

78. Feed intake of Jabal Akhdar goats grazing mountainous rangelands in northern Oman
(Futteraufnahme von Jabal Akhdar Ziegen auf Bergweiden des Nordoman). Martina Predotova, Eva Schlecht and A. Buerkert – Kassel/Stuttgart-Hohenheim

By supplying nutrient-rich manure and high-valued meat, goats play an important role in the oasis agriculture of the Hajar Mountains in northern Oman. During the day, flocks of up to one hundred goats graze the hill slopes and mountain plateaus surrounding the villages. Overnight, goats rest at the homestead and are fed weeds and green forages cultivated in the gardens. Small fish and dried dates are offered as supplements. Since year-long drought and overstocking reduced the supply of forage from the pastures, it seemed doubtful that grazing contributes substantially to goats' feed intake in this system.

Methods: In spring 2005, feed intake of 23 male Jabal Akhdar goats was determined near Saiq (23.069 N, 57.641 E, 2000 m a.s.l.), in three villages located at 1000, 1700 and 1980 m a.s.l.. TiO₂ (3 g/animal/day) was used as faecal marker; overall diet digestibility was derived from the faecal crude protein (CP) concentration (1). After 4 d pre-experimental TiO₂-dosing, samples of faeces, of feed offered at home and of feed refused were collected during 7 d; amounts of feed offered and refused were quantified. Goats' forage selection during grazing was observed during 4 d and selected plants were sampled. All samples were analyzed for dry and organic matter (DM, OM), nitrogen (N) and phosphorus (P). For all feeds, OM digestibility (OMD) and metabolizable energy (ME) content were assessed using the Hohenheim gas test.

Results: From Dec 2004 – Mar 2005, over 200 mm rain fell at Saiq, triggering germination and growth of the pasture vegetation. Per kg OM, OMD and ME in selected plants ranged from 336 – 731 g DOM and from 3.2 – 8.9 MJ ME. N and P concentrations varied between 7 – 35 g N and 0.4 – 3.2 g P/kg OM. The overall diet OMD (g/kgOM) as determined from faecal CP averaged 650 (SD 19.2), 672 (SD 20.3) and 700 SD (21.0) in the three villages. The amount and quality of feed ingested on pasture and at the homestead varied with location (Table 1), due to differences in (i) the botanical composition of the vegetation, (ii) the size of the grazing area and (iii) the feeding practices of individual farmers.

Table 1: Means and (SD) of organic matter intake (OMI, g kg^{-0.75} d⁻¹) of Jabal Akhdar goats in three Omani villages from feeds offered at the homestead and plants ingested on mountainous pastures.

Different letters signify differences at $P < 0.05$ between means in a row.

Parameter	Sherageh (2000 m a.s.l.)	Al Qashe'a (1700 m a.s.l.)	Masirat al Ruwajih (1000 m a.s.l.)
Animals (n)	8	8	7
Live weight (kg)	27 (5.5)	32 (6.6)	27 (5.9)
OMI homestead: Green feed	15 (10.4) ^a	2 (1.9) ^b	19 (8.4) ^c
Supplements	25 (15.8) ^a	28 (11.3) ^a	23 (12.4) ^a
OMI pasture vegetation	26 (15.9) ^a	53 (15.5) ^b	27 (16.7) ^a

Conclusions: Despite the apparently low amount of forage on offer on the mountainous pastures, goats managed to ingest a substantial proportion of OM from the natural vegetation. Whether this was primarily due to the high rainfall occurring in spring 2005 is examined in a second study. If the present results are substantiated, the current grazing management may need modification to avoid overgrazing of the pastures by increasing numbers of goats in the area, which will threaten the systems' longer-term sustainability.

- 1) LUKAS, M., SÜDEKUM, K. H., RAVE, G., FRIEDEL, K., SUSENBETH, A. (2005): J. Anim Sci. 83: 1332-1344

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