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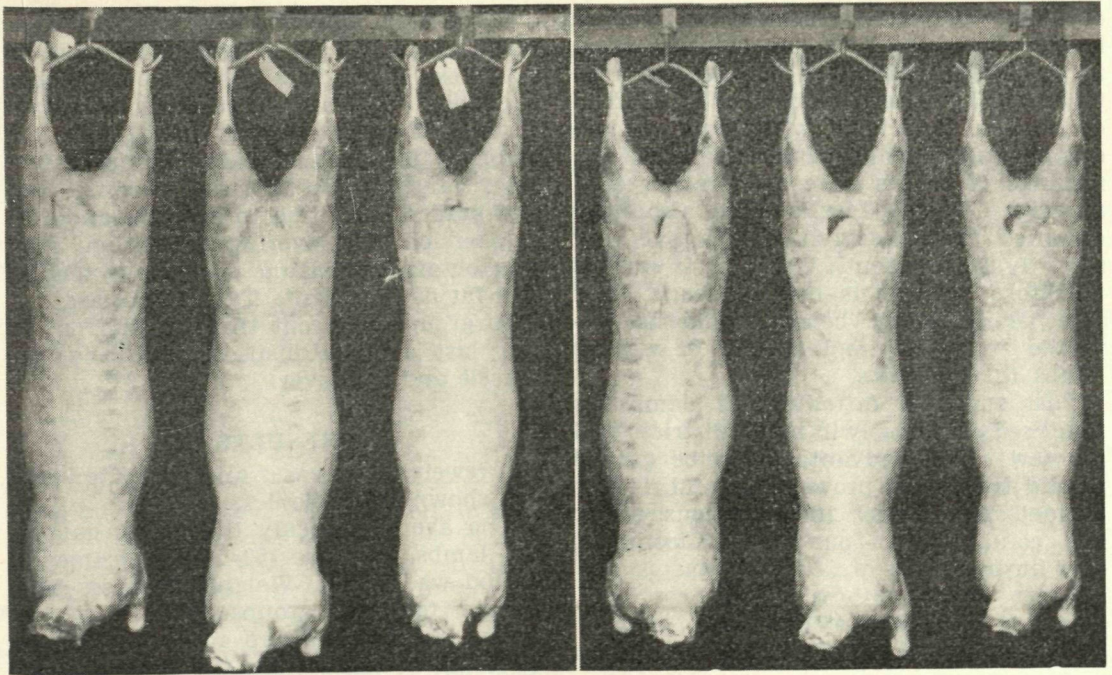


Fig. 1.—Back views of three typical wethers of each group showing the less external fat development of the treated group (right)

HEXOESTROL IMPLANTATION WITH WEANER LAMBS

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MEAT producers in this State are showing considerable interest in the possible benefits to be gained by implanting pellets containing the growth-promoting hormone, hexoestrol, into the ears of sheep when they are being prepared for market. Since World War II a considerable amount of research into the use of growth-promoting hormones with sheep and lambs has been conducted in the United States of America and the United Kingdom. Quite recently, investigations have been carried out in Australia and New Zealand and this work is being intensified.

It has been found, particularly with more mature animals, that increased live-weight gains can be expected together with better food conversion. In other words heavier sheep are obtained in the same time at less food cost. Another effect is that treated animals put on a higher proportion of meat to fat. This results in the production of carcasses carrying little fat—the type of carcass for which there

is strong demand. Today's markets show a distinct aversion to fat meat. Treatment may result also in somewhat lower carcass grading and dressing percentage but these are of minor economic importance. Research has indicated also that the practice is more likely to benefit animals approaching maturity or older.

Thus in recent investigations in Victoria and New Zealand little or no benefit was

obtained by the treatment of sucker lambs. Using lamb weaners, some workers in the U.S.A. and the U.K. have reported increased liveweight gains and better food conversion, associated with lower carcass quality and dressing percentage while the findings of others have been rather conflicting. Varied results have also been obtained from research carried out very recently in New South Wales. It is obvious therefore, that it is by no means clear whether economic benefit could be expected from the implantation of weaner lambs in this state.

