

Effect of time spent on pasture on milk production and quality in Latxa dairy sheep

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Introduction Dairy sheep production systems in the Basque country are pasture based. Forage resources are managed by shepherds who match herbage, forage and supplement availability with production requirements. This is achieved through a part-time grazing system, where ewes spend 3 to 7 hours grazing. The aim of this study was to evaluate the effect of restricted access to pasture on milk production and quality.

Materials and methods The experiment was conducted during the spring of four consecutive grazing seasons (2000 - 2003). Each year 48 multiparous Latxa dairy ewes were blocked into homogeneous groups of 12, on the basis of lactation number, day of lactation (DIM), milk yield (MY) and body weight (BW). Initial mean values for MY for the different years were respectively 1333, 1307, 1583 and 1818 ml d⁻¹, for BW 62.5, 68.4, 62.2 and 58.3 kg, and for DIM 28, 40, 42 and 44 days. Each year blocks were randomly assigned to one of the following experimental treatments: i) 4 hour-access to pasture (4H) or ii) 7 hour-access to pasture (7H). In 2001 all ewes were offered the same concentrate, while in 2003 ewes were offered concentrates with a different protein content (130 vs. 190 g kg⁻¹ CP), and in 2000 and 2002, concentrates had a different degradability. Concentrate intake was measured for each ewe. Sward heights were maintained between 6 and 8 cm. After the evening milking each ewe was offered 250 g DM of lucerne hay. Grazing behaviour was recorded once weekly, with ewe activity assessed every 5 minutes. Milk yield for each ewe was recorded and collected once a week at morning and evening milking. Milk samples were analysed for protein and fat contents. Standardised milk yield (SMY) was calculated as described by Bocquier *et al.*, (1993). Data were analysed using the GLM procedures with year, concentrate, time on pasture, week and all possible interactions as fixed factors, and initial values as covariates.

Results With the exception of 2003, the interaction between supplement type and time spent on pasture was not significant. There were no significant differences between any of the variables in 2001. However, for each of the other years, time spent on pasture significantly increased MY (Figure 1), decreased milk fat content, and resulted in a significant increase in SMY (Figure 2). Although significant differences in total grazing time were observed (246 vs. 196 min/day, P<0.001), the impact of this on production was limited (<10%). This is probably due to non-significant differences on herbage intake (Perojo *et al.*, 2003).

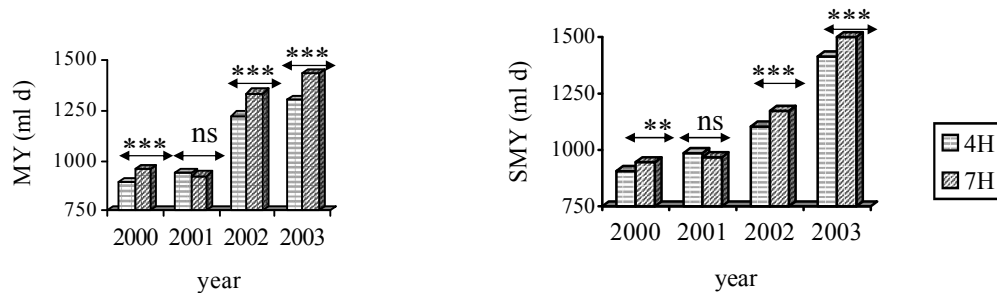


Figure 1 Effect of time spent on pasture (4H vs 7H) on milk production (ml d⁻¹)

*: P<0.05; **: P<0.01; ***:P<0.001

Figure 2 Effect of time spent on pasture (4H vs 7H) on standardised milk yield

*: P<0.05; **: P<0.01; ***:P<0.001

Conclusion Increasing the time spent on pasture from 4 to 7 hours per day had a limited effect on milk yield and milk quality (10%), probably a consequence of a similar herbage intake.

References

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