

## **Studies on Merino Wool Production. Plainbodied and Developed Merino Sheep. II.—Fleece Density Tests on a Group of Extremely Plainbodied Merino Stud Rams.**

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FLEECE density tests, on the shoulder regions of extremely plainbodied stud rams used in an extremely plainbodied stud, are here outlined. The photographic records and fleece analyses of the plainbodied type of ewe used in this stud were published in a previous article of this series (Bosman, 1941).

The photographic records of the rams analysed for fleece density are shown in Fig. 1. The rams were photographed in the shorn state immediately after shearing so as to show their true plainness as opposed to an apparent plainness when they carry a twelve months' fleece.

The animals are typical of their type and possess splendid constitutions and good conformations. The strong hindquarters and broad chests of a group of the rams are illustrated in Fig. 2.

Since the rams are the top sires in their stud, they have been heavily used and have been run on Karroo veld without any supplementary feeding.\*

### **EXPERIMENTAL RESULTS.**

The fleece densities, determined by the method described in the previous paper of this series (Bosman, 1941) are given in Table 1.

The number of fibres growing per square inch of skin, given in the 3rd column, varies from 19,100 to 53,200 with a mean of 40,900, a standard deviation 6,480 and a coefficient of variability of 15.8 per cent.

The average fibre fineness of the shoulder samples varies from 18.1 $\mu$  to 24.5 $\mu$  with a mean of 21.5 $\mu$ , a 60's quality number. The standard deviation is 1.37 and the coefficient of variability 6.3 per cent.

The fleece densities expressed as skin area occupied by wool fibre and given in the 5th column of the table, vary from 1.58 per cent. to 3.06 per cent. with an average of 2.38 per cent.

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\* It was not possible to obtain a reliable test on their year's fleece production since these rams had been shorn six months previously. This practice of shearing stud rams more than once a year is often resorted to by stud breeders.

TABLE I.

*The Results of Fleece density Tests on the Shoulder Regions of the Extremely Plainbodied Stud Rams illustrated in Fig. 1.*

Ram No.	Age. (as number of teeth.)	Number of Fibre per sq. in. (shoulder.)	Fibre Fineness.	Quality No.	Fleece Density as Percentage of Skin Area.
S. 4.....	4	45,200	21.3	60's	2.57
S. 6.....	4	31,800	22.8	60's	2.06
S. 9.....	4	38,900	22.7	60's	2.53
S. 10.....	4	39,500	23.2	58's	2.67
S. 32.....	4	39,000	24.5	58's	2.91
H. 51.....	2	37,600	19.8	66's	1.87
H. 52.....	2	44,800	20.2	64's	2.30
H. 53.....	2	47,600	20.0	64's	2.43
H. 54.....	2	53,200	21.4	60's	3.06
H. 58.....	2	32,400	21.6	60's	1.90
H. 59.....	2	48,600	21.7	60's	2.96
H. 60.....	2	43,600	20.3	64's	2.29
H. 61.....	2	33,700	19.3	66's	1.58
H. 62.....	2	52,100	18.1	70's	2.18
H. 68.....	2	38,400	21.3	60's	2.18
H. 69.....	2	38,400	21.6	60's	2.24
H. 72.....	2	33,200	21.7	60's	1.99
H. 73.....	2	37,300	21.7	60's	2.19
H. 75.....	2	36,200	22.1	60's	2.26
H. 76.....	2	43,200	21.0	64's	2.41
H. 77.....	4	43,500	20.4	64's	2.28
H. 78.....	2	51,000	19.2	66's	2.37
C. 88.....	6	44,600	21.9	60's	2.73
92.....	4	45,600	20.0	64's	2.29
98.....	4	48,000	21.6	60's	2.82
99.....	4	39,100	20.8	64's	2.13
1284.....	8	39,800	22.8	60's	2.60
1532.....	6	35,800	23.2	58's	2.41
1585.....	8	45,300	21.8	60's	2.72
1851.....	6	30,300	22.6	60's	1.95
1852.....	6	44,200	22.1	60's	2.72
1853.....	6	30,200	23.6	58's	2.10
8233.....	6	29,100	23.2	58's	1.95
No tag (1).....	—	38,300	22.8	60's	2.49
No tag (2).....	—	44,500	21.1	64's	2.45
No tag (3).....	—	49,200	21.9	60's	2.96
Means.....	—	40,900	21.5	60's	2.38
Standard deviation.....	—	6,480	1.37	—	0.349
Coefficient of variability.....	—	15.8%	6.3%	—	14.7%

## DISCUSSION.

A complete review of literature, applicable to this paper, was given in a previous publication (Bosman, 1941) and the fleece densities of merino stud rams recorded by several workers are again cited.

