

EFFECT OF AREA SPECIFIC MINERAL MIXTURE AND ANTIOXIDANTS SUPPLEMENTATION ON LIBIDO AND SEXUAL BEHAVIOUR EVALUATION OF BARBARI BUCKS

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Abstract: A study was conducted to assess the effect of area specific mineral mixture (ASMS) and antioxidant supplementation on serum profile of Barbari goats viz. Libido and Sexual Behaviour like Reaction time, Ejaculation time, Mounting Enthusiasm, Fixing Strength and Erection status. Two years old 18 Barbari bucks were selected for the study purpose consisting six bucks in each treatment group by simple random sampling. The bucks were housed in semi-intensive system of housing. Bucks were stall fed as well as pastured. The animals were divided into three group viz. control group, treatment 1 and treatment 2. Control group were fed with 300 gm of concentrate feed per head per day for 60 days. Treatment 1 bucks were given with 20g of area specific mineral mixture along with 300 gm of concentrate feed per head per day. Treatment 2 bucks were given with 20g of area specific mineral mixture, selenium 0.5 mg, vitamin- E 250 mg, vitamin -C 2 mg in addition with 300 gram concentrate feed per head per day for 60 days. Semen collection was done at about 9.00-9.30 a.m. by artificial vagina method twice weekly per buck. Immediately after collection, physical examination of fresh semen was done first and then microscopic examination of undiluted and diluted semen was performed. The results of this study revealed that Reaction time, Ejaculation time, Mounting Enthusiasm and Fixing Strength levels differed significantly ($P < 0.05$) between control and treatment groups.

Keywords: Barbari bucks, Reaction time, Ejaculation time, Mounting Enthusiasm, Fixing Strength and Erection status.

Introduction

Goats are the first domesticated ruminant animals. They are principally maintained by poorer section of the rural community providing them a source of livelihood. Therefore still the productivity of goats under the prevailing traditional production system is very low. Different breeds of goats produce a variety of products viz. milk, meat, fiber (mohair and pashmina) and manure. These products serve as a secure form of investment, a means of income and are used for various purposes including religious and ceremonial functions. The goat population has increased at a very fast rate making it an important species of animal for meat production. Still there is tremendous potential to be projected it as the 'Future Animal' for rural prosperity under the changing agro-geo-climatic conditions.

The main constraint in any livestock production including goat is the scarcity of good breeding stock, as good breeding stock is important to propagate the particular species. The achievement of high levels of fertility and prolificacy of goat depends not only upon the female members but also upon males [1]. In order to ensure the optimum reproductive performance of any group of breeding does in which natural service is used, a thorough examination and evaluation of the bucks for breeding soundness is important. The productive and reproductive performance of goat can further be enhanced by selective breeding of does with the bucks exhibiting desirable genetic characteristics [2]. The structural soundness, quality of semen, level of libido and plane of nutrition affect the male reproductive performance [3]. The fertility status of a male individual depends on series of factors which range from animal behavior and physical conditions, to features that are linked directly to the semen such as sperm motility, sperm morphology and biochemical constituents of the seminal plasma [4]. The reproductive performance of an individual animal can be altered through supplementation of micro minerals and antioxidants by nutrition, which can be assessed by semen estimation. Keeping these in a view, the present study was undertaken to assess the effect of area specific mineral mixture and antioxidant supplementation on semen evaluation of some semen parameters of Barbari bucks.

Materials and Methods

The experiment was conducted at experimental shed complex on Central Institute for Research on Goat (C.I.R.G) Makhdoom, Mathura, Uttar Pradesh, India. Barbari bucks were used for the experiment. All the experimental bucks were marked with horn colour for easy identification. Subsequently Bucks were distributed randomly into one control group and two treatment groups, keeping initial body weight in consideration. The bucks were housed in semi intensive system of housing.

They were kept in well ventilated individual pens (3 x 5 Sq.ft) with mud floor and provided uniform housing. Bucks had been pastured as well as stall fed. They were set on pasture both dawn and dusk during whole study period. Pasture used for grazing contained mainly Doob grass (*Cynadonda ctylon*), Berseem (*Trifolium alexandrium*), Athua (*Chenopodium album*), Oats (*Avina sativa*) and leaves of Neem (*Azadirachta indica*), Poplar (*Populas alba*) and Ber (*Zizphus indicus*). After feeding each group was turned out for natural grazing for 4 hrs. The experiment was continued for 60 days.

