

Whole genome association study for reproductive seasonality trait in the Rasa Aragonesa sheep breed*A. Martínez-Royo¹, J.L. Alabart¹, J. Folch¹, B. Lahoz¹, E. Fantova² and J.H. Calvo^{1,3}**¹CITA Unidad de Tecnología en Producción Animal Avda Montañana 930 50059 Spain ²Oviaragón, Grupo Pastores, Camino Cogullada s/n, 50014 Spain, ³Fundación ARAID C/María de Luna 11. 1ª, 50018 Spain, amartinezroyo@aragon.es*

Many sheep breeds from the Mediterranean area have seasonal patterns of oestrous behaviour and ovulation. Maximal reproductive activities occur from August to March. This reproductive seasonality induces great variation in lamb production and, therefore, in the market price of lamb meat. This spring ovulatory activity is under genetic control, yet to date only a small proportion of the total variation has been explained by genes identified through linkage analysis and candidate gene association studies. To address the lack of information at the genomic level we present a results from a preliminary whole genome association study that was performed using data on reproductive seasonality for 141 ewes of the Rasa Aragonesa Spanish sheep breed that were genotyped using the OvineSNP50K BeadChip platform of Illumina®. Biannual registration data of seasonality was measured in an experimental flock as total days of anestrus (TDA) based on weekly blood progesterone levels from January to August, and corrected for age and body condition score. TDA was defined as the sum of periods in which three or more consecutive samplings having plasmatic progesterone levels lower than 0.5 ng/ml. Results have pointed to new regions across the genome not previously described that are potentially associated with natural cyclicity in this breed. Use of a greater number of samples and next generation high density BeadChips could help to accurately identify loci that are involved in controlling the seasonality of sheep. Financed by Ministerio de Economía y Competitividad and FEDER (INNPACT Project IPT-010000-2010-33) and INIA (B. Lahoz grant).