Burns (1933) gives the average of two Australian merino rams (shoulder and thigh samples) as 56,460 fibres per square inch. The same author (1929) gives

the average of four Rambouillet show rams (American) as 30,032 fibres per square inch. Hultz and Paschal (1930) give the average of some American Rambouillet show rams (shoulder and thigh) as 25,556 fibres per square inch.

Bosman (1937) gives the average of 16 South African merino stud rams (shoulder) as 39,440. The same author (1937) gives the shoulder density determination of the reserve champion sheep at the Colesberg sheep show (1934) as 53,600 fibres per square inch. This author also gives the average number of fibres per square inch of 4 stud rams from one breeder as 52,300.

In discussing the classification of merino sheep into "flocks" and "studs" according to density tests, Bosman (1933) contended that "flocks" produce 15,000 to 25,000 fibres per square inch of skin, "studs" produce from 30,000 to 60,000 fibres per square inch of skin.

The rams analysed in this publication are, as regards the number of fibres growing per square inch of skin, representative of a good stud standard of production. The contention, still widely held by many sheepmen, that a large number of fibres growing per square inch of skin in the merino must necessarily be associated with body folds, cannot be substantiated. (This confirms a similar conclusion in the first paper of this series.)

The fleece density, expressed as the per cent. skin area occupied by wool fibre, shown in the last column and varying from 1.58 to 3.06 with an average of 2.38, is a good standard when compared with available figures. [Bosman (1937) gives the values of 16 stud rams from one breeder as varying from 1.45 per cent. to 2.90 per cent. with a mean of 2.31 per cent.]

#### SUMMARY AND CONCLUSIONS.

The analysis of the fleece densities of a group of extremely plainbodied stud rams is given.

The number of fibres growing per square inch of skin (shoulder) varies from 29,100 to 53,200 with a mean of 40,900.

The fleece densities expressed as the per cent. skin area occupied by wool fibre varies from 1.58 per cent. to 3.06 per cent. with a mean of 2.38 per cent.

It is concluded that extremely plainbodied stud rams can produce a good stud standard of fleece density.

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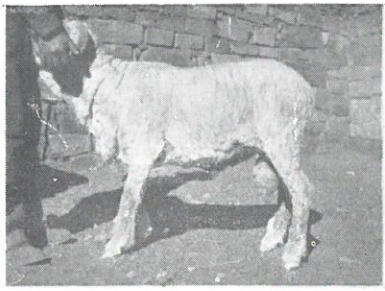
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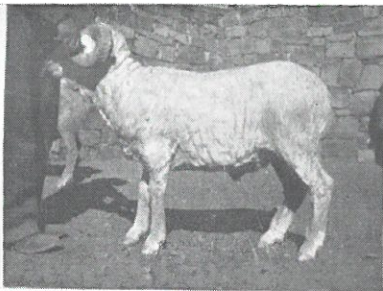
Fig. 2a.—A group of the stud rams shown in Fig. 1 illustrating their strong hind quarters.



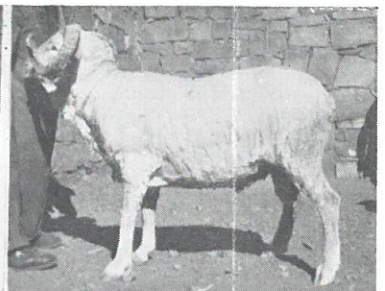
Fig. 2b.—A group of the stud rams shown in Fig. 1 illustrating their well-developed fore quarters. Note the good width of the brisket between the fore legs.



