

The effect of age, frontal skinfold development and season on libido and mating dexterity in Merino rams

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The mating ability of 541 Merino rams from 19 different producers in the area surrounding Bloemfontein was investigated. About 23 % of the rams were not able to mate successfully with a ewe in oestrus. This figure is a combination of 7,3 % rams showing no heterosexual sex interest and 15,8 % that were unable to mate successfully with an oestrous ewe within ten minutes. Age, season and frontal skinfold development did not significantly effect ($P \geq 0,05$) the mating ability of the rams.

S. Afr. J. Anim. Sci., 1984, 14: 26 – 28

Die dekvermoë van 541 Merinoramme is by 19 verskillende produsente in die omliggende skaapproduserende gebiede van Bloemfontein getoets. Ongeveer 23 % van die ramme was nie in staat om bronstige oöie suksesvol te dek nie. Hierdie syfer is saamgestel deur die 7,3 % ramme wat geen heteroseksuele geslagsbelangstelling getoon het nie en die 15,8 % ramme wat nie in staat was om 'n bronstige oöi binne tien minute suksesvol te dek nie. Ouderdom, seisoen en kraagontwikkeling, het 'n nie-betekenisvolle ($P \geq 0,05$) invloed op die dekvermoë van die ramme gehad.

S.-Afr. Tydskr. Veek., 1984, 14: 26 – 28

Keywords: Merino rams, libido, mating dexterity

Introduction

In the effort to increase the reproduction rate of South African sheep flocks, the role of the ewe was emphasized in the past, whilst the role of the ram was largely neglected. It is, however, important that a ram's semen quality be high, and it should also be ascertained whether or not the ram is able to mate. Pretorius (1972) stressed the importance of aberrations in the normal mating behaviour of rams.

In preliminary observations (Van Wyk & Van der Schöff, 1981 — unpublished data) made of Merino rams under practical farming conditions, it was established that approximately 21 % of the rams were unable to mate successfully with ewes in oestrus. Should this be a general phenomenon among South African Merino flocks, it could contribute significantly to poor breeding rates among local Merinos. The work of Marincowitz, Pretorius & Herbst (1966) clearly demonstrated the practical importance of selecting rams with a good libido and mating dexterity. According to Mattner, Braden & George (1973), this aspect is particularly important under extensive conditions, such as those generally experienced in South Africa.

Identification of rams that are able to mate successfully with a large number of ewes within a short period of time, would contribute considerably to the fertility of the flock and the net efficiency of sheep farming. Mattner, Braden & George (1971) concluded that a simple libido test could largely contribute to the identification and elimination of aberrant rams under flock conditions. It is consequently important that the extent of the problem be investigated under practical, extensive farming conditions.

The aim of this study was to determine the nature and extent of the problem regarding the mating behaviour and aberrations in Merino rams at farm level.

Procedure

Surveys were done on rams from 19 different producers in the sheep producing areas surrounding Bloemfontein. The libido and mating dexterity of 541 Merino rams were determined according to the method of Marincowitz *et al.* (1966). Each ram was introduced to a ewe actively in oestrus in a small pen for at least ten minutes. The time lapse between introduction into the pen and the first attempt at mating was taken as the reaction time. The number of attempts made before ejaculation (mated successfully) served as a parameter of mating dexterity. The ages of the rams, varying between two-tooth and broken-mouthed, as well as the frontal skinfold development, were noted.

In order to statistically compare the effect of age, frontal

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Received 15 March 1983

skinfold development and season, an analysis of variance was applied.

Results and Discussion

The results of the libido and mating dexterity tests performed on the Merino rams, are summarized in Table 1. According to these results 7,3 % of the rams showed no heterosexual sex interest at all. Pretorius (1967) is of the opinion that the practice of rearing rams in single-sexed isolation, could contribute to the lack of heterosexual sex interest. Banks (1964) likewise points out that puberty is of particular importance and isolation during this period could most probably be responsible for the poor development of successive sex manifestations that eventually lead to normal mating behaviour. Important, however, were the large percentage of rams that still showed no interest after repeated introductions to oestrus ewes (Pretorius, 1967).

Table 1 The influence of age on the mating ability of Merino rams

Parameter	Age					Total
	2-t.	4-t.	6-t.	Full-mouthed	Broken-mouthed	
Number of rams	222	49	80	138	52	541
% Exhibiting no interest	9,4	12,2	5,0	5,7	1,9	7,3
% Unsuccessfully mated	18,4	6,1	11,2	13,7	26,9	15,8
Average reaction time(sec)	27,4	26,7	31,3	18,7	23,9	25,6
Average mating time(sec)	89,1	94,2	97,5	79,2	112,6	94,5
Number of mating attempts						
Mated successfully	4,4	3,6	3,9	3,7	5,5	4,2
Mated unsuccessfully	17,0	10,7	12,1	15,1	12,8	13,5

According to the data summarized in Table 1, it is clear that approximately 15,8 % of the rams could not successfully mate with a ewe within a period of ten minutes. The poor mating dexterity of these rams is reflected in the large number of mating attempts that were made without the ewe being successfully served.

