Results and discussion
Fertility in the different established periods was as follows: 60.6% P1, 72.2% P2, 70.3% P3. Fertility was significantly higher ($p < 0.05$) in P2 period compared to P1. Moreover, the fecundity showed an increase between P1 and P2 (1.1 and 1.3, respectively) ($p < 0.05$). However, the prolificacy was similar in the three periods of interest: 1.8, 1.8 and 1.7, respectively.

Conclusion and implications
In conclusion, 65 days post-partum is the best time to re-mating ewes and obtain the highest fertility rate and the best fecundity in meat sheep in a STAR system.

Acknowledgements and funding
Supported in part by MICINN -PID2021-122470OB-I00-, JCyL through the Consejería de Educación and FSE PO 1420 - CyL -fellowship EDU/556/2019-, University of León and Ganadería AR.

doi: 10.1016/j.anscip.2023.01.258

O-183
Factors involved in pregnancy percentage of ewes from the Mexican Central Highlands

L. Castillo Hernández, G. Castillo Hernández, S. González Luna, O. Salvador Flores

UNAM, Estado de México, Mexico

Corresponding author: Omar Salvador Flores.
E-mail: omarsalvador@cuautitlan.unam.mx

Keywords: Mating season; Body condition score; Pregnancy diagnosis; Ultrasound

The reproductive activity of ewes is mediated by different factors such as the nutrition, photoperiod, breed, age, body condition score (Kenyon et al., 2014). The variation of these factors will be reflected in conception success. Many reviews had reported individual effects and interactions between them, the most studied are the interactions between weight, nutritional level and body condition score on fertility; however, there are few studies that report the interaction between ewe body condition score and mating season on pregnancy rate. Thus, the objective was to evaluate the pregnancy percentage of ewes when mating was carried out in different seasons and body condition scores. Material and Methods A total of 775 pregnancy diagnoses were performed on ewes of Katahdin breed 35 days after mating by ultrasound equipment. The data were recorded in spring, summer, fall and winter during two consecutive years. Also, the ewes were classified according to their body condition score at mating in 4 categories (1, very low; 2, low; 3, good and 4, fat). The pregnancy percentage was recorded as 1 for positive and 0 for negative ewes. For data analysis, a logistic regression model was fitted considering the interaction effect of body condition and season using PROC LOGISTIC of SAS. Significance was declared at $P < 0.05$, otherwise indicated. Results and Discussion The analysis revealed a significant interaction between season and body condition score at mating on pregnancy percentage, which was reported by Semakula et al. (2020). The conception rates according to mating season were: 67.2%, spring; 91.9%, summer; 97.5%; fall and winter, 92.5%. The higher conception rates (97.6%) were detected in the fall season with a good body condition score of 3 units ($P < 0.001$). On the contrary, the lower values (33%) were found in the spring season and the lowest body condition score. The presented results clearly indicated the influence of body reserves coupled with mating season on reproductive performance. In conclusion, the higher pregnancy percentages of ewes were detected during fall and with body reserves of 3 at mating. The results support the importance of monitoring body reserves and choosing the most favorable season for improving conception rate and subsequent fertility as it has been widely studied.

Acknowledgments
Proyecto CI2251. Evaluación de los efectos del genotipo y ambientales sobre la eficiencia reproductiva y productiva en ovejas. 2022.

References

Kenyon, P.R., Maloney, S.K., Blache, D., 2014. Review of sheep body condition score in relation to production characteristics. New Zealand J. Agric. Res. 57, 38–64.
Semakula, J., Corner-Thomas, R.A., Morris, S.T., Blair, H.T., Kenyon, P.R., 2020. The effect of age, stage of the annual production cycle and pregnancy-rank on the relationship between liveweight and body condition score in extensively managed Romney ewes. Animals 10, 784.

doi: 10.1016/j.anscip.2023.01.259

O-184
Scrotal circumference as a trait for reproductive selection in white merino breed

