

## Grazing behaviour and performances of Pirenaica and Brown Swiss heifers

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Grazing behaviour and performance of ten Brown Swiss and ten Pirenaica 15-month-old heifers, with pretrial weights of 327 (11.3) and 325 (8.8) kg respectively, were compared. The study was carried out at the Bescós de la Garcipollera research station (altitude 900 m), in the Spanish Pyrenees.

By mid-May they were transferred to the experimental areas and allowed to graze on a natural prairie (37 % *P. pratensis*, 26 % *F. arundinacea*, 20 % *T. repens*, etc.) for 50 days. Herbage availability decreased from 3170 kg DM/ha (16.1 % DM, 81.3 % digestibility) at the beginning to 1130 kg DM/ha (46.4 % DM, 55.5 % digestibility, 65.9 % dead material) at the end of the experiment.

All animals were weighed at fortnight intervals and individual daily gain was estimated from the coefficients of regression between weight and day. Grazing activity was noted down every 30 minutes from 05.30 to 23.00 h for eight times at 6-day intervals, and night activity was recorded twice. Biting rate was established by counting the number of bites in two minutes, all day through and providing that at least three measurements per heifer were daily taken. Total number of daily bites was calculated as daily average biting rate x grazing time.

Brown Swiss heifers grazed for longer than Pirenaica heifers ( $P < 0.01$ ). Both breeds showed a similar daily distribution of grazing activity, with three main grazing periods per day and resting periods around 10.00 and 16.00 h. Grazing activity by night was low (4.5 and 15 min in two night controls), as expected in long days (Erlinger *et al*, 1990, J Anim Sci, 68, 3578-87). No relationship was found between daily grazing time and herbage availability, dry

matter content, digestibility or biting rate.

Biting rate tended to be higher in Brown Swiss animals ( $P = 0.09$ ). Quadratic regressions of biting rate on dry matter content ( $r^2 = 0.44$ ,  $P < 0.05$ ) and herbage availability were significant, with Pirenaica heifers being more adjusted to the latter than Brown Swiss ones ( $r^2 = 0.43$  vs  $0.27$ ), as was observed for linear regression on digestibility ( $r^2 = 0.28$  vs  $0.13$ ). While biting rate and dry matter content increased throughout the experimental period, herbage availability and digestibility decreased. Total number of daily bites was significantly higher in Brown Swiss animals ( $P < 0.01$ ), and significant quadratic regressions of daily bites on herbage dry matter content, availability and digestibility were found.

Sampling day had an important effect on grazing time, biting rate and total number of bites ( $P < 0.001$ ), but no interaction between breed and day was found.

While average daily gains on pasture were higher ( $P < 0.05$ ) for Pirenaica heifers, no differences in either intakes or gains were observed in indoor conditions (Casasús *et al*, 1995, VI Jornadas de Producción Animal, AIDA, Zaragoza). While the number of daily bites was significantly higher in Brown Swiss heifers, daily gain was lower than in Pirenaica ones. These contradictory results could be explained by possible differences in bite size (Forbes, 1988, J Anim Sci, 66, 2369-79) or the degree of diet selection. However, differences in serum pepsinogen levels between heifers of both breeds (Llorente *et al*, 1995, VI Jornadas de Producción Animal, AIDA, Zaragoza) suggest that Brown Swiss heifers were more affected by subclinical parasitic infections, which could explain the differences observed in animal performance.

	BROWN SWISS	PIRENAICA	
Grazing time (h/d)	8.68 (0.139)	8.27 (0.129)	$P < 0.001$
Biting rate (bites/min)	52.4 (0.67)	51.1 (0.73)	$P = 0.09$
Number of daily bites	26920 (736)	24729 (665)	$P < 0.001$
ADG (kg/d)	0.83 (0.04)	1.02 (0.05)	$P < 0.05$

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