The summer fattening of lambs is practised extensively in many districts and in view of the advantages to be gained should treatment prove successful, it was decided to conduct investigations under the conditions of our own environment and husbandry.

INVESTIGATIONS AT MESSRS. HAMILTON BROS., MOORA

Weaners are prepared for market on this property during the summer for sale principally in the autumn. The common practice is to finish them on high quality paddock grazing—in this case matured cereal grain and field pea crops.

Towards the end of last summer an experiment was carried out to investigate the effects of hexoestrol implantation with particular reference to liveweight increases, ease of skinning, dressing percentages and finish of the carcasses. Nine to ten months old Southdown x Corriedale weaners of mixed sexes were available in good store condition. They had been carried on matured sub. clover—Wimmera ryegrass pasture since weaning.

Procedure.

On March 26, 50 of these were selected and divided into two similar groups, 9 wethers and 16 ewes in each. Those of one group were implanted in the ear with a pellet (Gromax S) containing 15 mgm Hexoestrol. Both groups were then pastured together on an unstripped oat crop reserved for the purpose. After settling down, they were weighed on March 28. At the end of three weeks they were again weighed and changed to an unstripped field pea crop for a further 31 days until ready for market. The final weighing was made on June 19, 52 days after implanting.

Early next morning the weaners were taken about 120 miles by motor truck to the West Australian Meat Export Works at Robbs Jetty and were slaughtered on arrival. The relative ease of skinning was recorded for each carcass. Immediately after slaughter the carcasses were weighed and graded according to export standards.

After chilling overnight, further data was obtained relating to carcass quality and fat development. Typical carcasses of both groups were cut through in front of the last rib for inspection of the eye muscle and fat cover.

RESULTS

Liveweight increases and slaughter data are shown in Table 1.

The average weekly liveweight gain of all lambs over the 52-day experimental period was 1.8 lb. Weight increases were similar for both groups.

The implanted group gained only .7 lb. (Column 5) more than the control group throughout the period and dressed out at a slightly higher percentage (Column 9).

These differences were not statistically significant either between groups or between the sexes of each group.

The grading results are shown below (export standards):—

Treatment	First Grade	Lower Grade
Implanted—	No.	No.
Wethers	5	4
Ewes	12	4
All Lambs	17	8
Control—		
Wethers	8	1
Ewes	14	2
All Lambs	22	3

Although the carcasses of the implanted group did not grade as well as the controls the difference was not statistically significant. However, the numbers in each group were probably too few to clarify this point.

It was obvious that treatment had resulted in carcasses with rather less finish and this was the main reason for the lower grading. Fat cover of the untreated group was satisfactory, several carcasses were even inclined to overfat-

Table 1

LIVEWEIGHT INCREASES AND SLAUGHTER DATA OF WEANER LAMBS IN HEXOESTROL IMPLANTATION EXPERIMENT AT MESSRS. HAMILTON BROS., MOORA, 1958

Treatment	No. of Lamb Weaners	Liveweight			Gain in Weight		Carcass Weight	Dressing Percentage
		Beginning of Test, 28 March	Change of Grazing, 18 April	End of Test, 19 May	Total	Average Weekly		
1	2	3	4	5	6	7	8	9
		lb.	lb.	lb.	lb.	lb.	lb.	%
Implanted Group—								
Wethers	9	61.4	64.2	73.7	12.3	1.66	31.3	44.7
Ewes	16	55.6	61.9	70.1	14.5	1.95	33.6	45.6
All Lambs	25	57.7	62.7	71.4	13.7	1.74	32.6	45.0
Control Group—								
Wethers	9	60.7	65.6	71.4	13.3	1.79	31.6	44.3
Ewes	16	58.6	63.3	74.0	12.8	1.72	32.8	44.3
All Lambs	25	59.4	64.1	72.3	13.0	1.75	32.0	44.3

ness, but the treated lambs generally were rather less finished on the legs, chump and shoulders. The untreated carcasses carried more internal fat.

