Iodine Deficiency.

Miss B. W. Simpson, on exchange from the Rowett Research Institute, Aberdeen, during the year investigated the distribution of iodine in New Zealand pastures and the animals grazing thereon. In the districts, Fendalton and Tai Tapu (Canterbury) and Karori (Wellington), the maximum iodine content of the pasture occurs in late autumn and winter and the minimum about midsummer. Analyses of a large number of thyroid glands, some abnormal, taken throughout the season 1929–30 have been published. It is concluded that "the iodine content of the thyroids of lambs born and bred on definite areas seems to give a fair indication of the amount of iodine available on those areas."

It has also been shown that—

(1) (*a*) Garden plants assimilate an increased amount of iodine which has been applied to the soil.

(*b*) The addition of iodine to food grown in the Wellington area and fed to young rabbits improved their rate of growth.

(2) (*a*) Additional lime added to the ration of rabbits on a basal ration low in iodine did not promote the formation of enlarged (goitrous) thyroid glands.

(*b*) A lick containing Kerol, salt, lime, sulphur, bone-meal, and rock phosphate added to the basal ration promoted increased growth in the rabbits as well as reducing the size of their thyroid glands.

(*c*) The addition of lime alone to the basal ration had little effect upon either the rate of growth or the size of the glands of rabbits.

(*d*) Large glands with a very low iodine content were produced by feeding animals with food grown on a goitrous area.

The effect of feeding iodine to laying hens has been studied. In districts where iodine is deficient the method is a convenient one of increasing the amount available for human consumption on account of the concentration of iodine that then occurs in the eggs.

Valuable information may result from the attempt to correlate the iodine content of the thyroid glands of grazing animals with the soils upon which they have been depastured. A circular has been sent out to Stock Inspectors by the Director of Live-stock, requesting them to forward glands for analysis wherever it is possible to obtain a satisfactory history. It is hoped in time to obtain a picture of the normal iodine uptake for the various districts. This may then be used to indicate the probable need of stock for supplementary iodine in the form of licks.

In some pumice districts analysis of the herbage showed a lower iron content than normal, but only in one isolated district on the East Coast side has any symptom in animals indicative of iodine deficiency been reported. Here a few calves have been born in a hairless condition. Recently good results have been reported on a farm free from bush sickness near Rotorua where by feeding iodine, molasses, and lime-water to cows extraordinarily good results were obtained where previously the results were not satisfactory. The situation of this farm was on a lake-terrace near but on a lower level to that farm where good results were obtained by feeding iron and iodine pellets. (See *New Zealand Journal of Agriculture*, January, 1929, p. 11.) It is there explained that the good results of iodine feed may be due to its indirect stimulating action on the animal.

Coromandel.

In a case where it was thought abortion in ewes might be due to mineral deficiency some bones of affected animals were analysed but no evidence of abnormality was obtained.

Taranaki.

A comprehensive report on the second autumn series of pasture-samples from the Taranaki District was incorporated in the tenth quarterly report to the Empire Marketing Board. The fall in phosphoric acid and nitrogen content in the autumn, which has been found to be of widespread occurrence, was strongly marked. Lime was somewhat more variable, though usually showing a considerable increase from spring to autumn. The analyses of the soil-samples taken in conjunction with the pastures also have been completed, and will be of use in recording the soil-types of the province.

Marlborough.

During the late autumn of 1930 an investigation was commenced into the nature and causes of endemic "bentleg" in sheep on certain poor danthonia hill country in the Wairau Valley. A poor all-round composition of the pastures was disclosed on analysis; but analyses are required at other seasons before coming to definite conclusions.

As lime and phosphate were both low in the pastures, feeding experiments were instituted to discover which deficiency, if either, was primarily responsible for the disease. Arrangements were made to feed bone-meal and salt to the flock on one of the affected paddocks, and citrate of calcium (lime) and salt on another. The latter had to be abandoned owing to the sheep refusing to take it. In the former case a report just to hand states: "It has been ascertained that the percentage of lambs found to be affected by the 'Bowie' conditions was only about one-fourth as great as that of the preceding season. It may be said throughout the district, however, that the disease was this season not so prevalent."