

Libido and Mating Behaviour in Rahmani Rams

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Libido of eight Rahmani rams was evaluated for 20 and 60 min/ test interval prior to autumn 1975, and spring 1976 mating seasons. Number of services during 60 min, time to second service or number of mounts/service during 20 min were the best parameters for estimating ram's libido. Manifestation of libido was generally higher in the autumn than in the spring.

Observations over the first three days of mating of these ram with 210 Rahmani ewes, divided into eight mating groups, were recorded. Groups with a teaser ram exhibited non-significantly more served ewes and higher ratio of ewes served/ewe joined. The wider ewe-to-ram ratio increased number of mounts, number of services, number of ewes served and number of services/ewe served. But none was proved to be statistically significant. Display of mating behaviour was evidently better in the autumn than in the spring.

Improving the reproductive performance of the local sheep has received much attention in the last decade. However, very scanty efforts were done on the male side. The research reported here was designed to furnish information on the libido of the local ram as the pen libido tests were reported to be highly correlated with their mating performance (Mattner *et al.*, 1971). Furthermore, the influences of smaller ram to-ewe ratio, the use of a teaser ram and season on the mating behaviour of Rahmani rams were also investigated.

Material and Methods

Eight Rahmani rams 2-3 years old were chosen from the sheep flock of El-Serw Experimental Farm, 150 km north to Cairo. Libido and mating behaviour of each ram were investigated during the autumn mating season (September 1975) and the spring season (May 1976).

Sexual drive of each ram was examined three times at weekly intervals prior to the breeding season using some ewes brought into oestrous by applying the method suggested by Land (1970). Each ram was introduced to an oestrous ewe in a 7×10 m observation pen. The following parameters were estimated during 20 and 60 min intervals, number of mounting trails, number of mounts, number of services, mounts/service ratio, reaction time, and time between subsequent services.

For estimating mating behaviour of the tested rams, 210 Rahmani ewes, 2-7 years old, from the same flock were used. These ewes were randomly allotted to eight mating groups each kept in a 7x10 pen. Three types of mating were adopted, type A, one ram/30 ewes (3 groups), type B, one ram + teaser/30 ewes (2 groups) and type C, one ram/20 ewes (3 groups). During the 72 hr of ram inclusion a continuous watch was maintained. A team of observers was used for recording the following parameters : number of mounts, number and time of effective services, number of ewes served, mounts/ service ratio, number of services/ewe served, number of ewes served/ewe joined.

Egyptian clover (*Trifolium alexandrinum*) was grazed from December till May. During summer and autumn months, the animals either grazed crop remains or were pen-fed on clover hay plus supplements of a concentrate mixture (13% digestible protein and 50% starch value). An allowance of $\frac{1}{3}$ kg of concentrates was given to each ewe one week before and two weeks during each mating season. An extra amount of $\frac{1}{3}$ kg of the concentrate mixture was also provided to each ram two weeks before and throughout the breeding season.

The data were subjected to analysis of variance (Snedecor and Cochran, (1970)) and t-test was used to test the significance of the differences between mating types.

Results and Discussion

A. Libido

1) Number of mounts and mounting trials

Frequency of mounting was more intense in the autumn than in the spring (Table 1). Seasonal differences were only highly significant when the test was carried out for 60 min. Hence, short time test seems to be insufficient for detecting mounting ability of the Rahmani ram. Individual variation in this trait was limited and statistically non-significant. Mounting trials were obviously small in number, some rams did not display such behavioural act.

2) Number of services and mounts/service ratio

The average number of services was higher in autumn than in the spring (Table 1). Seasonal differences were highly significant whether the test was conducted for 20 or 60 min. Similar results were observed on Ossimi sheep by EL-Gamal (1975). Individual variation between rams in number of services was highly significant, and contributed 39.3% and 36.8% to the total variation in 20 min and the 60 min tests, respectively. In view of the overall average number of services during 60 min. Rahmani rams could be considered as medium libido rams, after Bryant and Tomkins (1975). The prevailing sub-tropical conditions and the heavy fat tail, may be influencing the coitus performance of Rahmani rams.

TABLE 1. Libido performance of Rahmani rams during autumn and spring seasons.

Parameter	Autumn season		Spring season		Overall mean	
	20 min	60 min	20 min	60 min	20 min	60 min
No. of mounting trials	1.8±0.2	3.1±0.8	4.6±0.7	5.7±0.6	3.2±0.5	4.4±0.6
No. of mounts	19.8±2.4	29.6±2.6	16.3±1.2	21.9±1.8	18.1±1.4	25.8±1.8
No. of services	2.6±0.4	4.5±0.6	1.9±0.3	3.4±0.5	2.3±0.2	3.9±0.4
No. of mounts/service	9.5±2.1	7.9±1.5	9.5±1.3	6.8±0.5	9.5±0.9	7.3±0.8
Time to (min) to 1 st service	2.9±0.8		5.6±1.2		4.3±0.8	
2 nd	11.4±5.5		18.9±5.4		15.2±3.4	
3 rd	21.7±3.6		25.3±2.9		23.3±2.3	
4 th	39.1±5.5		42.1±1.9		40.4±3.2	
5 th	40.3±1.9		44.5±2.9		42.4±2.5	

TABLE 2. Analysis of variation for the mating behaviour parameters of Rahmani rams.

