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Field trial report on evaluation of (Protein C) as complete health supplement on growth of goats under field condition in Uttar Pradesh

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Abstract

A lack of systematic and appropriate feeding strategy causes production and performance retardation leading to suboptimal economic gains to livestock farmers. The study was conducted to evaluate the effects of a novel and complete health supplement Protein C (Hester Biosciences Ltd.) on growth performance and economic efficiency of semi intensively grown goats in field condition of Uttar Pradesh. Protein C is a complete feed supplement with added benefits of Propylene glycol, biotin and micronized minerals in addition to rumen protected protein. Total 10 growing goat kids BW 10-15 kg were randomly divided into 2 groups of 5 animals each. Animals in the control group (I) were maintained as per farmer practice, while animals in treatment group were additionally supplemented with Protein C @20 ml/animal/day. Body weight change, skin coat, hoof and horn condition and disease incidences were closely monitored for 30 days trial period after a preliminary period of 14 days. After the experiment, higher final Body weight ($P>0.05$) was observed for treatment group T2 (12.38±.57 kg) as compared to control T1 (11.64±1.18) the initial BW being similar i.e. 11.12±.51kg and 11.10±1.17 kg for T2 and T1 respectively. A growth of 11.33% in total body weight has been recorded in treatment group in comparison to 4.8% growth in control group animals. Skin, hoof and horn condition were improved in treatment group in comparison to control group animals. A supplementation of Protein C at dose of 20 ml/day resulted in higher body weight gain in the animals with overall improvement in general body conditions.

Keywords: Feed supplement, micronized, live weight, rumen protected

Introduction

Successful livestock production requires applying strategies that optimize the use of the available nutrient sources in order to capitalize on the livestock's production potential. Nutritional constraints to improved goat production include inadequate feed supply, low feeding value of the available feed resources and reduced efficiency of utilization of the available feed resources (Lei *et al.*, 2018) [3]. Grazing and browsing on natural pastures and poor quality crop residues are the main sources of feed in most parts of the region. Goats require nutrients for body maintenance, growth, reproduction, pregnancy, and production which vary according to production potential and stages of development (Niaz *et al.*, 2017) [5]. The groups of nutrients that are essential in goat nutrition are water, energy, protein, minerals and vitamins. Deficiencies of protein and energy are the main nutritional factors limiting productivity of goats in the region. The major feed resources available for livestock feeding are green, dry roughages and agro industrial by products. Poor quality feeds due to deficiency of different nutrients cannot meet the requirements of the animals and are often supplemented with protein and energy in form of oil cake and cereals bran and concentrates to increase the productivity of animals (Mohammed *et al.*, 2013) [4]. However, ready availability, round the year varying cost and unawareness of common farmer always remains a problem and balanced nutrition cannot be offered by the farmers to their livestock at required levels. The need is to develop single feed additive with key ingredients in right proportions which should result in productive interactions to allow a balance of nutrients between those needed by the animals for growth, body maintenance and milk production and immunity under economically feasible conditions. Therefore, the objective of the present study was to investigate the efficacy of

using commercial feed supplement (Protein C) which could be vital to balance nutrient deficiencies, and enhance growth performance of goats under smallholder production systems.

Methodology

The study was done at the Goat Farm in Naini Prayagraj U.P. 10 growing goat kids of body weight 10-15 Kg were taken. Vaccination and deworming of experimental animals was followed as per standard schedule. Animals were maintained under semi-intensive system as per the farmers practice. In night time, animals were kept in pucca house and floors are made up of concrete. The animals were randomly divided into 2 groups and feeding was done as per protocol after 14 days adaptation period. 30 days feeding trial was undertaken with control group (I) were fed basal diet as per farmer practice, while basal diet of animals in treatment group was additionally supplemented with Protein C @20 ml/animal/day. Goats were weighed at the beginning of the experiment and then fortnightly until the end of the experimental period using a commercial scale and data analyzed statistically.

Result

Average body weight of the two groups at the start and end of

the experiment were taken and their overall mean \pm SE values are presented in (Table-1) The overall mean values of the groups at end of experiment were T2 (12.38 \pm .57 kg) as compared to control T1 (11.64 \pm 1.18) the initial BW being similar i.e. 11.12 \pm .51kg and 11.10 \pm 1.17 kg for T2 and T1 respectively. Average daily live weight gain was 18 \pm 3.13 grams and 41.6 \pm 2.38 grams respectively for (T1) control and (T2) treatment. Higher final Body weight ($P>0.05$) was observed for treatment group T2 (12.38 \pm .57 kg) as compared to control T1 (11.64 \pm 1.18) with growth of 11.33% in total body weight for treatment group in comparison to 4.8% growth in control group animals. Similarly Kabir *et al.* (2004) [2] also reported that no significant difference ($P>0.05$) was observed between two supplementary diets containing low protein (LP) and high protein HP diet for the values of DM intake and live weight gain although there was a tendency to increase in live weight gain in goats given the HP diet Hossain *et al.* (2003) [1] reported average daily live weight gain to be highest 52.96 gram and lowest 37.77 gram respectively with non-significant difference ($P>0.05$) for goats fed high and low energy diet.

Table 1: Average body weight of the two groups at the start and end of the experiment were taken and their overall mean \pm SE values

Protein C field trial	Initial Wt	Final Wt
Treatment	11.2	12.4
	10.22	11.5
	13.02	14.5
	10.12	11.2
	11.12	12.3
	55.68	61.9
Control	8.9	9.6
	8	8.3
	11.5	12.3
	12.9	13.3
	14.2	14.7
	55.5	58.2
Changes mean \pmSE in Body weights of goats		
Attributes	Control	Treatment
Animals No.	5	5
Initial body weights(Kg)	11.10 \pm 1.17	11.12 \pm .51
Final body weights(Kg)	11.64 \pm 1.18	12.38 \pm .57
Average daily gain in body weights(grams)	18 \pm 3.13	41.6 \pm 2.38
weight gain in 30 days (kg)	0.54 \pm .09	1.25 \pm .07
Average additional weight gain(Kg)	NA	0.71

Conclusion

Finding of this study revealed that, supplementation of goat rations with Protein C at level of 20ml/head/ day, had a positive effect on growth performance, and no adverse effect on other constituents of goats.

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