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PJBS

ISSN 1028-8880

Pakistan Journal of Biological Sciences

ANSInet
Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Pakistan Journal of Biological Sciences 7 (11): 1950-1952, 2004
ISSN 1028-8880

A Research on Sexual Performance in Rams and Bucks

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Abstract: Sexual performance of bucks is enhanced by viewing the mating activities of the other males prior to being placed with sexually receptive sheep. This same experience has no effect on the sexual performance of rams. In this study, 15 rams and 15 bucks were individually permitted to sniff and nuzzle the genital region of an oestrus female and engage in before mating behaviours. In the sexual stimulation treatments, bucks were found more sexually active than rams ($p<0.01$). However, sexual stimulation did not affect the subsequent sexual performance of either species. Bucks and rams did not differ in the number of completed matings, but bucks exhibited more mounts without ejaculation ($p<0.01$) and more mounts per service ($p<0.01$) than rams.

Key words: Mating activity, sexual performance, sniff, nuzzle, receptive sheep

INTRODUCTION

Several studies[1-7] have shown that the sexual performance of male farm animals is increased if they are allowed to observe other males engaged in mounting females immediately prior to being given access to oestrus females. However, this same treatment does not increase the sexual performance of rams[5,8-11]. Two factors in the sexual behaviour of domestic sheep may help to explain the absence of a sexual stimulation effect in rams, namely the lack of female-female mounting and the persistence of sexual receptivity in mated oestrus ewes. Female-female mounting is common among the oestrus female cattle and goats. Sexual receptivity in oestrus cows and does is often reduced after receiving several serviced[4,5,10,12-15] by the mechanical effect of the penis against the vagina and cervix[16-18]. Bucks that is readily attracted to and sexually stimulated by sexually active groups of females may sire more offspring because it is likely to be among the first males to determine and mate with fertile females. By the time less responsive males have located and gained access to oestrus females, the sexual receptivity of the females may have been terminated by repeated copulation with the other males. The absence of female-female mounting oestrus ewes removes a potentially important source of sexual stimulation for rams, a circumstance that may be compensated for by the relatively well-developed ram seeking behaviour of ewes[2,5,11,13,19]. Rams that are not among the first to locate and mate with oestrus females will not necessary forfeit their opportunity to service because most ewes retain their sexual receptivity for many hours even when frequently serviced[10,14,20-22]. Therefore different factors may have formatived the stimulus control of the sexual motivation in rams, related to bulls and bucks.

The aim of this study is improved following direct physical contact with oestrus females, not be mounted.

MATERIALS AND METHODS

The material of the study consisted of 15 Kamakuyruk (domestic sheep breed) rams and 15 Saanen bucks in Nuriye town, Manisa, Turkey. Rams ranged from 12 to 4 month of ages while bucks age 20 to 24 months of ages at the start of testing. All males were sexually experienced.

Fifty sheep and thirty goats were used as stimulus females. Ewes were induced to exhibit behavioural oestrus with progesterone intravaginal sponges inserted 12-14 days before testing followed by removal 30-36 h before testing. Goats were induced to exhibit oestrus with progesterone sponges inserted 16 days before testing. In addition, the goats were given a 5 mg IM injection of prostaglandin F_{2a} 24 h before progesterone sponge removal. Every 7 days during four consecutive weeks of the breeding season (September-November) half of rams and half of bucks were individually exposed to a single oestrus female conspecific restrained in a metal neck-clasp stanchion surrounded by a 0.5x1.5x1.0 m wire cage which permitted the males to court the female plus sniff and nuzzle her genital region, but not mount. After that following 20 min of sexual stimulation, rams were individually exposed to two oestrus does for 30 min sexual performance tests. Goats were restrained to insure

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they would stand immobile when mounted. All sexual performance tests were done in 5x5 m test pens. The remaining half of the males were treated similarly except they were placed in identical sexual stimulation pens devoid of females before test for sexual performance. Each male was sexually stimulated on two test days was and left unstimulated on two test days. Time of day was balanced for experimental and control treatments. For each of the 20, one minute periods of the 20 min sexual stimulation treatment, males were scored for whether or not they came within a body length of the stimulus female sniffed and/or contacted the genital region of the stimulus female courted the stimulus female with foreleg kicks and/or nudges.

