INFLUENCE OF WEIGHT OF DAM ON WEANING WEIGHT OF DORPER LAMBS

Q.P. Campbell

Animal and Dairy Science Research Institute, Irene

The Dorper Breeders' Association (1970) have decided to discriminate against ewes which are either too big or too small. Both Burris & Baugus (1955) and Shelton (1960) contended that a positive correlation exists between the weight of ewe and the growth rate of her progeny. Nichols & Whiteman (1960) found that the yearling weight of Rambouillet ewes was highly correlated with wool production, lamb rearing ability and number of lambs produced. Bonsma (1939), Wallace (1948) and Burris and Baugus (1955) all averred that heavier ewes produce more milk than lighter ewes, and that milk production is correlated with the pre-weaning growth rate of lambs. However, Barnicoat, Murray, Roberts and Wilson (1956) and Sugai and Teramoto (1959) found that the weight of the ewe did not influence her milk production and therefore the growth rate of her lamb. Campbell (1964) also established that weaning weights of lambs were positively correlated with the weights of their dams prior to parturition.

Data from the performance testing of Dorper ewes grazing Karoo veld (average annual rainfall 350 mm), were used for this study. The data were obtained from the records of 600 Dorper ewes from the same stud but from two lambing seasons. The mean weaning weights of the lambs of the two seasons did not differ significantly. Stratified random selection was used to divide the dams into five weight groups with 50 ram and 50 ewe lambs per group. The lambs' weights were adjusted to 100 days of age and corrections for age of dam and twin effect were applied. Correction factors were obtained from National Mutton Sheep Progeny and Performance Testing data from 10 000 lambs. Pooled data were used for calculating correction factors after testing the data from different studs and seasons for homogeneity of variance by means of Bartlett's test as described by Snedecor (1956). Equal numbers of twin and single lambs were also included in each group. The ewes' weights were recorded after they had weaned their lambs and weights of two-year-old and mature ewes were 51,2 kg and 50,8 kg respectively. Analyses of variance, tests for least significant differences and simple correlation coefficients were calculated as described by Steele and Torrie (1960).

The results obtained in this trial are shown in Table 1. The mean adjusted weaning weight of the ram lambs of Group 1 differed significantly (P < 0,01) from those of Groups 2, 3, 4 and 5. In the case of the ewe lambs there were no significant differences between the mean ad-

Table 1

The adjusted 100-days weaning weight of Dorper lambs, grouped according to weight of dams

Group	Weight range of dams	Mean weight of dams	Mean weight of lambs	Sex of lambs	Number
	kg	kg	kg		
1	55,5–72,0	60,5	33,9	M	50
2	51,5–55,0	53,8	32,1	M	50
3	49,5–51,0	50,4	30,8	M	50
4	46,5–49,0	48,0	31,3	M	50
5	40,0–46,0	44,1	31,1	M	50
6	55,5–72,0	60,1	29,8	F	50
7	51,5–55,0	53,2	29,2	F	50
8	49,5–51,0	50,4	29,3	F	50
9	46,5–49,0	47,9	28,2	F	50
10	40,0–46,0	44,3	28,8	F	50

justed weaning weights of the lambs of the different groups. The simple correlation coefficient between the adjusted weaning weights of the ram lambs and the weights of their dams was 0,29 which was significant at the level of P < 0,001. The simple correlation coefficient between the adjusted weaning weights of the ewe lambs and the weights of their dams was 0,13 which was not significant. The ram lambs grew significantly faster (P < 0,001) than the ewe lambs.

In the case of the ram lambs the positive correlation between ewe weight and the lamb's adjusted weaning weight as well as the analysis of variance indicated that the heaviest ewes weaned the heaviest lambs. This result is in agreement with those obtained by Bonsma (1939), Wallace (1948), Burris and Baugus (1955) and Campbell (1964).

On the other hand the results obtained with ewe lambs contradicted the latter findings. In agreement with the reports of Barnicoat et al. (1956) & Sugai & Teramoto (1959), no significant correlation was established between the variables. It is possible that in this trial the ewe lambs were unable to fully utilise the higher milk production of the bigger ewes. On the other hand, the ram lambs, which grew significantly faster, (P < 0,001) than the ewe lambs apparently were able to utilise the higher milk production of the heavier ewes more effectively.

References

BARNICOAT, C.R., MURRAY, P.F., ROBERTS, E.M. & WILSON, G.S., 1956. J. agric. Sci., Camb. 48, 9.

BONSMA, F.N., 1939. Factors influencing the growth and development of lambs, with special reference to cross-breeding of Merino sheep for fat-lamb production in South Africa. D.Sc. (Agric.) thesis, University of Pretoria.

BURRIS, M.J. & BAUGUS, C.A., 1955. J. Anim. Sci., 14, 186.

CAMPBELL, Q.P., 1964. S. Afr. J. agric. Sci., 7, 763.

DORPER BREEDERS' ASSOCIATION OF SOUTH AFRICA, 1970. Revised standard of excellence. Dorper News, 9, 22.

NICHOLS, C.W., & WHITEMAN, J.V., 1966. J. Anim. Sci., 25, 460.

SHELTON, M., 1960. Sheep & Goat Raiser, April 1960.

SNEDECOR, G.W., 1956. Statistical methods, 5th edn. Ames, Iowa; Iowa State College Press.

STEEL, R.G.D. & TORRIE, J.H., 1960. Principles and procedures of statistics. New York: McGraw-Hill.

SUGAI, K. & TERAMOTO, K., 1959. Anim. Breed. Abstr. 27, 58.

WALLACE, L.R., 1948. J. agric. Sci., Camb. 38, 93.