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· Brief description of the Centre/Research Group (including URL if applicable)

<http://dta.umh.es/en/areas/produccion-animal/presentacion-2/>

The Agro-Food Technology Department is involved in several undergraduate and graduate programs in Agricultural Engineering and Food Science and Technology. The Department's research is involved in Food Science and Technology and Animal Science. Research in Animal Science is related to rabbits and small ruminants. Specific research topics on Animal Science are quantitative genetics to improve rabbit production, meat quality and animal welfare and milking of small ruminants, focused on ensuring animal welfare and on farm measures to guarantee food safety.

· Project description

Introduction

Litter size is one of the most important traits in prolific species as pigs and rabbits. However, selection on litter size has had a lower response than expected as a consequence of its low heritability (see reviews by Rothschild and Bidanel, 1998, in pigs and Baselga, 2004, in rabbits). A reduction in litter size residual variability would increase litter size heritability, and consequently its response to selection (Hill and Mulder, 2010). Literature provides evidence that residual variance can be partly under genetic control (SanCristobal-Gaudy *et al.*, 2001, in sheeps; Sorensen and Waagepetersen, 2003, in pigs; Formoso-Rafferty *et al.*, 2015, in mice). Selection for residual variance has been proposed under complex models, which robustness and effectiveness have been questioned (Sorensen, 2010). To avoid the possible

mathematical artefacts of complex models, a simple divergent selection experiment for residual variance of litter size in rabbits is currently carried out, in which residual variance of a female was estimated as within-female variance of litter size. After seven generations of selection, the Low (L) line showed not only lower variance (-1.19 kits²) than the High (H) line, but also a higher total number of kits born (+0.70 kits; Argent *et al.*, 2014). In a previous study, lines showed differences in their sensitivity to inflammatory processes (García *et al.*, 2012). This project will allow to have a more complete picture of the differences between lines in their sensitivity to diseases measuring the immune response to infection to two common viruses in rabbits (myxomatosis and virus of hemorrhagic viral disease) and the hepatic and renal function in both divergent lines. Litter size and its components, ie, ovulation rate and implanted embryos, will also measure. A genomic analysis of the divergent lines will be also performed. in order to better understand the molecular mechanisms controlling these traits.

References

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· Research Area (en base a las 8 áreas científicas establecidas en MSCA. Se podrán seleccionar una o más áreas científicas por EOI) o Chemistry (CHE) o Social Sciences and Humanities (SOC) o Economic Sciences (ECO) o Information Science and Engineering (ENG) o Environmental Sciences and Geology (ENV) o Life Sciences (LIF) o Mathematics (MAT) o Physics (PHY)

. Life Sciences (LIF)

. Information Science and Engineering (ENG) o Environmental Sciences and Geology (ENV) o Life Sciences (LIF) o Mathematics (MAT)

· Applications: documents to be submitted and deadlines (documentación que los investigadores deberán enviar al centro para establecer el contacto: CV, cartas de referencia...)

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