No distinction was made for how many times the animal performed those behaviours during each one minute periods. Mounts with and without ejaculations were recorded during the 30 min sexual performance tests. The data collected for each individual during the two exposures were averaged for the species comparison. Species differences in number of the one minute periods in which the subject was within a body length of the female, sniffed the genital region of the female and courted the female were analysed using t test for independent samples. An ANOVA for repeated measured statistics design[23] was used to analysed the data collected during 30 min sexual performance tests. The analyses compared differences treatments, species and test days for frequencies of mounting, ejaculation and mounts per ejaculation.

RESULTS AND DISCUSSION

Sexual stimulation treatment: Bucks were more sexually active than rams in the sexual stimulation treatment (Table 1). Relative to rams, bucks spent more time within a body length of the female, more time genital sniffing and more time courting.

Sexual performance tests: The sexual stimulation treatment had no affect on the sexual performance of either rams or bucks (Table 2). Rams and bucks showed similar rates of ejaculation, mounts, without ejaculation and mounts per ejaculation in the treatment and control groups. In the species comparison, the average performance of bucks and rams across experimental and control groups did not differ in number of ejaculations attained under the test conditions employed. However, bucks exhibited more mounts without ejaculation than rams and thus exhibited more mounts per serve than rams.

In this study, direct physical contact with an unmated oestrus female that could not be mounted had no effect on the subsequent sexual performance of either rams or bucks. This result was obtained even though males of both species showed important sexual interest in the stimulus females during the sexual treatment. Since rams and bucks in this study had visual olfactory and tactile sensory contact with females in the sexual stimulation treatment, it could be argued that the most potentially inactive female stimuli were available to the test subjects. Although the oestrus females in the sexual stimulation treatment were restrained they were able to perform a limited number of behavioural responses in the presence of the males such as tail flagging and head turning. Price *et al.*[4,5,24] demonstrated that observing another male mounting prior to being exposed to a sexually receptive females was effective in increasing the sexual performance of bucks. This same treatment had no effect on the sexual performance of rams[3,8,25,26] bulls, like bucks, exhibited enhanced sexual performance in the presence of a sexual active adversary but a non-significant improvement in ejaculation frequency after 15 min of viewing a lone restrained female. The fact that rams and bucks did not differ in rate of ejaculation during sexual performance tests was of interest considering that the goats were more sexually active during the sexual stimulation treatment and exhibited more mounts in the sexual performance tests. It was considered during sexual performance tests that some of the bucks did not show the expected period of sexual inactivity immediately after achieving an ejaculation but continued to mount intermittently. In contrast, after serving females, rams almost never resumed mounting until they could quickly attain a subsequent ejaculation rate of rams or measures of before copulating behaviour. While this study, demonstrated that the sexual performance of bucks and rams is not improved by prior to direct contact with oestrus females that cannot be mounted. Maina and Katz[9] reported that in rams the frequencies of courtship and mounts without ejaculation in heterosexual

Table 1: Means±SD of some sexual stimulation parameters for rams and bucks

Traits	Rams (n=15)	Bucks (n=15)
Within body length of female	19.2±2.1a	14.6±4.36b
Genital sniffing	17.1±3.3a	8.4±4.0b
Courtship behaviour	19.5±3.0a	5.9±4.7b

a,b: Rows means with different superscripts differ ($p<0.001$)

Table 2: Means±SD of sexual performance for rams and bucks

	Sheep		Goat	
Traits	Sexual stimulation	Control	Sexual stimulation	Control
Mounts with ejaculation	3.3±0.3a	3.5±0.3a	3.5±0.5a	3.8±0.6a
Mounts without ejaculation	5.6±1.5b	5.4±1.1b	10.7±1.8a	10.9±1.9a
Mounts per ejaculation	2.4±0.3b	2.3±0.2b	4.9±0.6a	4.7±0.4a

a, b: Rows means with different superscripts differ ($p<0.001$)

interactions were enhanced after exposure to male penmates that had mated an ewe immediately beforehand. It was not clear if the rams were responding to ewe odour on the previously mated rams or the odour of semen or same combination of these two odours. Ejaculation frequencies were not affected.

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