

Tables I and II show in condensed form the weight-increases in the various groups and the grading results at the conclusion of the experiment.

TABLE I.

Group	A.		B.		C.		D.	
Before Lambing	No Cobalt to Ewes.		Control (no Cobalt at any stage).		Cobalt to Ewes.		Cobalt to Ewes.	
After Lambing	Cobalt to Ewes and Lambs.				No Cobalt to Ewes and Lambs.		Cobalt to Ewes and Lambs.	
Dates.	Average Weight.	Gain.	Average Weight.	Gain.	Average Weight.	Gain.	Average Weight.	Gain.
9th November, 1936 (com- menced)	lb. 41·89	lb. ..	lb. 40·68	lb. ..	lb. 38·70	lb. ..	lb. 38·45	lb. ..
22nd February, 1937 (ended) ..	81·73	44·02	62·77	15·0	60·21	23·68	80·66	48·63

NOTE.—A certain number of fat lambs and cull lambs were removed before the experiment ended and this explains the discrepancy between total average gain and the average weight of those lambs in the experiment at the beginning and the end.

TABLE II.—GRADING OF LAMBS IN EXPERIMENTS.

Group	A.	B.	C.	D.
Before lambing	No Cobalt to Ewes.	Control (no Cobalt at any Time).	Cobalt to Ewes.	Cobalt to Ewes.
After lambing	Cobalt to Ewes and Lambs.		No Cobalt to Ewes and Lambs.	Cobalt to Ewes and Lambs.
Fat lambs to 22nd March, 1937 ..	51	11	25	56
Good stores	14	13	25	14
Stores	0	26	19	0
Died	0	14	5	0
Total	65	64	74	70

Tables I and II show very definitely the benefits to be derived from the use of a cobaltized salt lick. Cobalt lick supplied to the ewes only before lambing gave much better results than the control group not only in the number of fat lambs obtained by 22nd February, 1937, but also in the weight increases. Nevertheless, these results fell far behind those obtained by the use of cobaltized lick after lambing, when the lambs as well as the ewes, had direct access to the lick. In these two latter groups there were 80 per cent. fat lambs, compared with 17 per cent. in the controls, and the remainder of those having access to cobalt were expected to be fat by the end of the season. In these groups the weight increases were about three times that found in the control group. Comparison with cobalt drenching experiments of the previous season showed that the lick method was equally effective as a means of supplying cobalt supplements.

TOP-DRESSING EXPERIMENT.

Pot experiments with Morton Mains soil reported in the *N.Z. Journal of Science and Technology* have shown very definitely that grass can quickly take up relatively large amounts of cobalt from soil treated with cobalt chloride, and this suggested that the top-dressing of pasture with cobalt salts would be an effective way of combating sickness. Accordingly an acre was top-dressed with 10 lb. of cobalt chloride, and on it were run ten lambs, while another acre plot acted as a control with a further ten lambs. A mixture of superphosphate and African phosphate at the rate of 3 cwt. per acre was used as a medium for the distribution of the cobalt, and a similar quantity without cobalt was broadcast on the control plot. The lambs were put on the plot on 2nd February, 1937, and by 16th April, 1937, the controls had lost on an average 10·9 lb. per lamb, while the lambs on the cobalt top-dressed plot had gained an average of 15·55 lb. in the same period. Furthermore, the ten lambs on the cobalt plot are all in good condition, while on the control acre seven have died and two more appear likely to die.

The beneficial results obtained by the use of cobalt chloride for pasture top-dressing are associated with very definite increases in the cobalt content of the top-dressed areas. Analyses of the top-dressed and control pastures show an increase in cobalt content of over thirty-fold a month after the completion of top-dressing treatment. Even after the elapse of three months the cobalt content of the top-dressed pasture was over twelve times as great as that of the control area.

VALUE OF NICKEL SALTS IN DRENCH MATERIALS.

In their investigations relating to Denmark disease of stock in Western Australia, Filmer and Underwood found that small quantities of nickel were beneficial under certain conditions of sub-optimal cobalt intake.

An attempt has been made during the past season to ascertain whether nickel salts have a special value in the treatment of lamb ailment at Morton Mains. A drenching experiment was arranged using two groups of lambs—one group received cobalt alone, while the second group received cobalt plus nickel. On the 25th May, 1937, the cobalt lambs had gained an average of