The carcasses were inspected by a master butcher who gave the opinion that both groups were well suited to the local trade. He considered them of about equal value despite any difference in fat cover and could not bid more for the treated carcasses. At the works before slaughter, no difference could be found by handling.

Most carcasses of the treated ewe weaners showed premature mammary development and five were milky. The

treated males did not exhibit any abnormalities.

Although the skins of both groups were removed quite readily, the controls skinned rather more easily. However, dressing was excellent for both lines.

The carcasses of both groups were firm in the flesh of the hindquarters. No difference could be discerned between the treated and untreated carcasses in this respect.

DISCUSSION

It is stressed that hexoestrol implantation should be confined to those animals

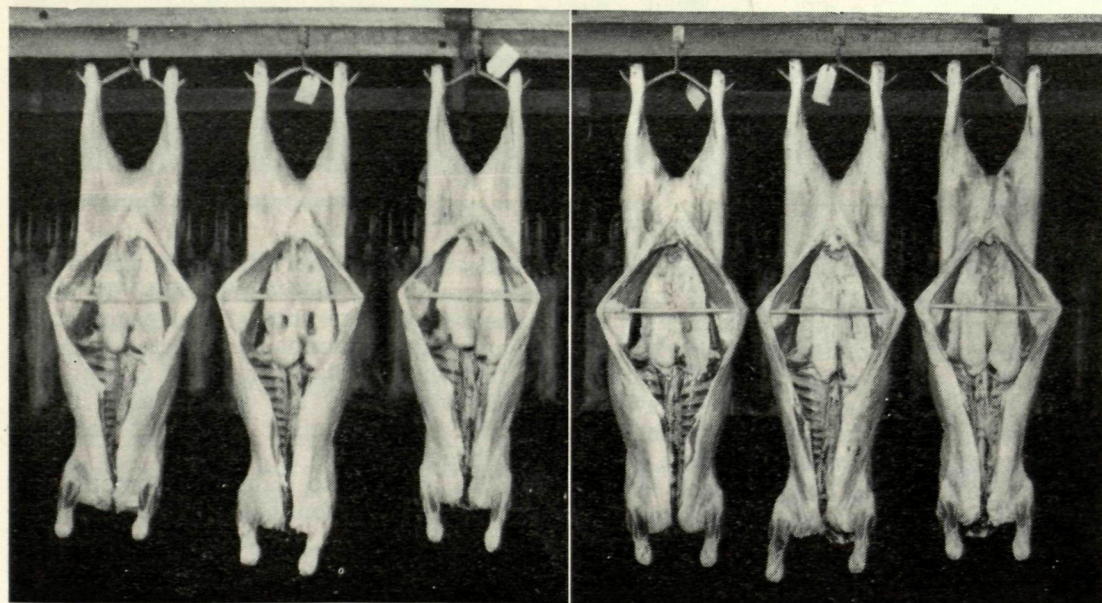


Fig. 2.—Front views of the carcasses showing less external and internal fat of the treated group (right)

