

WOOL METROLOGY LABORATORY

Dr. P. R. McMATION

The absence of Dr. P. R. McMahon on war work for the greater part of the year meant considerable curtailment of the activities of the section.

Investigations undertaken by Mr. A. A. Dunlop in conjunction with this laboratory established that repeat judgments of wool fineness were consistent to within one count (corresponding to an accuracy better than 1/10,000 of an inch in mean fibre diameter) nineteen times in twenty. Visual judgments of wool fineness and wool character at the standard hip position were in good agreement with the average of many samples taken over the whole fleece.

Analysis of survey data collected in 1941-42 was continued and the results can be summarized under the following headings:—

- (a) On the best of sheep country where rainfall is heavy and evenly distributed, and where sheep have as much grass as they can eat throughout the year, Leicester-type Romney wool of 40/44's count gives the heaviest weight per ewe, the advantage over wools of 48/50's count averaging 3 lb. per head. This weight superiority is more than adequate to compensate for the lower price of the stronger wools.
- (b) On medium-class country, where Romney sheep are normally run, and where summer and winter feed-supplies are less adequate, Romney-type fleeces of 44/46 to 48/50 are within the optimum range of count and give the highest cash return per sheep at the present time. Counts finer than 48/50 are associated with a drop in fleece weight for which the small premium for finer wools is insufficient to compensate. Counts stronger than 44/46 yield heavier fleeces even on this country, but the difference is not great enough to make up the drop in price of the very coarse wools.
- (c) On the poorer types of country associated with light rainfall and low carrying-capacity, a half-bred type of wool gives the best returns. The optimum count is about 54/56, and there is no advantage to be gained from selecting wools stronger than 48/50's. Higher weights will be gained at such stronger counts, but the increase is insufficient to counterbalance the normal price difference.

Under all conditions short-stapled Down-type fleeces are considerably lighter than other types of similar fineness, while hairy, Carpet-type fleeces weigh lighter than Romney or Leicester type of the same count.

A pamphlet on wool and wool-classing has been prepared for the Army Welfare and Education Service.

MASSEY AGRICULTURAL COLLEGE

SHEEP NUTRITION EXPERIMENT

MR. W. M. WEBSTER

The collection of data on this experiment has been rendered difficult by reason of the shortage of skilled labour, but fleece weight was recorded and samples taken for yield determination and estimation of medullation. It was not possible, however, to continue recording other fleece characters such as quality and style. While the results of previous seasons' records have not been statistically analysed, the absence of any pronounced trends makes it appear unlikely that any differences will be shown to be highly significant.

Data have again been collected on lambs at time of slaughter. In most cases mean values for the different treatments are very similar and seasonal differences are more marked than treatment differences.

Pregnancy Toxæmia (Sleepy Sickness).—During the latter part of August and the first fortnight in September a total of eighteen deaths from pregnancy toxæmia occurred among the experimental (thirteen) and reserve ewes (five). This condition is generally regarded as essentially an acute ketosis associated with the mobilization of the body fat reserves. It was formerly believed to occur only in ewes on a falling plane of nutrition during the latter stages of pregnancy, but recent experiments at the Rowett Institute have shown that the disease can be readily induced in fat high-conditioned and adequately-fed ewes by twenty-four hours' starvation at the critical period—i.e., about a fortnight prior to lambing. A clinical diagnosis is confirmed by a positive acetone reaction in the urine of affected animals, and the total ketone bodies may be estimated quantitatively in urine and blood, the generally-accepted normal limits for these fluids being under 10 mg. and under 2.5 mg. per cent. respectively.

The experimental shepherd reported that the ewes succumbing to the disease were invariably first affected with foot-rot, which was at the time rife in the experimental flock. Since the experimental flock was undoubtedly in high condition and not in any way stinted for feed during the critical period, such an observation fits in with the etiological picture of the Rowett experiments.

Urine and blood samples were collected from the above-mentioned six cases, five of which succumbed despite medicinal treatment, whilst one recovered and subsequently gave birth to dead twins. High values for ketone bodies were found in all cases and are in accord with figures reported elsewhere in connection with pregnancy toxæmia.

Report on Thyroid Glands.—Continuing earlier work, observations were made during the past year on thyroid weights at birth and at time of slaughter. Last season, in contradistinction to the two previous years, there was no abnormally high natal mortality, but the high lambing percentage and the "single lamb" policy made it necessary to slaughter a total of seventy twin lambs within a day or two of birth. Thyroid glands