An average of 23 % of the rams were unable to mate successfully with ewes in oestrus. This corresponds well with the average of 20 % established by Walkley & Barber (1976a) for South Australian Merino rams, and compares favourably with the 29,6 % of Hulet, Blackwell & Ercanbrack (1964) and the 33,3 % reported by Pretorius (1967). Lightfoot & Smith (1968) allege that an average of 20 to 50 % inactive rams in a flock under extensive conditions, could lead to a substantial decrease in the reproduction rate owing to the increased workload placed upon the remaining active rams. It thus seems that by identification and elimination of those Merino rams that have no heterosexual sex interest and/or poor mating dexterity, the breeding rate could be substantially increased in practice.

From the data in Table 1 it is apparent that it took the successful rams an average of 94,5 seconds to mate with a ewe in oestrus, after an average of 4,2 attempts. According to Pretorius (1967), rams that were classified as having a good libido and mating dexterity took an average of 114 seconds and made an average of 3,9 attempts to successfully mate with

a ewe in oestrus. The Merino rams that mated successfully with ewes during the present study, displayed good libido and mating dexterity in accordance with the results of Pretorius (1967).

From Table 1 it is clear that the libido and mating dexterity of rams in the various age groups did not differ significantly ($P > 0,05$). This implies that rams with poor mating dexterity can be successfully eliminated at a young age (two-tooth). In accordance with this, Walkley & Barber (1976b) emphasized that young, inactive rams must not be kept until they are older, as their libido and mating dexterity will not change significantly over a period of one or two years. The significant correlation between the libido of mature rams and the libido of their sons under paddock conditions (Mattner, Braden & George, 1974) and the greater fertility of the daughters of highly active rams (Kilgour, 1979) are both indications of the genetic interaction that has to be considered when selecting rams. Le Roux & Barnard (1975) pointed out that a simple libido test could significantly contribute to the identification of aberrant rams at an early age.

The influence of season and of frontal skinfold development on mating dexterity of Merino rams, is indicated in Table 2 and 3 respectively. It is clear that neither of these factors significantly ($P > 0,05$) influenced the libido and mating dexterity of rams. However, it is important to point out that a far greater percentage of overdeveloped rams failed to mate with oestrous ewes, either because of lack of sexual interest (5,0 %) or poor mating dexterity (40,0 %), the latter being

Table 2 The influence of season on the mating ability of Merino rams

Parameter	Season	
	Autumn	Spring
Number of rams	388	153
% Exhibiting no interest	7,2	7,8
% Mated unsuccessfully	17,7	11,1
Average reaction time(sec)	25,3	25,3
Average mating time(sec)	90,2	90,9
Number of mating attempts		
Mated successfully	4,2	4,1
Mated unsuccessfully	14,8	16,7

Table 3 The influence of frontal skinfold development on the mating ability of Merino rams

Parameter	Frontal skinfold development				
	Plain-bodied	Light	Medium	Full	Over-developed
Number of rams	43	169	176	133	20
% Exhibiting no interest	6,9	7,6	7,3	7,5	5,0
% Mated unsuccessfully	18,6	13,0	14,7	16,5	40,0
Average reaction time (sec)	34,9	24,5	22,9	27,6	18,8
Average mating time (sec)	93,9	73,3	94,7	108,9	65,2
Number of mating attempts					
Mated successfully	4,7	3,6	4,5	4,3	3,2
Mated unsuccessfully	14,3	19,4	12,0	15,7	13,3

the most important cause of mating failure. It therefore seems strange that frontal skinfold development (and particularly overdevelopment) did not have a statistically significant effect on mating dexterity. Most likely the small number of overdeveloped rams (only 3,7 % of the total) encountered during the present study, contributed to this anomalous finding. Pretorius (1967) found that as the neckfold development increases, more time is wasted prior to copulation and more unsuccessful mating attempts are made.

Conclusions

According to the results of this study, 7 and 16 % of Merino rams displayed no heterosexual sex interest or any mating dexterity respectively. These aberrant rams could contribute significantly to a low lambing percentage in Merino flocks under local extensive conditions. Because the mating behaviour of rams does not change noticeably with age, it is essential that these rams be identified and eliminated as early as possible. This measure, together with tests for semen quality, should be standard practice in the evaluation of rams. The practice of rearing male lambs in isolation from ewes, should be avoided.

From the results, it is obvious that both season and frontal skinfold development do not significantly influence the mating behaviour of Merino rams. This conclusion regarding frontal skinfold development's effect on mating dexterity should, however, be treated with caution, considering that 45,0 % of the overdeveloped rams in the present study failed to mate with oestrous ewes.

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