All experimental animals were pure Barbari goats. Animals were divided randomly into three groups (6 in each group) on basis of initial body weight (32 ± 2 kgs) and kept almost same in

every group. First group was kept as control and was fed with concentrated feed of 300 gram without mineral mixture or any kind of mineral supplementation, per head per day for 60 days. Second group (Treatment 1) was fed with 300 gram of concentrated feed fortified with 20g area specific mineral supplementation and Third group (Treatment 2) was fed with 300 gram of concentrated feed added with area specific mineral mixture 20g with selenium 0.5 mg, vitamin- E 250 mg, vitamin -C 2 mg, per head per day for 60 days. Vaccination and Deworming were carried out as per standard schedule and was carried out until the end of experiment.

a) Reaction time

Reaction time was defined as the interval from introducing the buck to the female teaser until the start of first mounting.

b) Ejaculation time

Ejaculation time was recorded according to how long the semen ejaculation took after entering the buck in the collection area or introduction to female teaser or defined as the time from introduction of the buck to the test area (female teaser) to ejaculation process.

c) Mounting enthusiasm

Mounting enthusiasm was scored from – 2 to + 2: - 2 = buck does not mount, - 1 = buck mounts by sliding, 0 = mounting between sliding and jumping, +1 = buck mounts by jumping, +2 = buck jumps with great enthusiasm.

d) Fixing strength of male to female

Fixing strength was defined as the score of hind leg to fix the semi membranous muscle of female teaser during ejaculation process (scale: 3=strong fixing, 2 = medium fixing, and 1= weak or no fixing the teaser).

e) Erection status of penis

Erection status was defined as appearance of penis during erection (scale: 3= penis color bright red with or without seminal plasma secretion, 2 = penis color pink to paled, and 1 = penis not out from prepuce).

Results and Discussion

Reaction time of Barbari bucks from Control bucks of 75.35 ± 12.92 sec and Group 1 bucks of 55.87 ± 10.73 sec and Group 2 bucks of 63.95 ± 9.79 sec.

Ejaculation time of Barbari bucks from Control bucks of 125.52 ± 14.14 sec and Group 1 bucks of 125.52 ± 14.14 sec and Group 2 bucks of 99.45 ± 11.03 sec.

Mounting Enthusiasm Score on -2 to +2 scale of Barbari bucks from Control bucks of 0.74 ± 0.32 and Group 1 bucks of 0.87 ± 0.30 and Group 2 bucks of 1.00 ± 0.27 .

Fixing Strength Score on 1-3 scale of Barbari bucks from Control bucks of 1.79 ± 0.29 and Group 1 bucks of 1.89 ± 0.30 and Group 2 bucks of 2.06 ± 0.29 .

Erection status Score on 1-3 scale of Barbari bucks from Control bucks of 2.43 ± 0.21 and Group 1 bucks of 2.35 ± 0.20 and Group 2 bucks of 2.43 ± 0.20 .

The result of erection status (ES) and fixing strength (FS) was in agreement with Suyadi (2012) in Boer goat.

Libido test certainly indicate whether or not a buck is able to mate, but they not reliably predict the fertility of individual bucks or herd Ford et al. (2009).

Table 1: Mean $\pm$ SE of Libido and Sexual Behaviour of Barbari bucks

Libido Indices	Total no.s	Control	Group 1	Group 2
Reaction Time (sec)	180	$75.35 \pm 12.92a$	$55.87 \pm 10.73b$	$63.95 \pm 9.79c$ 63.95 ± 9.79
Ejaculation Time (sec)	180	$125.52 \pm 14.14a$	$125.52 \pm 14.14b$	$99.45 \pm 11.03c$
Mounting Enthusiasm Score	180	0.74 ± 0.32	0.87 ± 0.30	1.00 ± 0.27
Fixing Strength Score	180	1.79 ± 0.29	1.89 ± 0.30	2.06 ± 0.29
Erection status Score	180	2.43 ± 0.21	2.35 ± 0.20	2.43 ± 0.20

Conclusion

A statistically significant difference is noted in the Reaction time, Ejaculation time, Mounting Enthusiasm score, Fixing Strength score and Erection status score level between area specific mineral mixture and antioxidants supplement group than the control group.

Reaction time of Barbari bucks from Control bucks an overall mean value of 75.35 ± 12.92 sec and Group 1 bucks of 55.87 ± 10.73 sec and Group 2 bucks of 63.95 ± 9.79 sec.

Ejaculation time of Barbari bucks from Control bucks an overall mean value of 125.52 ± 14.14 sec and Group 1 bucks of 125.52 ± 14.14 sec and Group 2 bucks of 99.45 ± 11.03 sec.

Mounting Enthusiasm Score on -2 to +2 scale of Barbari bucks from Control bucks an overall mean value of 0.74 ± 0.32 and Group 1 bucks of 0.87 ± 0.30 and Group 2 bucks of 1.00 ± 0.27 .

Fixing Strength Score on 1-3 scale of Barbari bucks from Control bucks an overall mean value of 1.79 ± 0.29 and Group 1 bucks of 1.89 ± 0.30 and Group 2 bucks of 2.06 ± 0.29 .

Erection status Score on 1-3 scale of Barbari bucks from Control bucks an overall mean value of 2.43 ± 0.21 and Group 1 bucks of 2.35 ± 0.20 and Group 2 bucks of 2.43 ± 0.20 .

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