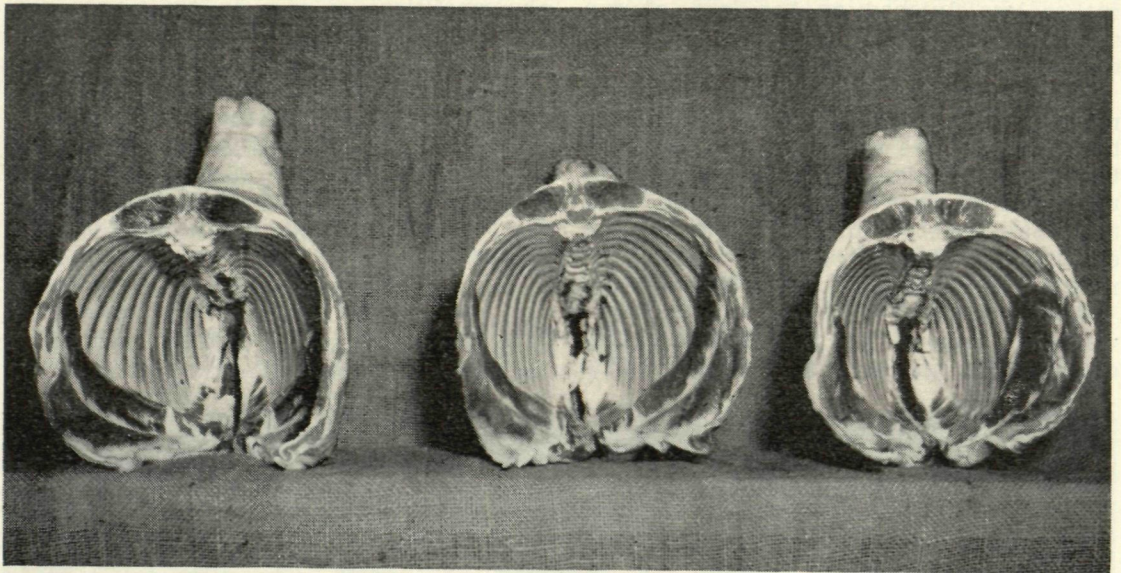
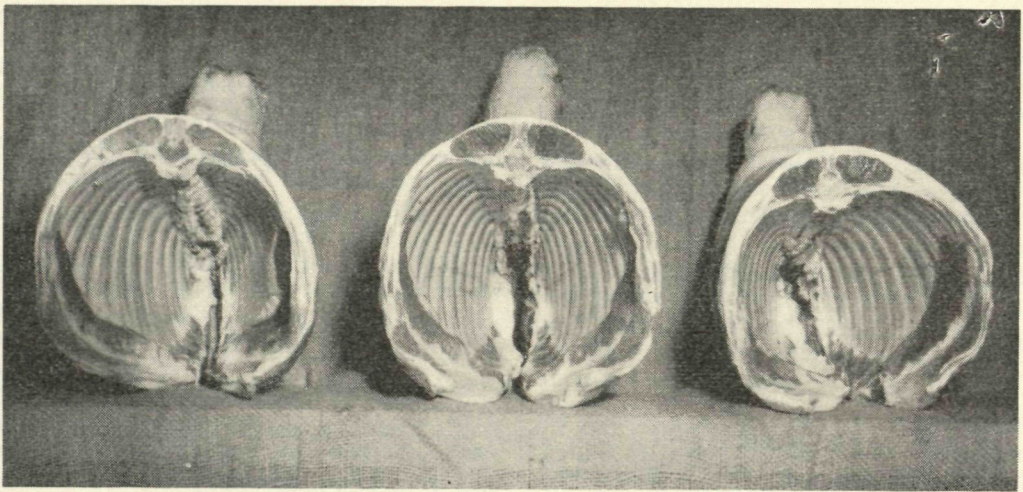


Fig. 3.—The same six carcasses cut through at the last rib to show the difference in fat cover. Untreated group (top); treated group (bottom)

which are being prepared for slaughter. The fertility of breeding stock can be seriously affected by the treatment.

Implantation should be carried out in association with good feed conditions which for sheep should be at a level to enable them to make liveweight increases of about 2 lb. per week or more. The average gain of 1.8 lb. per week of the experimental animals was therefore satisfactory.

The principal object of the practice of obtaining heavier animals in the same time was not attained. The extra live-

weight gain of the implanted group was very small and not significant. It would appear therefore that the treatment of weaner lambs cannot be expected to result in further liveweight increases of economic value when they are grazed at a nutritional level similar to that of the experiment.

With regard to fat development, the rather lesser amount of the treated carcasses conforms with the results of investigations elsewhere. The untreated carcasses were not generally overfat even at the good level of grazing used. There

was therefore no justification for the use of the implants to avoid overfatness. Some of the implanted carcasses were marginal for fat cover. It would seem likely that with grazing at a lower level there would have been some loss in value of these carcasses due to insufficient fat.

The extent of the development of internal and external fat is shown in the photographs of the three typical wether carcasses of each group.

When cut across at the last rib the size of the eye muscle and proportion of fat shown at the cut surface particularly over the eye muscle give a reliable indication of the degree of development of meat and fat throughout the carcass.

