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Proximal composition, mineral content, and texture of meat from light lambs and non-pregnant ewes

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Introduction
Spain is one of the largest producers of sheep meat in the EU-27, with suckling lamb or light lamb being the typical product. Since lamb consumption has decreased in recent years, it is essential to look for strategies to increase the income of farmers, including the use of other types of animals. Near the 2% of the herd are non-pregnant ewes, which represent great losses for the farmer. To value non-pregnant ewes' meat would be a viable market strategy but the age and sex of the animal influence the quality of its meat, including nutritional characteristics, which can determine the purchasing decision of consumers aware by health. The objective of this study was to evaluate the nutritional quality of the meat of non-pregnant ewes and light lambs (males and females) of the Merino breed.

Material and methods
We used 10 ewes (in average, 26.7 Kg of Hot Carcass Weight), and 20 lambs (half females, half, males; 10.9 Kg Hot Carcass Weight, 3 months-old). After carcasses cooling (24 h/4 °C), the muscle Longissimus thoracis et lumborum was extracted and sampled for determination of the proximal composition (NIRS Foss), mineral content (atomic emission spectrometry in plasma ICP) and texture (TPA, Instron 5543). An ANOVA with the type of animal as fixed effect and a Tukey test for differences between means ($p < 0.05$) were performed.

Results and discussion
The ewe's meat presented a lower percentage of moisture (72% vs. 75%), but higher content of fat (7% vs. 3.5%), saturated fats (2.3% vs. 1%), collagen (2.2% vs. 0.9%) and ashes (3.4% vs. 2%) than that of lambs, in which no influence of sex was found, accordingly with other authors (Martinez-Cerezo et al., 2005). The ewe's meat had higher amounts of calcium (11.5 mg/100 g vs 6.2 mg/100 g) and iron (3.3 mg/100 g vs 1.9 mg/100 g) and lower amounts of the other minerals than the lambs' meat, without differences between sexes. The ewe's meat had 350 mg/100 g of K, 25.3 mg/100 g of Mg, 46.9 mg/100 g of Na and 197.0 mg/100 g of P, while the data for lambs were 408 mg/100 g of K, 28.3 mg/100 g of Mg, 61.3 mg/100 g of Na and 235.5 mg/100 g of P. No differences were found between batches for Zn content (2.7 mg/100 g; $p = 0.216$) nor for hardness (54.0; $p = 0.321$) or adhesiveness (0.2; $p = 0.937$), indicating that the texture of the ewe's meat is like that of lambs.

Conclusion and implications
The meat quality of the non-pregnant ewes is like that of typical light lambs and a viable market strategy.

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Reference

Martinez-Cerezo, S. et al., 2005. Breed, slaughter weight and ageing time effects on physico-chemical characteristics of lamb meat. Meat Sci. 69, 325–333. https://doi.org/10.1016/j.meatsci.2004.08.002.

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Miscellaneous

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The status of sheep production in Malawi. The opportunities and the challenges

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