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RESEARCH NOTE

REPRODUCTIVE EFFICIENCY OF ANGORAS IN SOUTH AFRICA

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Studies on problems of fertility in the Angora goat have been concentrated on the subject of abortion (Van Heerden, 1963; Van Rensburg, 1970; Van der Westhuysen & Roelofse, 1971; Wentzel, 1974). Much progress has been made in control of abortion (Van Heerden, 1963), but it still remains to be eradicated (Van der Westhuysen & Wentzel, 1971; Van der Westhuysen, 1974). Although controlled studies on aspects of reproduction other than abortion in the Angora have been reported (Lamont, 1964; Marincowitz, 1962; Pretorius, 1970a, 1970b), the exact contribution and nature of such factors have remained unknown in South Africa. This survey was planned to identify the nature and extent of the fertility limitations of this breed.

Data on the reproductive performance of angora goats was obtained by questionnaires submitted annually (1974 to 1978) to 110 farmers. The survey included questions on flock composition, breeding date, ram intensity, number of does lambing, number of kids born, abortions, stillbirths and mortality rate of kids between birth and weaning. Where possible, the data on two-tooth does was given separately. From the data available the factors affecting reproductive performance, particularly breeding date and age, were examined.

As in other domestic animals, a proportion of the breeding flock failed to reproduce annually and a number of offspring died at, or between, birth and weaning. Accordingly, the average reproductive efficiency of all angora does in the survey is summarised in Table 1, however in order to identify the main sources of loss in reproductive efficiency the available factors were analysed separately (Table 2). An average of approximately 18% of the does failed to kid annually (Table 2), while kid losses through abortion, stillbirths and kid mortality between birth and weaning averaged 5%, 3% and 7% respectively. During 1977 and 1978 these losses were considerably higher than in previous years. Continuous rains throughout the 1977 breeding season were considered the main reason for the increase in the percentage of non-pregnant does. The increases in non-pregnant does, abortions, stillbirths and mortality of kids between birth and weaning recorded in 1978 were probably the result of the severe drought. The large effect of under-nutrition on abortion (Van der Westhuysen & Roelofse, 1971; Wentzel, Morgenthal, Van Niekerk & Roelofse, 1974) and on perinatal kid mortality (Van der Westhuysen & Roelofse, 1971) supports this suggestion.

Since the time of introduction of rams to the does varied between farms from February to April the effects of breeding date on reproductive efficiency were analysed (Table 3). Breeding in March rather than February increased kid production by some 10% and there was a tendency for twinning rate to increase from February to April. However, this analysis included the abnormal years (1977 and 1978) as well. During the years 1974 and 1975 (Table 4) it was more apparent that when the introduction of rams was delayed to March, rather than February, conception rates increased significantly ($P < 0,01$) while a delay to April resulted in a further significant ($P < 0,01$) increase in twinning rate. Kid production thus increased by some 15% and 28% for these two periods, respectively. Similar studies in Texas (Shelton & Groff, 1974) have shown a consistent benefit of approximately 20% in potential kid-crop from mating at the second rather than the first oestrus of the breeding season. In South Africa the onset of full breeding activity of the Angora has been found to be mid-April (Marincowitz, 1962) Introduction of rams prior to this date will probably result in mating at the first oestrus of the breeding season, while a delay may lead to mating of later oestrous periods. Results of the present study support the hypothesis that kid production increases as breeding date is delayed towards April.

A variation in the number of rams introduced to the does did not affect the kid production significantly (Table 5).

It is concluded therefore that an average loss of approximately 28% potential kids occurs annually, to which non-pregnant does make the largest contribution. Unfavourable nutritional conditions increased

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these losses to approximately 45% by increasing the proportion of non-pregnant does, abortions, stillbirths and mortality before weaning. On the other hand, when conditions are favourable kid production can be increased by delaying introduction of rams until April when the breeding activity is at its maximum.

Table 1

Reproductive efficiency of Angora goats in South Africa from 1974-1978

Number of does in survey	74 625
Percentage kidding	79,3
Kids/doe kidding (%)	106,2
Kids/doe mated (%)	84,3

Table 2

Sources of loss in reproductive efficiency of Angora goats

	1974	1975	1976	1977	1978
Number of does	8 468	10 174	8 518	17 978	9 428
Does not pregnant (%)	19,0	18,7	17,6	23,3	25,3
Abortion (%)	4,5	3,6	4,8	5,1	13,2
Stillbirths (%)	3,3	1,9	1,9	3,4	11,8
Mortality : Birth to Weaning (%)	6,9	7,0	7,9	8,5	13,1
TOTAL LOSS	29,8	28,0	27,4	36,3	44,8

Table 3

Influence of mating date on the reproductive performance of Angora does

	Onset of Breeding		
	February	March	April
Number of does in survey	8 463	58 574	7 615
Percentage kidding	71,3	81,1	74,2
Kids/doe kidding (%)	104,1	105,9	110,6
Kids/doe mated (%)	74,6	85,9	82,1

Table 4

The influence of mating date on the mean reproductive performance of Angora does for 1974 and 1975

	Onset of Breeding		
	February	March	April
Number of does in survey	1 492	19 440	931
Percentage kidding	69,0	81,7	83,5
Kids/doe kidding (%)	104,4	106,7	119,7
Kids/doe mated (%)	72,0	87,1	99,9

Table 5

The effect of ram percentage on the reproductive efficiency of Angora does

	Number of rams per 100 does			
	2	3	4	5+
Number of does in survey	5 340	36 608	7 201	5 872
Percentage kidding	76,3	82,4	75,7	76,5
Kids/doe kidding (%)	108,0	104,5	103,7	109,4
Kids/doe mated (%)	82,4	86,1	78,5	83,7

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