Source of variance	d.f.	No. of services/ ewe served	Mean squares No. of ewes served/ ewe joined	No. of mounts/ services
Type of mating (M)	2	3.7	22.7	26.2
Season (S)	1	39.1*	520.4**	0.0
M X S interaction	2	0.8	6.1	12.1
Error	10	6.4	33.4	4.5

* P < 0.05

**P < 0.01

The number of mounts/service increased as the number of services decreased (Table 1). The contribution of season to the variability in mounts/service ratio was non-significant, when the individual variations were highly significant.

It may be suggested, therefore, to use the number of mounts/service ratio in 20 min for estimating the mating dexterity of the local rams. The small number of mounts/service indicated best dexterity of mating (Mattner *et al.*, 1971 and Mattner and Braden, 1975).

3) Time of subsequent service

Shorter reaction time was recorded in the autumn than the spring (Table 1). Seasonal variations were statistically highly significant (Table 2). Seasonal differences in reaction time in other breeds were attributed either to alternations in ambient temperature (Lindsay, 1969), or to changes in relative humidity (Semkov, 1968), or to differences in level of nutrition (Aliev, 1965) or to fluctuations in thyroxin and androgenic hormones (Whitehead and McEwan, 1973).

Highly significant variation was found among the studied rams in their reaction times. Overall average reaction time of the studied Rahmani rams was shorter than those recorded for Ossimi and Rahmani rams by El-Gamal (1975) and Mohamed (1978).

The average time elapsed between the following services was 10.4, 8.1, 17.4 and 2.0 min. Time to subsequent services was always longer in the spring. Seasonal differences in time to the second service was highly significant (Table 2). Rams varied also significantly ($P < 0.01$) in time to second and to third services. They contributed 15.51, 29.74 and 23.99% of the total variation in the time to 1st, 2nd and 3rd services, respectively.

The study revealed that the most suitable parameters for estimating the libido of Rahmani rams were number of services during 60 min, the time to the second service and number of mounts/service during 20 min. Manifestation of the sexual drive was found to be higher in the autumn than in the spring.

B. Mating behaviour

Observations over the 1st 3 days of mating, showed that the presence of a teaser ram decreased number of mounts, number of services/ewe served and number of mounts/services. At the same time, it increased number of ewes served and number of ewes served/ewe joined (Table 2). It was also observed that number of services was almost equal in the teased and unteased groups. Statistical analysis showed that teasing had a non-significant influence on the studied parameters except for number of mounts/services (Table 2). It seems that the teaser ram exerts an effort in detecting the oestrous ewes thus helping the fertile ram to execute his sexual performance easier. Similar observations were reported by Hafez (1952) and Schinckel (1954).

Increasing the number of ewes per ram from 20 to 30 increased number of mounts, number of services, number of ewes served, and number of services/ewe served. Similar results were given by Hulet *et al.* (1962), Tomkins and Bryant (1972) and Bryant and Tomkins (1975) working on different breeds of sheep with varying ram-to-ewe ratios. On the other hand number of ewes served/ewe joined and number of mounts/service decreased in wider (1:30) ram to ewe ratio. Differences between the two types of mating was statistically non-significant.

In all types of mating, the display of the mating acts over the 72 hr of ram inclusion was better in autumn than in the spring. This was shown by the lower number of services/ewe served and the small number of mounts/service as well as the higher frequency of other acts in the autumn. Differences due to season were significant ($P < 0.05$) for number of services/ewe joined served and highly significant ($P < 0.01$) for number of ewes served/ewe joined (Table 2). The better manifestation of ram's libido and mating behaviour in the autumn may be attributed to the high androgenic activity of the ram in the autumn (Amir and Volcani, 1965). It seems, further, that the local female partner exhibited higher mating performances in the autumn. Monib *et al.* (1956) Mohamed (1978) and Adoul-Naga (1978) found that oestrous occurrence of the local ewes was more frequent in the autumn than in the spring.

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الرغبة الجنسية والسلوك التلقيحي لكباش الرحمانى

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قدّرت الرغبة الجنسية والسلوك التلقيحي لثمانى كباش رحمانى خلال موسمى التلقيح الخريفى عام ١٩٧٥ والربيعى عام ١٩٧٦ .

قيمت الرغبة الجنسية فى كل موسم بإجراء ثلاثة اختبارات تم فى كل منها تقديم نعجة شائعة لكل كبش لمدة ٢٠ دقيقة تمتد الى ٦٠ دقيقة ، ودلت تلك الاختبارات على أن أفضل الدلالات للحكم على الرغبة الجنسية كانت عدد التلقيحات خلال ٦٠ دقيقة أو الوقت المنقضى حتى التلقيحة الثانية أو عدد الوثبات لكل تلقيحة خلال ٢٠ دقيقة كما كانت الرغبة الجنسية أقوى فى الخريف عنها فى الربيع .

درس السلوك التلقيحي لهذه الكباش خلال ثلاثة أيام متصلة من خلطها مع ٢١٠ نعجة رحمانى مقسمة الى ثمانى مجموعات ، وأوضحت الدراسة أن تواجد كبش كشاف مع الكبش المخصب أدى الى زيادة (لكنها لم تصل الى مستوى المعنوية احصائياً) فى عدد النعاج الملقحة وعدد النعاج الملقحة لكل نعجة خلطت .

كما تبين أن زيادة عدد النعاج المخصصة للكباش المخصب من ٢٠ الى ٣٠ نعجة قد زاد من عدد الوثبات وعدد التلقيحات وعدد النعاج الملقحة وعدد التلقيحات لكل نعجة لقحت الا أن الزيادة فى أى من هذه الدلالات لم تكن معنوية . كذلك فقد وجد أن السلوك التلقيحي فى الخريف كان أقوى منه فى الربيع .