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## Feed Intake of Supplemented Goats on Communal Pastures in the Al Jabal al Akhdar Mountains, Northern Oman

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### Abstract

Goat husbandry is an important activity in the agro-pastoral systems of the Al Jabal al Akhdar mountains in northern Oman, supplying food, income and manure to farm households. Farmers cultivate fodder crops such as maize, barley and alfalfa; in addition they offer purchased supplements, including dates, fish and barley grain to the animals at the evening feeding. During the day, the goats graze the natural vegetation on the communal pastures surrounding the villages.

To determine the total organic matter (OM), nitrogen (N), phosphorus (P) and metabolisable energy (ME) intake of goats and identify the contribution of the natural vegetation, a study was conducted in three villages of the Al Jabal al Akhdar mountains during October - December 2005. The quantity of faeces excreted daily was determined in 8 male goats per village using the external marker  $\text{TiO}_2$ , and overall diet digestibility was calculated from the concentration of crude protein in faecal OM. The amounts of feeds ingested at the homestead were determined by weighing offer and refusal during the 7-day experimental period.

Goats' daily OM intake on pasture accounted for 47% - 71% of total OM intake ( $88 - 107 \text{ g kg}^{-0.75}$ ), indicating the strong reliance of goat husbandry on the natural vegetation. However, since energy and nutrient concentrations were low in the pasture plants, feed intake of goats during grazing provided only 51% - 65% of the total N intake, and the daily intake of ME ( $741 \text{ kJ kg}^{-0.75}$ , SD 125.3) and of P ( $104-133 \text{ mg P kg}^{-0.75}$ ) were mainly based on the supplements offered. While P intake was below the recommended maintenance values, ME intake covered maintenance requirements but appeared to be insufficient for growth and production. However, intake values determined shortly after heavy rainfall in April 2005 suggest that nutrient and energy deficiencies might be restricted to periods of the year when the nutritional quality of the pasture vegetation is low. Moreover, nutrient requirements of the local Jabal Akhdar goat might differ from temperate breeds for which requirements have been established. The productivity of the local breed under the feeding practices of farmers on the Al Jabal al Akhdar should therefore be studied in more detail.

**Keywords:** Al Jabal al Akhdar, faecal marker, goats, grazing, intake, Oman