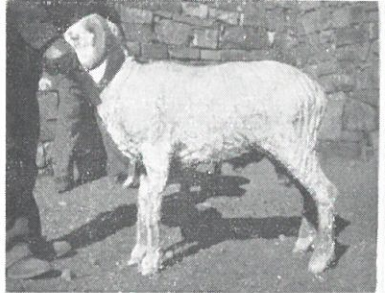
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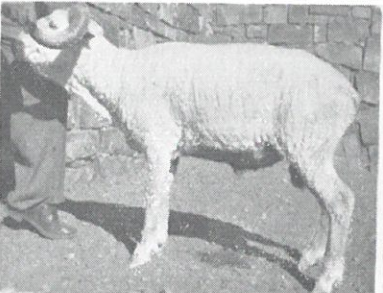
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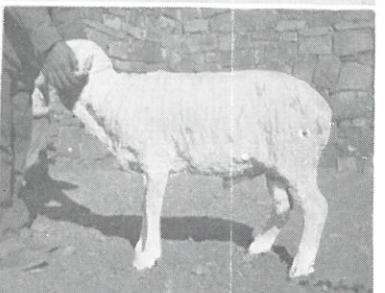
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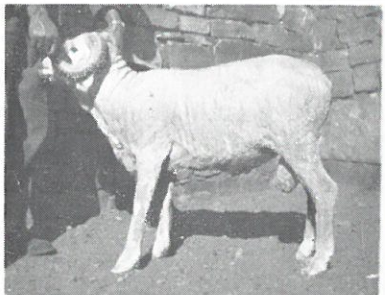
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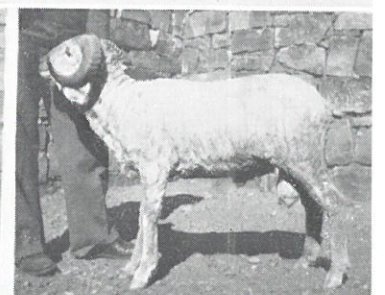
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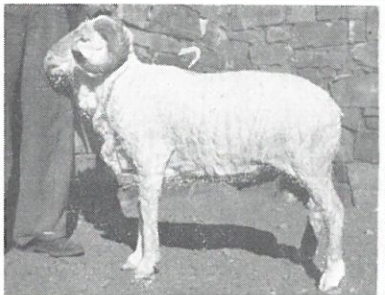
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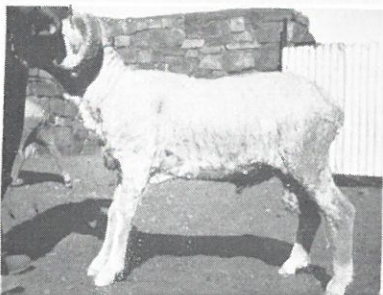
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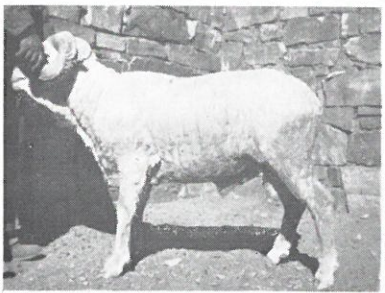
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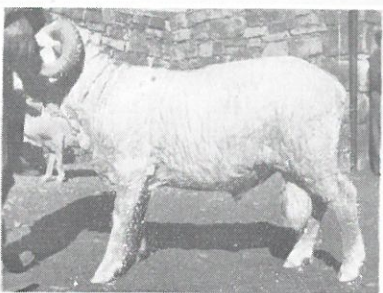
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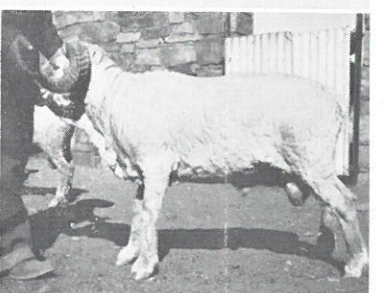
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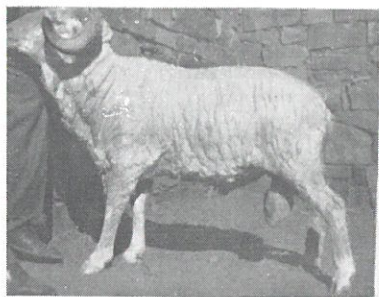
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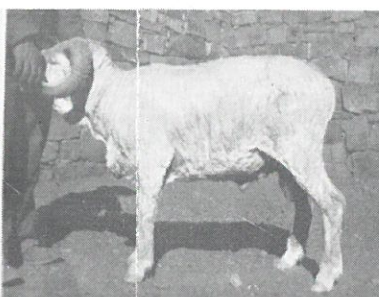
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Fig. 1.—The photographic records of the plainbodied st