Further comparison between these same carcasses was made in this manner, and photographs of the cut sections are shown. Measurements of the eye muscle were similar for both groups and it will be seen that fat cover is somewhat heavier on the untreated carcasses.

Wethers and surplus or cast for age ewes constitute a high proportion of sheep slaughtered for consumption in this State and it is for these types that the treatment may be of value. Experiments with these types of sheep will be carried out during the coming summer period.

Older animals when being prepared for slaughter, readily become overfat with consequent loss in carcass value. Hexoestrol implants may have the effect of overcoming this tendency in such animals and so produce carcasses with more suitable fat development and therefore of higher market value.

It should be pointed out however that most sheep for slaughter are sold on the hoof and any improvement in either liveweight or finish must be sufficient to be recognised by the buyer.

SUMMARY AND CONCLUSION

During the late summer-autumn period, 25 Southdown-Corriedale weaner lambs were implanted in the ear with a pellet containing 15 mgm. hexoestrol. A similar untreated group was retained as controls. They were pastured on good unstripped crops of oats and field peas and slaughtered after 52 days.

There was no difference in liveweight between the two groups.

There was no obviously marked difference in grading according to export standards but the treated carcasses carried somewhat less fat cover and internal fat.

Implanted animals skinned quite satisfactorily although not as readily as the controls.

There was a marked effect of treatment on udder development.

From these results it is concluded that no economic benefit can be expected from the implantation of weaner lambs under conditions similar to those of this experiment.

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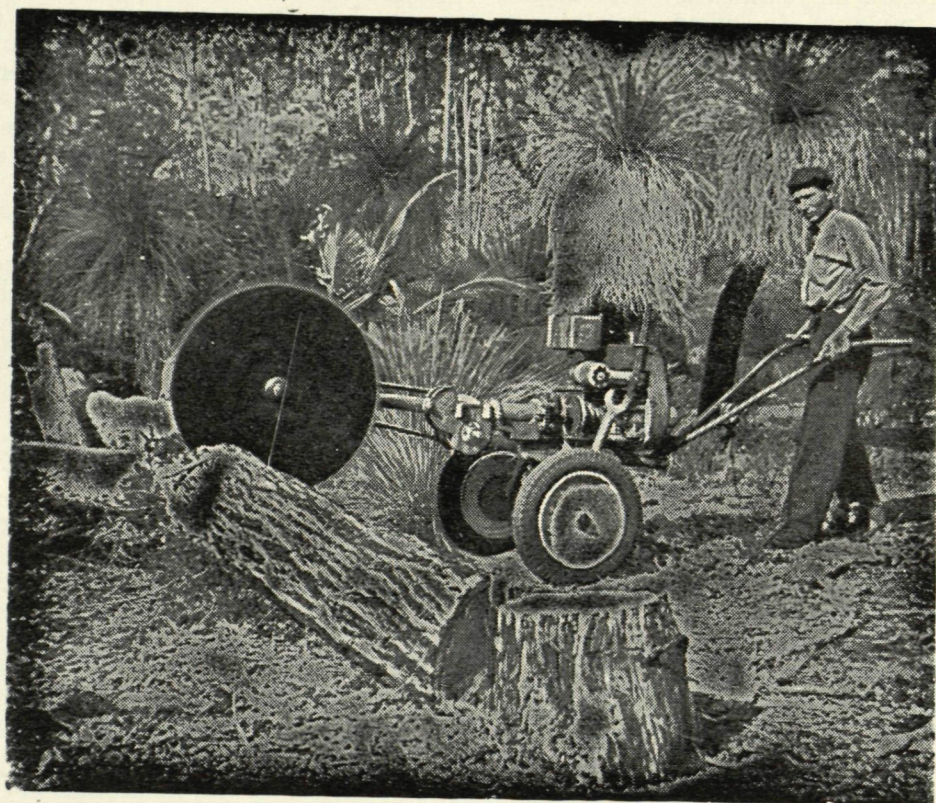
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