

The effect of two-week access to willow foliage on the immune status of goats in late lactation

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In a previous study, we showed that access to willow fodder decreased somatic cell counts (SCC) in the milk of local Mamber goats grazing in brushland at the end of lactation. In the present study 48 Alpine crossbred grazing in the same environment were offered free access to freshly cut willow fodder (W, n=24) or not (C, n=24) for two weeks. Udder health status was determined before the experiment and each the two groups included 6 goats defined as infected by cfu in milk and 18 non-infected goats. Goats ingested, on average, 600 g of DM from willow, resulting in minor change in dietary quality. The willow contained 13 g/kg DM of salicin. Goats in W and C did not differ in milking performance and in milk attributes. Initial SCC and milk neutrophils (CD18+ and PG68) cells were initially higher ($P<0.01$) in infected than in non-infected goats and decreased significantly in W ($P<0.05$ and $P<0.01$, in the same order) but not in C uninfected goats, throughout experiment. Throughout experiment, the percentage of CD8+ T-cells increased strongly ($P<0.001$) in all C goats. In contrast, a significant increase was found in the W group ($P<0.01$) only for the infected goats. Overall, eating willow mitigated the increase of CD8+ ($P<0.05$). When treatments were spliced, eating willow mitigated ($P<0.01$) the increase in percentage of CD8+ in non-infected goats, but not in infected goats. Another interesting, but puzzling finding is related with reticulocytes, whose counts in blood increased in W but not in C goats. Data suggests anti-inflammatory and anti-stress effects for willow fodder in late-lactating goats. However, no effect was found in SCC in milk, which raises the question of the validity of this estimate in the late lactation of goats. This is the first report of a direct nutraceutical effect on the immune status of goats.

Differences in growth between Corriedale sheep divergent lines for resistance to nematodes

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The association between genetic resistance of lambs to gastrointestinal parasites (GIP) with dry matter intake (DMI) average daily gain (ADG) and residual feed intake (RFI) was studied. Sixty-four Corriedale lambs (357±14 days old), from divergent lines for resistance to GIP (27 resistant-R and 37 susceptible-S) developed by the Uruguayan Wool Secretariat were used. The animals were allotted to one of five outdoor pens, they were stratified by sex, body weight, and sire. Each pen was equipped with five automated feeding systems and two automatic weighing platforms allowing individual records of feed intake and body weight. After 14 days of acclimatization to diet (*ad libitum* Lucerne silage: DM 36.5%, CP 21.7%, ME 2.51%) and feeding system, two tests were run over two periods of 44 (P1) and 42 days (P2), respectively. Firstly, the animals were maintained worm-free (P1) followed by an artificial infestation of *Haemonchus contortus* (P2). The infestation occurred in three consecutive days with 2,000 L3 larvae per day. The second period was split into two subperiods from 0-23 and 24-42 days post infestation (P2a and P2b, respectively). Records for faecal egg count (FEC) were taken in days 9, 23, 27, 30, 42 post infestation. The DMI (kg/day) was computed as the average of the individual daily intake, ADG (kg/day) was calculated by regression using all weights for each period, RFI is the residuals resulting from the model $DMI = ADG + \text{metabolic weight (defined as mid-weight for each period } \pm 0.75) + \text{pen (1-5) + type of birth (1 or 2)}$. There were no differences between lines in DMI, ADG, RFI for both periods. However, statically significant differences ($P<0.05$) were found in P2b for ADG and FEC (at day 23). The R line showed higher ADG than S line (0.132 ± 0.017 vs 0.091 ± 0.014 kg/day) and lower parasite infestation (1,049 vs 2,479 back-transformed FEC mean). Probably, the high CP diet content and the age of the animals contribute to decreasing the differences in FEC between lines. These preliminary results suggest a difference in growth pattern between R&S lines during the infestation period without effects on DMI.