R. Romão [a], N. Carolino [b], T. Perloiro [c], E. Bettencourt [a], C. Bettencourt [d]

[a] MED – Instituto Mediterrâneo para a Agricultura, Ambiente e Desenvolvimento, Universidade de Évora, Portugal
[b] Instituto Nacional de Investigação Agrária e Veterinária, I.P. (INIAV), Fonte Boa – Estação Zootécnica Nacional, Portugal
[c] ANCORME – Associação Nacional de Criadores de Raça Ovina Merina, Évora, Portugal
[d] Centro de Experimentação do Baixo Alentejo, Direcção Regional de. Agricultura e Pescas do Alentej, Portugal

Corresponding author: Ricardo Romão.
E-mail: rjromao@uevora.pt

Keywords: Ram; Merino; Scrotal circunference; Reproduction

Introduction
Scrotal circumference (SC) is one of the parameters that can be measured in males. It is perfectly stablished the relationship between SC and many reproductive characters. In sheep there are recommendations of not using lamb or adult rams with SC less than 30 cm and 32 cm respectively and indicating satisfactory potential breeders, when rams between 6–13 months have SC of 30–35 cm and males >14 months have a SC of 33–39 cm.
The use of primary traits, as general appearance, lamb growth rates and efficient gain as criteria for selection, disregarding reproductive traits as SC, can be responsible, in time, for decreasing the SC mean in the breed. It is important to understand the present status of Portuguese merino breed, advising farmers for the importance of this parameter as selection criteria.

Material and methods
SC was measured in white (n = 436, 352 animals) merino rams, included in the Portuguese flockbook, from 5–177 months (0–14 years). Animals were randomly measured along the year in 19 farms using a flexible measuring tape in the widest part of the scrotum, holding testis in a distal position. Five age categories were used for classification of the males and environmental traits such as season, body score and farm were analysed because of expected influence in SC.
Statistical analysis was performed using SAS® 9.4 software, through MEANS and GLM procedures.

Results and discussion
The means of the SC of animals of different age groups (6–12; 12–18; 18–24; 24–36 and >36 months) were estimated, respectively 25.7, 29.4, 31.1, 34.8 e 34.9 cm, and a greater variability was observed in the younger age groups (VC's of 12.5 and 19.6%), partly because animals were in the growth phase and with individual differences in the onset of puberty, that is variable and usually occurs between 5–7 months of age, when 65% of body weight is achieved.

Conclusion and implications
Although the mean values of SC observed in animals >24 months are close to the values indicated by the American Sheep Industry Association (33 cm and 35 cm), of the 245 available records, only 175 (71%) are within these values. There were also significant differences (P < 0.05) in the SC of animals from different farms, maybe due to different environmental farm conditions, such as genetic differences, eventually because some breeders are more prone to the use this parameter in selection.
This is the first study on the SC of this breed in Portugal and results can be an important standard indication, as well as a tool when selecting males.

Acknowledgements and funding
This presentation is funded by MED (Instituto Mediterrâneo para a Agricultura, Ambiente e Desenvolvimento). We thank the collaboration of the ACORME's farmers in collecting this data on the farms.

doi: 10.1016/j.anscip.2023.01.260

O-185
Parameterisation of winter lamb production in the extensive sheep production system with rotational and holistic grazing

F. López Gallego, O. Aceituno

Cicytex. Junta de Extremadura, Guadajira, Spain

Corresponding author: Fermín López Gallego.
E-mail: fermin.lopez@juntaex.es

Keywords: Lamb; Winter fattening; Rotational; Holistic

Introduction
The objective was to evaluate technical-economic parameters of the production of lambs reared in winter on concentrate feed or pasture, in the extensive sheep system with rotational or holistic grazing.

Material and methods
Merino lambs, born in September in two flocks of the experimental farm Valdesequera (Cicytex) managed in two grazing systems: rotational (C) and holistic (H), are studied in fattening with concentrate and weaned (C: natural lactation in grazing until weaning at 44 days, with availability of starter feed from day 24, and fattened with feed and straw ad libitum until slaughter; 74 lambs) and in fattening with grass and suckling (H: natural lactation without weaning and grazing until slaughter; 74 lambs). Lambs were marketed at 88 days of age (26.9 ± 0.6 and 24.6 ± 0.4 kg, respectively), however, H lambs needed to be weaned and fattened on fattening feed and straw to reach mar-