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Mating behaviour of thin and fat tailed rams on fat tailed ewes

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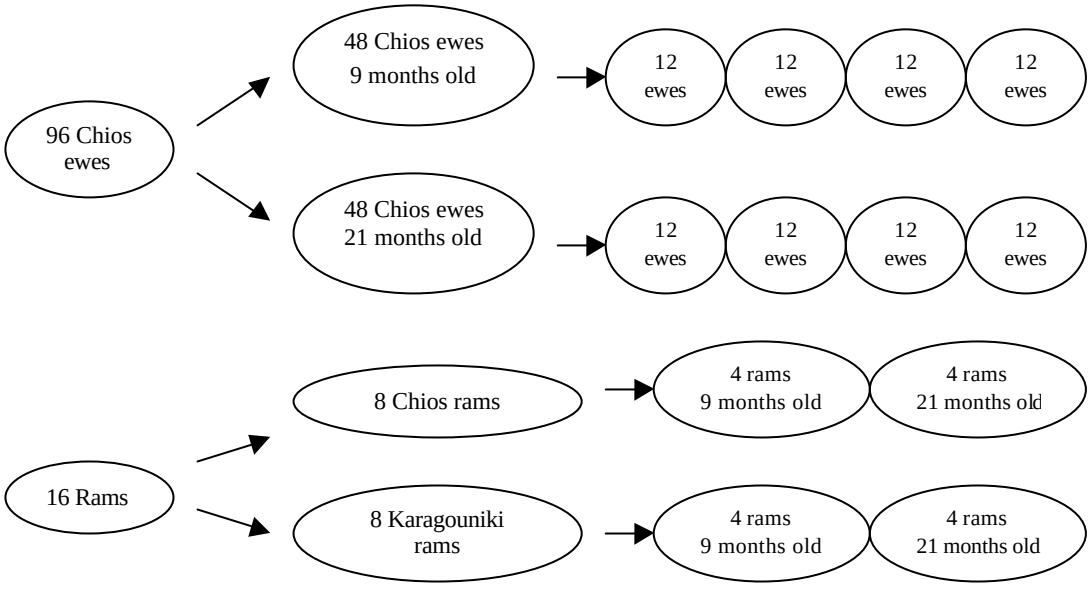
1. Introduction

The breed and the mating experience of sheep play an important role in the exhibition of its sexual behaviour. Tests measuring the frequency and the duration of the elements of this behaviour, like sniffing, nudging, flehmen response, following and mounting, are useful in documenting and predicting relative differences in ram sexual performance (Price, 1987).
The **aim** of this experiment was to investigate if:

- thin-tailed rams exhibit incomplete sexual repertoire when they interact with fat-tailed ewes, as a result of the fat tail,
- sheep age and mating experience modify the sexual behaviour.

2. Methods

The experiment was carried out between the 25th July and 13th August, from 7:30 to 10:30. The animals used were:



One ram from each group was introduced to one group of lamb ewes and one group of mature ewes (in daily rotation, in order to avoid the negative impacts of individuality). The ram behaviour components, which were recorded and analyzed later in detail, were the duration and frequency of sniffing and nudging and the duration of flehmen response and following. The genitals of each ram were covered and as a result no information is obtained

on mating efficiency and ejaculatory competence. The observation period was divided into three hour-parts: 07:30-08:30, 08:30-09:30 and 09:30-10:30. Sexual performance data was analyzed using least squares procedures with ram breed and ewe age as fixed effects (SAS, 2001).

3. Results

The results of the experiment revealed that ram breed and ewe age had a serious repercussion on the expression of its sexual behaviour.

