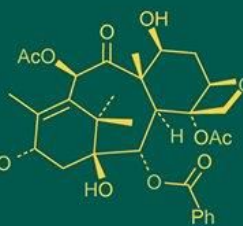
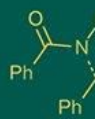


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Dietary crude protein and dry matter management in diet a critical approach for growth and development of goats in Rajasthan

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Abstract

Goat rearing is an important business in Rajasthan, contributing to the rural economy. Dietary crude protein and dry matter management in diet is an important factor for growth and development of goats. In this study, we have analyzed the requirement of crude protein and dry matter in diet for goats in Rajasthan. Our findings indicate that the requirement of crude protein and dry matter in diet for goats is 12-15% crude protein and 60-70% dry matter. A lack of adequate crude protein and dry matter in the diet can adversely affect the growth and development of goats. Therefore, we recommend that goat rearers should provide balanced diet for their animals, fulfilling the requirement of crude protein and dry matter. This will improve the growth and development of goats and increase their productivity.

Keywords: Goat farming, feed management, crude protein, dry matter, growth and development

Introduction

Goat husbandry is an important business in Rajasthan, which contributes to the pastoral frugality. Diet is an important factor for the growth and development of scapegoats, which requires crude protein and dry matter. Lack of crude protein and dry matter in the diet can average negative impact on the growth and development of scapegoats, which also affects their productivity and health by (Lamba *et al.*, 2002) ^[4]. The minimal protein demand for conservation, as determined from endogenous urinary and metabolic fecal nitrogen excretion in studies involving nitrogen-free and low-nitrogen metabolism, ranges from 1.23 to 1.61 grams of digestible crude protein per kilogram of body weight (Senger, 1980) ^[10]. likewise, adding the crude protein content in total mixed sections (TMR) not only boosts crude protein input (CPI) but also improves the insipidity of crude protein and enhances the growth performance of Thai indigenous scapegoats (Chobtang *et al.*, 2009) ^[1]. For optimal growth and development of scapegoats in Rajasthan, salutary crude protein (CP) and dry matter (DM) operation are pivotal. Then is a breakdown of conservation 7 CP in the diet for mature, healthy scapegoats Growth, gravidity, and lactation Advanced CP conditions, up to 16 CP utmost recons contain acceptable protein for conservation, but lactating, growing, or devitalized scapegoats may need protein supplements like legumes or soybean by Kumar *et al.*, 2024 ^[3]. The reduction of crude protein (CP) in the diet led to a drop in nitrogen excretion and an improvement in nutrient application by perfecting rumen turmoil, digestion, immersion, and modifying the rumen microbiota in growing scapegoats (Zhang *et al.*, 2020) ^[12] also, in Boer crossbred scapegoats, an increase in salutary crude protein was associated with advanced situations of crude protein input, average diurnal gain, nitrogen balance, and microbial protein force (Pilajun *et al.*, 2023) ^[8] scapegoats consume 1.8-2.0 of their body weight in dry matter per day by Yadav *et al.*, 2019 ^[11].

Methods and Materials

The research plan encompasses the gathering of data concerning the feeding and management practices adopted by goat owners in selected villages, achieved through personal interviews and direct observations of forty-nine randomly chosen farmers from five

villages within the Tehsil of Bonli in the Sawaimadhopur district. The local climate and seasonal variations significantly influence the dietary habits of goats, necessitating dietary modifications during extreme weather conditions, such as intense heat in summer or severe cold in winter, to help the animals adapt to environmental challenges. The study also involved detailed observations of the differences in feeding practices, which included the preparation of feed, the frequency of feeding and watering, and the types of labor utilized for these tasks within the selected households. The primary aim of this research is to conduct a thorough survey of goat farming in the villages of Tehsil Bonli, Sawaimadhopur, Rajasthan, with the intention of understanding the feeding patterns of goats in relation to the socioeconomic status of their owners, thereby facilitating a comprehensive analysis of goat farming practices in Eastern Rajasthan.