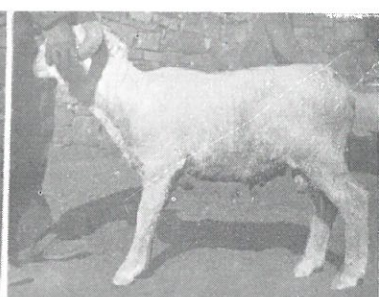




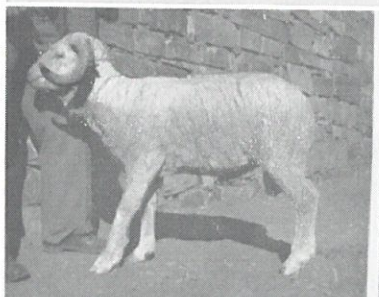
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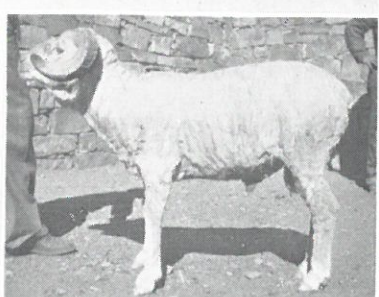
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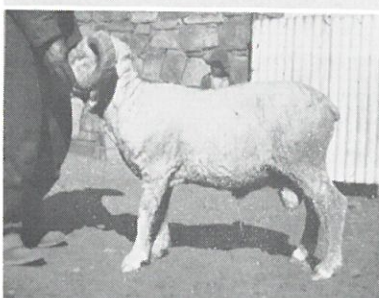
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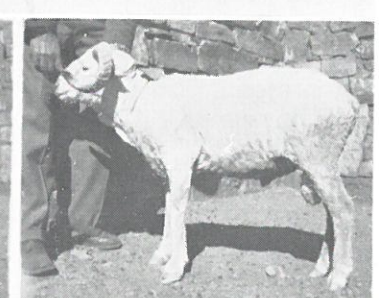
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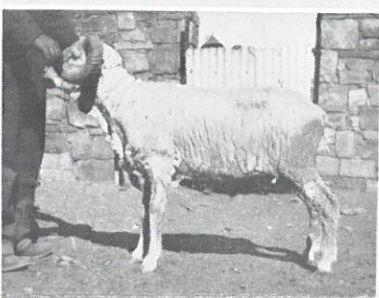
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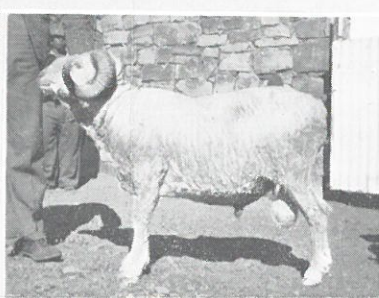
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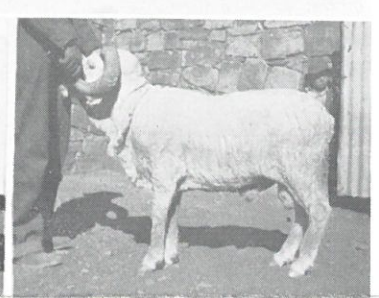
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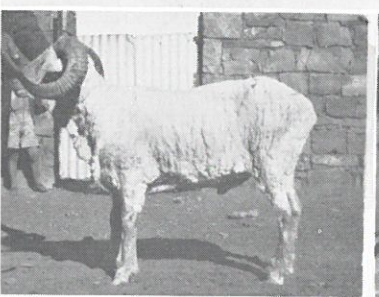
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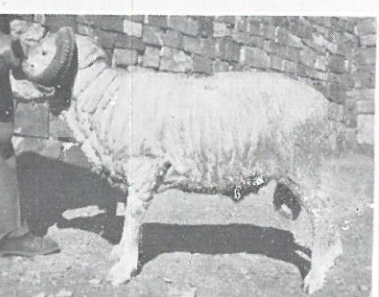
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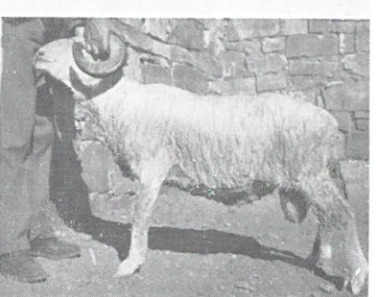
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ied stud rams whose fleece densities are given in Table 1.