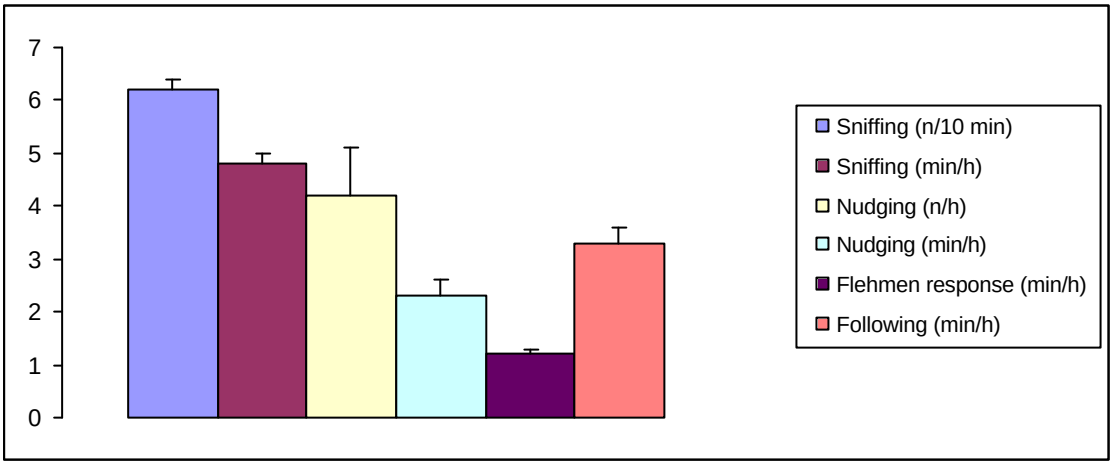


Figure1: Effect of Karagouniki rams on sexual behavioural components

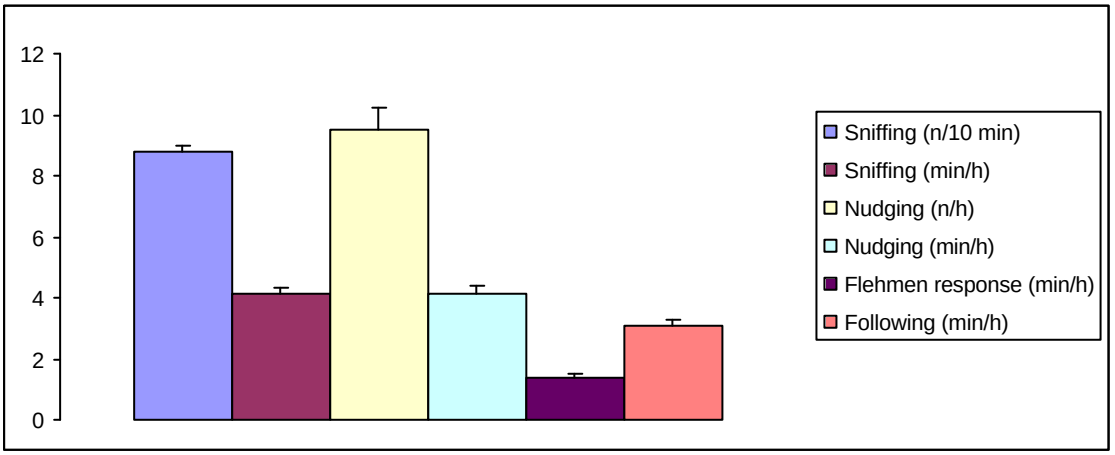


Figure 2: Effect of Chios rams on sexual behavioural components

As the figures illustrate, ram breed had a significant effect on the exhibition of the sexual behaviour components, as it was previously presented (Kilgour and Dalton, 1984, Lees and Weatherhead, 1970). The frequency and duration of nudging were increased in rams of Chios breed; 9.5 ± 0.7 n/h and 4.1±0.2 min/h vs 4.2 ± 0.9 n/h and 2.3 ± 0.3 min/h, respectively. Rams of Chios breed were more active with the ewes of the same breed than rams of Karagouniki breed. In addition, the frequency of sniffing was also increased in rams of Chios breed; 43.8 ± 1.2 vs 30.9 ± 1.2 n/h, respectively. On the other hand, the duration of sniffing was longer in Karagouniki than in Chios rams, 4.8 ± 0.2 min/h vs 4.1 ± 0.2 min/h, respectively. This can be associated with the experience of Chios rams. Although they smell

more times the genitals of Chios ewes, sniffing last less than in Karagouniki rams, because their experience allows them to perceive faster which ewe is in estrous (Rekwot *et al.*, 2001, Blissitt *et al.*, 1994). Finally, the duration of flehmen response and following appeared not to differ significantly between the two ram breeds.

Table: Effect of ram breed and ewe age on ram sexual behavioural components

Ram	Karagouniki		Chios	
Ewe	**Young**	**Mature**	**Young**	**Mature**
Characteristics				
Sniffing (n/h)	**33.3 ± 1.9^{a}**	**28.6 ± 1.5^{b}**	**49.9 ± 1.9^{c}**	**37.6 ± 1.5^{a}**
Sniffing (min/h)	**5.9 ± 0.3^{a}**	**3.6 ± 0.2^{b}**	**4.9 ± 0.2^{c}**	**3.2 ± 0.2^{b}**
Nudging (n/h)	**6.7 ± 1.2^{a}**	**1.6 ± 1.1^{b}**	**13.3 ± 1.0^{c}**	**5.9 ± 0.9^{a}**
Nudging (min/h)	**3.6 ± 0.5^{a}**	**1.0 ± 0.5^{b}**	**5.9 ± 0.4^{c}**	**2.2 ± 0.4^{d}**
Flehmen response (min/h)	**1.1 ± 0.2^{a}**	**1.4 ± 0.1^{a}**	**1.8 ± 0.1^{b}**	**1.0 ± 0.1^{a}**
Following (min/h)	**3.6 ± 0.4**	**3.0 ± 0.3**	**3.8 ± 0.4**	**3.3 ± 0.3**

^{a,b,c,d} Means within a row with different superscripts are significantly different (P=0.05)

The results showed that behavioural components were influenced by the interaction of ram breed and ewe age. In general, rams were busier in contacting with the young ewes, since these ewes did not express a representative sexual behaviour. During the efforts of rams, the young ewes went away without knowing how to act. The younger ewes exhibited an incomplete repertoire of sexual behaviour in response to experienced rams (Gelez *et al.*, 2003), which stimulated the ram to occupy with them more. Ewe lambs in estrus make little or no attempt to approach the rams but accept service when the latter makes sexual advances. Consequently, ewe lambs do not show the ram-seeking behaviour found in some older ewes and they also have a reduced level of courtship response.

4. Conclusions

A. The fat tail of Chios ewe breed:

- **Karagouniki rams confronted difficulties in expressing their sexual behaviour when they came in contact with Chios ewes**
- **Chios rams are familiar with the fat tail of Chios ewes; they smell it from a different angle and at the same time discriminate the odor of urine of estrous ewes faster and for more days than Karagouniki rams**

B. Ewe age plays an important role in the expression of sexual behaviour:

- **Rams spent more time in contacting with young than mature ewes, since these ewes express an incomplete sexual behaviour.**
- **Young ewes, after the ram approach, went away without knowing how to respond. Only experienced ewes competed for rams attention and they were more receptive than inexperienced ewes.**

5. References

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