



MANAGEMENT OF GRAZING CIRCUITS IN ORDER TO PROMOTE EXTENSIVE LIVESTOCK WELFARE



Marina Castro¹⁻²; José F. Castro¹; Esther Fernández-Núñez²

¹ Dept. Ambiente e Recursos Naturais, ESA-IPB, Centro de Investigação de Montanha (CIMO),
Campus de Santa Apolónia 5300-854, Bragança, Portugal.

marina.castro@ipb.pt



Introduction

In Northeast Portugal, small ruminant production is an extensive activity based on daily movements of livestock around their villages. Driven by shepherds, goat and sheep flocks use several daily itineraries. Some decisions about the circuit's organization are greatly influenced by the environmental conditions because animals are very sensitive to extremes of temperature and availability of resources.

Material and Methods

The experiment was carried out in the Morais hamlet (600 msl), in Bragança region, Northeast of Portugal (European Nature2000 network, PTCON0023). The climate is sub humid Mediterranean (T^a-14.6 °C, P- 636 mm). It is one of the most representative ultramafic lithological units in the world, the largest and continuous serpentinite rocks area in Portugal.

Soils: poor in nutrients, rich in heavy metals (Ni, Cu).

Objective

To determine sheep and goat grazing itineraries – length, duration and seasonal variation of morning departure and evening return- based on three goat and three sheep flocks monitored along their grazing circuits.

Vegetation: Perennial sclerophyllous woodlands with changeable combinations of Fagaceae and Crupressaceae species (*Quercus suber* L., *Q. rotundifolia* Lamk, *Q. faginea* Lam and *Juniperus oxycedrus* L.)

Fieldwork was conducted over the territory of Morais. Three goat and three sheep flocks were monitored along their grazing circuits with a hand rover GPS, every three months for a year, in order to determine morning departure and evening return, and grazing itineraries length and duration.

Results

Morning departure varied significantly according to animal species and seasons (P < 0.05). Sheep flocks set out for pasture earlier in the morning than goats, and their departure for pasture was even earlier in autumn and summer (before 08:00) than in winter and spring (after 10:00). Evening return was significant later in sheep flocks than in goats' (P < 0.01), although the higher differences were found in summer where goats return from pasture before 21:00 while sheep flocks return only after 01:00.

Sheep spent more daytime on grazing itineraries than goats (P < 0.05) independently of the season (Fig.1). The greatest differences were found in summer and spring where daytime grazing itineraries of sheep were higher than goats, 3 h 8 min and 1 h 42 min respectively.

The length of the grazing itinerary was significantly longer in autumn compared to the other seasons (P < 0.001).

Conclusions

Sheep spent more daytime on grazing itineraries than goats independently of the season.

The greatest differences were found in summer and spring.

The length of the grazing itineraries was significantly longer in autumn compared to the other seasons.

The management of grazing circuits (length, duration and their schedule) contributes to improve animal welfare in this ICLF system.

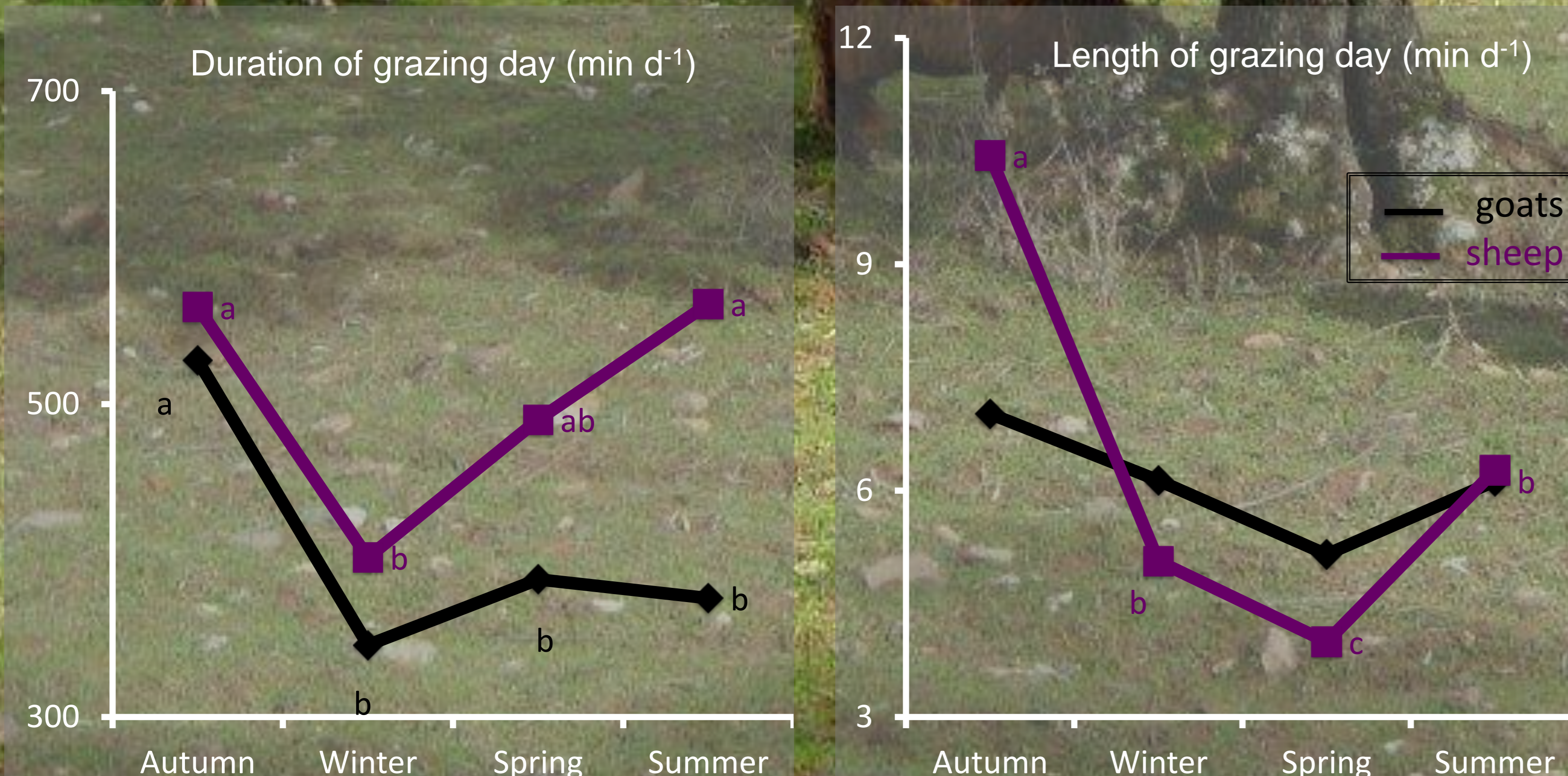


Figure 1. Duration of the grazing day and distances walked per day by season in goats and sheep. Different letters indicate significant differences between seasons in the same animal (p <0.05 and p <0.001 for duration and length, respectively).