

AN EVALUATION OF WILTSHIRE HORN, SUFFOLK AND HAMPSHIRE DOWN
RAMS AS TERMINAL FAT LAMB SIRES

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SUMMARY

Six Hampshire Down, seven Suffolk and four 3/4 Wiltshire Horn x 1/4 Southdown rams were mated to 300 Dorset x (Border Leicester x Merino) ewes over two years. The growth rate of the progeny to weaning was assessed after correction for lamb age, dam age, sex and birth and survival status.

Suffolk cross lambs were heavier ($P < 0.05$) than the other two breeds. Hampshire Down and Wiltshire Horn crosses were 3.4% and 4.2% lighter respectively. The difference between the latter two breeds was not significant.

Carcasses of wether lambs were assessed for dressing percentage, carcass length, fat cover (2 measurements) and eye muscle area. Wiltshire Horn lambs had a greater area of eye muscle ($P < 0.01$) than the other two breeds.

INTRODUCTION

Several studies have examined the characteristics of different breeds as terminal fat lamb sires. One of the largest and most recent was by Carter and Kirton (1975) in New Zealand where 14 breeds, including the Suffolk and Hampshire Down, were crossed with Romney ewes and the lambs were evaluated for growth rate and carcass characteristics.

The Wiltshire Horn breed originated in the United Kingdom; the history and characteristics of the breed have been described by Thatcher and Pascoe (1973). The most notable characteristic of the breed is its ability to shed the fleece in the spring-summer period.

No comparative analysis for growth rate and carcass characteristics has been conducted for the Wiltshire Horn breed. Pascoe *et al.* (1976) assessed the growth, carcass characteristics and wool shedding of the lambs of a Wiltshire Horn ram mated with four ewe breeds.

Tierney (1978) reported on the growth rate and wool shedding of Wiltshire Horn x Merino crosses compared with purebred Merinos. The crosses grew per cent faster than the purebred Merinos and exhibited considerable wool shedding.

MATERIALS AND METHODS

In 1977, three Hampshire, four Suffolk and four 3/4 Wiltshire Horn x 1/4 Southdown rams were mated at random with 300 Dorset x (Border Leicester x Merino) ewes. The growth rates to weaning of the progeny were corrected for the effects of age, birth and survival type and dam age using the Flock Performance Recording Scheme described by Napier (1974).

In 1978, six Hampshire, six Suffolk and four Wiltshire Horn rams were mated at random with the same ewe flock and the growth rates of the progeny to weaning were similarly analysed. Three Hampshire, four Suffolk and all four Wiltshire Horn rams used in 1977 were used again in 1978. Wether lambs were slaughtered and measurements made of hot carcass weight, carcass length, fat

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depths at the 12th rib (two measures were taken; minimum fat depth over the eye muscle (*longissimus dorsi*) and the J-measure, 11 cm from the mid-line of the carcass) and the width and depth of eye muscle.

Data on growth rate were analysed by a least squares model with unequal subclasses with a linear equation that included the effects of year, sex and breed. The use of a fixed effects model rather than a mixed model that treats rams within breeds as a random effect may have slightly overestimated significance (James 1973).

Differences between carcass measure means were tested using Student's t-test.

RESULTS

Least squares means and standard errors for weaning weight are shown in Table 1. Suffolk cross lambs were heavier ($P<0.05$) than the other two breeds. Hampshire Down and Wiltshire Horn crosses were 3.4% and 4.2% lighter respectively. The difference between Hampshires and Wiltshire Horns was not significant.

TABLE 1 Numbers of lambs and weaning weights for three sire breeds

	Suffolk	Hampshire	Wiltshire Horn
Number of lambs	124	121	84
Mean Adjusted Weaning Weight (kg)	31.2*	30.1	29.8
Standard Error	0.4	0.4	0.5

* $P<0.05$

Wether lambs were slaughtered at about six months of age. The results of carcass measurements are in Table 2.

TABLE 2 Carcass measurements of three cross breeds of lambs

	Hampshire	Suffolk	Wiltshire Horn
Number	25	27	38
Live weight (kg)	38.7	40.3	37.4
Carcass weight (kg)	16.3	17.2	16.25
Dressing percentage	42.1	42.7	43.4
Fat cover:			
Eye muscle (mm)	2.3	2.3	2.0
J-measure (mm)	5.5	5.6	5.5
Eye muscle area (cm ²)	11.1	11.2	12.5**
Carcass length (cm)	97.6	100.0	98.7

** $P<0.01$

The only carcass measure of the three breed crosses that was different was the eye-muscle area of the Wiltshire Horn cross lambs which was larger than that of the other two breeds ($P<0.01$).

DISCUSSION

Carter and Kirton (1975) gave rankings around 100 for lambs of 14 sire breeds from Romney ewes using the Southdown cross as a standard of 100. Both the Hampshire and Suffolk cross lambs ranked 108 for 120 day weight in that study. Using this measure, the Wiltshire Horn cross lambs rank 4% below the Suffolk, 104 on Carter and Kirton's scale provided that breed of sire x breed of dam interaction is not large. This would place them slightly below heavy-weight terminal sire cross lambs, but above the lightweight sire cross lambs such as the Southdown cross. Hence it appears these 3/4 Wiltshire 1/4 Southdown rams are quite satisfactory as terminal sires.

The carcass characteristics (Table 2) were similar for the three breeds. The only difference that was significant was that of the area of the eye muscle at the twelfth rib. The Wiltshire cross lambs had ($P < .01$) larger eye muscle area than the other two breeds and this has been shown to be a good indicator of lean meat in the carcass. Hence the Wiltshire lamb appears to have more lean meat per unit of carcass weight than the other two breeds. The results indicate that there may be a difference in body composition but more detailed dissection studies are needed.

The Wiltshire Horn is probably a relatively unselected sheep, as it resembles wild sheep in appearance and behaviour. It appears to have longer legs and is not as heavy in the shoulders or bone structure as are the other two breeds.

The value of the Wiltshire Horn as a terminal sire seems comparable with other medium weight breeds. The three quarter Wiltshire, one quarter Southdown sires used in this trial shed wool completely, in a similar manner to purebreds. We suggest that such a breed mix incorporates the wool shedding characteristics of the Wiltshire. Establishment of such a breed would largely overcome the high inbreeding levels of purebred Wiltshire Horns in Australia, and it would be possible to select for polled stock. The breed should be maintained in Australia, as it could be valuable in the event of poor wool prices or grazing areas unsuitable for wool sheep.

REFERENCES

- CARTER, A.H. and KIRTON, A.H. (1975). Livest. Prod. Sci. 2: 157.
JAMES, J.W. (1973). Proceedings of a symposium held at University of New England, Armidale, 3 September 1973, p155, editors, V.J. Bofinger and J.L. Wheeler.
NAPIER, K.M. (1974). Operations Manual : Flock Performance Recording Scheme. Department of Agriculture, Victoria.
PASCOE, H., MULLANEY, P.D. and HODGE, R.W. (1976). Proc. Aust. Soc. Anim. Prod. 11: 33.
THATCHER, L.P. and PASCOE, H.J. (1973). J. Dept. Agric. Vict. 71: 2.
TIERNEY, M.L. (1978). Wool Technol. and Sheep Br. 26: 21.