Average D.C.P intake for goats

Goats, as ruminant animals, possess specialized digestive systems that enable them to efficiently process fibrous

feeds. They derive a significant portion of their protein requirements from grazing on pastures and browsing on shrubs and trees. To fulfill their Digestible Crude Protein (DCP) needs, it is essential to provide high-quality forages rich in protein. In certain circumstances, particularly during specific growth or production phases, goats may require supplementation with concentrate feeds, such as grains or specially formulated commercial feeds, to satisfy their elevated DCP demands (Sen and Ray, 1964) ^[9]. It is imperative to ensure a balanced diet that not only meets the protein needs of goats but also supplies sufficient energy, minerals, and vitamins to promote optimal health and performance. Notably, roughages contribute only 40.90 percent of the total DCP, with the remaining 59.10 percent sourced from more expensive concentrate ingredients, highlighting the inadequate protein quality of the roughages utilized. Furthermore, it was observed that households with a larger number of goats tended to have a lower daily intake of DCP. The value for daily DCP intake per goats in groups- I (5 goats), II (5-10 goats), and III (more than 10 goats) recorded as 0.051, 0.048 and 0.086 kg respectively.

Table 1: Average D.C.P intake through for goats.

Av. No. of adult goats	Av. Body weight (kg)	Average D.C.P intake through (kg)		
		Roughage	Concentrate	Total
3.29	32.28	0.016-31.37 @	0.035-68.63 @	0.051
7.65	27.64	0.021-43.75 @	0.027-56.25 @	0.048
13.00	33.59	0.016-37.20 @	0.029-62.80 @	0.086
7.16	29.84	0.018-40.90	0.029-59.10	0.044
105.49**	2.97*	0.33NS	4.30*	2.49NS

Average intake Dry Matter (DM) for goats

The findings of the current study indicate that the average daily dry matter intake for goats ranged from 1.17 to 2.49 kg, with an overall mean of 1.72 kg per goat. Furthermore,

no notable differences were observed in the average total dry matter intake or the average dry matter provided, whether from roughages or concentrate components of the diet, despite variations in herd size per household.

Table 2: Average intake Dry Matter (DM) for goats

Av. Body weight (kg)	Average D.M. intake through (kg)				
	Dry	Green	Total	Conc.	Total
32.28	0.43.	0.26	0.69-69.70 @	0.29-30.30 @	0.99
27.46	0.40.	0.26	0.67-75.28 @	0.22-24.72 @	0.89
33.59	0.40.	0.30	0.75-78.13 @	0.19-21.87 @	0.96
	0.14	0.27	0.68-73.91 @	0.24-26.09 @	0.92
2.97*	0.19NS	0.29NS	0.93NS	4.28*	1.15NS

The daily dry matter (D.M.) intake values for goats are categorized into three groups: Group I (5 goats), Group II (5-10 goats), and Group III (more than 10 goats). It was observed that goats with medium body weight had a higher D.M. consumption, averaging 32.28 with a D.M. intake of 0.99, while those with lower body weight consumed less, averaging 27.46 with a D.M. intake of 0.89. Furthermore, the average daily dry matter intake, whether from roughages or concentrates, increased as the size of the goat herd per household decreased. Notably, the contribution of roughages and concentrates to the total daily average D.M. supply for goats was calculated to be 81.40% and 18.60%, respectively. These findings align with the observations made by Patil *et al.* (2020) ^[7] on Osmanabadi goat kids and Datta T.K. *et al.* (2024) ^[2] regarding Barbari goat kids.

Conclusion

Crude protein and dry matter management in diet is an important factor for growth and development of goats in

Rajasthan. It is clear from this study that goats require adequate crude protein and dry matter in the diet to ensure their growth and development. Managing DCP and DM in diet of goats in Rajasthan is critical for their growth and development, especially regions climate challenges. Proper feed of given fodder and mixed with concentrate taken by according requirement of dry matter basis. This study find the find the DCP is shortage and DM to good availability to suggest the farmer given more green fodder offer to better growth performance and good reproduction works. And to suggest better housing management proper day by day check to health related issues. To good wish good management to good growth, maintains and reproduction works.

Recommendation

Goat keepers should provide a balanced diet for their animals, which fulfills the requirement of crude protein and

dry matter. This will improve the growth and development of goats and increase their productivity.

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