Texel, German Blackheaded Meatsheep and Jura sheep which were routinely tested for meat performance between 2000 and 2010. Genetic parameters were estimated with multivariate mixed animal models including both direct and maternal genetic effects and permanent environmental effects of the dam (pe) as well as fixed effects. Estimated direct heritabilities were 0.07, 0.16, 0.20, 0.21, 0.03, 0.01, and 0.08 for lw, adg, emd, fat, shoul, back and hind, respectively. Maternal genetic heritabilities were very low and significant only for lw and adg, whereas pe was fitted for every trait and explained between 0.05 and 0.10 of the phenotypic variance. Lw showed highly negative genetic correlations with emd (-0.87), fat (-0.57), and hind (-0.81). The genetic correlations are more strongly antagonistic than observed from published estimates. This may be a direct result of the structure of the data used in this study where many of the records were from small herd year season groups and often confounded by sire.

**Work in progress on genomic evaluation using GBLUP in French Lacaune dairy sheep breed**

Baloche, G.<sup>1</sup>, Larroque, H.<sup>1</sup>, Astruc, J.M.<sup>2</sup>, Babilliot, J.M.<sup>3</sup>, Boscher, M.Y.<sup>3</sup>, Boulenc, P.<sup>4</sup>, Chantry-Darmon, C.<sup>3</sup>, De Boissieu, C.<sup>2</sup>, Frégeat, G.<sup>5</sup>, Giral-Viala, B.<sup>4</sup>, Guibert, P.<sup>6</sup>, Lagriffoul, G.<sup>2</sup>, Moreno, C.<sup>1</sup>, Panis, P.<sup>6</sup>, Robert-Granié, C.<sup>1</sup>, Salle, G.<sup>1</sup>, Legarra, A.<sup>1</sup> and Barillet, F.<sup>1</sup>, <sup>1</sup>INRA, UR631, Castanet-Tolosan, 31320, France, <sup>2</sup>Institut de l'Elevage, Castanet-Tolosan, 31320, France, <sup>3</sup>Labogena, Jomy-en-Josas, 78352, France, <sup>4</sup>Ovitest, Onet-le-Château, 12850, France, <sup>5</sup>UPRA Lacaune, Rodez, 12033, France, <sup>6</sup>Confédération Générale de Roquefort, Millau, 12103, France; [francis.barillet@toulouse.inra.fr](mailto:francis.barillet@toulouse.inra.fr)

French Lacaune dairy sheep selection programme is based on an open nucleus totalizing 174,000 ewes and AI-progeny testing of 420 young rams per year. Breeding objectives are milk and udder functional traits, plus resistance against classical scrapie. The storage of DNA/blood of the Lacaune AI rams has been organized since the middle of the 90's. The Illumina Ovine SNP50 BeadChip available since 2009 makes feasible genomic selection. In January 2011, the French Lacaune reference population included 2,651 AI rams, born between 1998 and 2009, and genotyped by Labogena. The aim of this study was to compare results of pedigree- and genomic-based EBV (PEBV and GEBV respectively) of a validation population of 666 young AI rams born in 2007 and 2008, using a training population either of 1,742 AI genotyped rams born between 1998 and 2006 or 3,645 AI rams when enlarging the training population to ungenotyped rams of the same cohorts of birth. Daughter yield deviations for milk yield and contents, somatic cell score, and udder morphology traits have been used for PEBV and GEBV evaluation using GBLUPF90 software from the University of Georgia, USA. The results show that GEBV would be more efficient than PEBV: an average increase of accuracy of 14% has been found across traits. Thus selecting young unproven rams based on their GEBV could be possible. Acknowledgements: for French ANR & ApisGene (SheepSNPQTL project), and for FUI, Midi-Pyrénées region, Aveyron & Tarn départements, & Rodez town (Roquefort'in project).

# **Book of Abstracts of the 62<sup>nd</sup> Annual Meeting of the European Federation of Animal Science**



**Book of abstracts No. 17 (2011)  
Stavanger, Norway  
29 August - 2 September 2011**