

to be deficient to the prejudice of the purchaser. The position as regards fertilizer-control is not likely to be quite satisfactory until special officers are appointed to carry out the work of inspection under the Act. A considerable amount of time has been devoted to an endeavour to draft an amended Fertilizer Act which will be acceptable to all parties and at the same time prove more efficient than the existing measure.

It has been stated that owing to the scarcity of high-grade basic slag some makers have adopted the practice of "grading up" their products by the addition of finely ground rock phosphate. So far no evidence has been obtained of the adulteration of basic slag on the New Zealand market, the samples examined being generally of satisfactory quality. A small proportion of low-grade slag (9 to 10 per cent. phosphoric anhydride) has been imported, but as it is sold under its correct analysis it is open to consumers to refuse to purchase such inferior fertilizer.

It is noted that a well-known firm of fertilizer vendors has recently announced its decision to market its fertilizer mixtures without the addition of any "filler." This is in sympathy with the American fertilizer movement to increase the quality of artificial fertilizers, thereby saving freight, bagging, hauling, handling, and distribution expenses generally.

Top-dressing Experiments at the Wallaceville Laboratory farm have been continued under the supervision of the Chemist, who also supplied a further account of the work for the *Journal*.

Milling Tests of Wheat.—The investigation of flour-producing qualities of wheat by grinding samples in the model mill has been proceeded with. The samples received for testing last season were mainly new varieties from the experimental plots at the Ashburton Experimental Farm and the Marton Experimental Area. This year it is hoped to obtain samples of all standard varieties, grown under varying conditions of locality, climate, &c. It is especially desirable that samples of wheat grown in New Zealand districts whose climate approaches that of the best wheat-growing districts in Australia should be tested, in order to ascertain whether wheats approaching in quality those of Australia can be grown here.

Dips, Insecticides, &c.—In order that the cattle-dips in the tick-infested areas may be kept at standard strength, simple testing outfits have been provided whereby the officers of the Live-stock Division are enabled to check the strength of the various baths at the dip-side. A number of samples of proprietary insecticides, fungicides, and dips have been submitted for examination, but until suitable legislation is provided little can be done to control the sale of preparations of doubtful efficacy.

Deficiency Diseases in Stock.—Deficiency diseases developing on pasture (cocksfoot and clovers) growing on light sandy or gravelly soils have continued to receive attention. A series of pot experiments has been commenced in which it is hoped to obtain confirmation of evidence previously accumulated as to the cause of these obscure diseases, which have been observed only to affect ruminants. The analysis of the samples is now in progress. One of the drugs most successful in combating one of the deficiency diseases is double citrate of iron and ammonium. The price of this has soared to something far beyond the purse of the farmer. The preparation of the drug on a fairly large scale was successfully accomplished in the Chemical Laboratory from lemons grown in New Zealand, and also from limes which grow wild on some of our Pacific Island dependencies. Fortunately, the price of the drug now shows signs of returning to normal.

Poisonous Plants.—The work on poisonous and medicinal plants is being continued. Many introduced plants which are poisonous are spreading, especially in the warmer northern parts of the Dominion. Domestic animals do not as a rule eat these unless starved into so doing, but this sometimes takes place in the winter months. It is intended to proceed with the publication of articles on the subject in the *Journal* from time to time.

Miscellaneous.—Analysis of several proprietary stock foods (pig and calf meals, &c.) provided further evidence of the necessity for legislation dealing with such commodities. It is satisfactory to note, however, that linseed cake of suitable quality is now being manufactured in the Dominion, a sample analysed being quite satisfactory.

A large number of sugar-beets from experimental plots conducted by the Department were received and examined for sugar-content with satisfactory results.

Examination of samples of butter, cheese, milk, and casein was carried out as in previous years. The analysis of samples of condensed milk for export has also been undertaken.

At the request of the Director of the Dairy Division an investigation has been commenced to determine the cause of excessive corrosion in some kinds of metal teat-cups used in milking-machines.

Endeavour to obtain a cheaper source of strychnine for rabbit-poison than the pure alkaloid resulted in negative results so far as the strychnos-seed—the nux vomica bean—was concerned. The general use of such a powerful poison as pure strychnine is fraught with danger to the community, and it is extremely desirable that, if strychnine is fixed upon as the most suitable poison to use, it may be sold coloured or diluted in order to minimize the risk.

Several cases of poisoning in live-stock have been investigated in conjunction with the Live-stock Division.

A large number of different samples not otherwise referred to has been analysed, and a great deal of general advisory work carried out.

BIOLOGY SECTION.

Much valuable work has been carried out by this Section under the direction of Mr. A. H. Cockayne, Biologist, and the various branches are now more fully organized and staffed.

Seed-testing.—During the year 9,400 samples of agricultural seeds were tested. As in the past, nearly all of these samples were received from merchants. The system whereby merchants submit the majority of the seeds they sell to the seed-testing station for analysis is proving very satisfactory in improving the quality of the seed sold in the Dominion, and farmers are able to buy on what is virtually a guarantee of germination and purity. It is true that in certain quarters agricultural seeds of extremely poor quality are offered for sale, but the farmer can easily safeguard himself from such purchases by demanding from the seller a certificate of analysis.