



HAL
open science

Body reserve dynamics using metabolites and hormones profiles of Romane ewes in two farming systems

Agnes Nyamiel, Dominique Hazard, Didier Marcon, Flavie Tortereau, Christian Durand, Anne Tesnière, Eliel González García

► To cite this version:

Agnes Nyamiel, Dominique Hazard, Didier Marcon, Flavie Tortereau, Christian Durand, et al.. Body reserve dynamics using metabolites and hormones profiles of Romane ewes in two farming systems. 74th Annual Meeting of the European Federation of Animal Science, Aug 2023, Lyon, France. hal-04195775

HAL Id: hal-04195775

<https://hal.inrae.fr/hal-04195775>

Submitted on 4 Sep 2023

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.

Book of Abstracts of the 74th Annual Meeting of the European Federation of Animal Science



Book of abstracts No. 29 (2023)
Lyon, France
26 August – 1 September, 2023

Book of Abstracts of the 74th Annual Meeting of the European Federation of Animal Science

Lyon, France, 26 August – 1 September, 2023



EAAP Scientific Committee:

F. Miglior
L. Pinotti
L. Boyle
D. Kenny
M. Lee
M. De Marchi
V.A.P. Cadavez
S. Millet
R. Evans
L. Gasco
M. Pastell
G. Pollott (secretary)
H. Spoolder (chair)



Session 45

Body reserve dynamics using metabolites and hormones profiles of Romane ewes in two farming systems

A. Nyamiel¹, D. Hazard¹, D. Marcon², F. Tortereau¹, C. Durand³, A. Tesnière⁴ and E. González-García⁴

¹INRAE, UMR1388 GENPHYSE Université de Toulouse, ENVT, 31326 Castanet-Tolosan, France, ²INRAE, UEP3R Bourges, 18390 Osmoy, France, ³INRAE, UE321 La Fage, 12250 Roquefort-sur-Soulzon, France, ⁴INRAE, CIRAD, SELMET Institut Agro Montpellier, Univ Montpellier, 34060 Montpellier, France;

agnes.nyamiel@inrae.fr

The objective was to monitor the main effects affecting body reserve (**BR**) mobilization and accretion, using metabolites and hormones profiles, in Romane ewes reared under two contrasting farming systems (**FS**; (indoor, **IND**; extensive, **OUT**)). The ewes (n=173 IND; n=234 OUT) belonged to two genetic lines selected for low or high residual feed intake. They were monitored during their two first productive cycles at five key physiological stages (Mating, **M**; mid-Pregnancy, **P**; 2 weeks Pre-Lambing, **bL**; 3 weeks Post-Lambing, **aL**; Weaning, **W**). Parameters included body condition score (**BCS**) and metabolic profiles for plasma concentrations on non-esterified fatty acids (**NEFA**), β -hydroxybutyrate (**BHB**), Triiodothyronine (**T3**) and insulin (**INS**). The relevant fixed effects and their interactions were investigated through analyses of variance using *R*. Physiological stage, parity, cohort, genetic line, and litter class were fixed effects while ewe and residuals were random effects. Depending on the parameter evaluated, the fixed effects and their interactions, with the exception of the genetic line, were statistically significant ($P < 0.05$). Regardless of the FS, results showed that BCS increased until P and declined thereafter. Highest NEFA concentrations were found from bL until W and at W in ewes reared IND or OUT, respectively. Significantly higher BHB levels than those found in M, P, and W were found in bL and aL ewes in both FS. T3 displayed a similar high trend throughout the stages with a peak at aL, and INS increased from P to aL before declining thereafter whatever the FS. These findings indicate that BR mobilization was displayed between P and W, as evidenced by BCS and blood parameters, whereas BR accretion occurred between W to P. Overall, there seems to be a consistent trend in Romane ewes' capacity to mobilize and recover their BR irrespective of the FS. Plasma concentrations of metabolites and hormones at different physiological status can be an indicator of the ewe's metabolic plasticity.