

FERTILIZERS.

Fertilizers on the New Zealand Market.

An endeavour has been made during the year to put the work of the supervision of the fertilizer trade on a more satisfactory footing than has hitherto prevailed. The systematic collection of official samples for testing under the Act has been instituted. Some samples have proved to be of a quality inferior to the guaranteed analysis, and further investigations have been made. One prosecution is already arranged, and legal proceedings are likely to be instituted in at least two other instances. In order to secure publicity of the quality of the numerous brands of fertilizers on the market it was arranged to publish in the *Journal* all registrations of fertilizers. The registration of fertilizers has also been conducted by the Chemistry Section during the year. The investigation of several fertilizers of doubtful quality has been occupying a good deal of time.

Fertilizer Law.

It is essential that the fertilizer law of the Dominion should be brought into line with that of other countries, or even in advance of those countries. One has much sympathy with those farmers who would like to see the invoice certificate state exactly from what ingredients the fertilizer is made. Since mixtures containing coaldust, ground limestone, and aluminium phosphate are coming into use in New Zealand as fertilizers(?), it is highly desirable that farmers should know for what they are paying such huge prices.

In connection with the administration of the Fertilizers Act it is desirable that a stricter supervision should be exercised in future. If an officer could be detailed to devote his entire time to this work during the fertilizer season it would no doubt have the effect of correcting much looseness which exists even in some of the largest firms regarding their compliance with the provisions of the Act.

Phosphates.

The supply of phosphatic fertilizers has engaged the special attention of the Department for many years past, but during the year 1919-20 this subject has been particularly important by reason of the arrangement for supplies from Nauru Island. The Nauru Island phosphates were dealt with in a special report submitted by the Chemist for the information of the Board of Agriculture (see Parliamentary Paper H.—29B).

The prospect of increased imports of phosphate rock has made it necessary to arrange for additional supplies of sulphuric acid for treating the rock. Attention has been directed to the New Zealand supplies of sulphur, which it is hoped to utilize for the preparation of superphosphate within the Dominion.

Advice has been received that about 42,000 tons of rock phosphate will be delivered at New Zealand ports during the year 1920. Most of this rock will come from Makatea and Ocean Islands. The total amount is said to be about the maximum quantity that can be ground by the existing New Zealand works in their present state of efficiency. It is expected, however, that during the year 1921 new and improved mills for the grinding of phosphate rock will be in operation, and that the total grinding-capacity of New Zealand works will reach 80,000 tons.

It is of interest to note that the 42,000 tons of imported rock phosphate arranged for this year compares more than favourably with the quantities imported during recent years, for which the figures in tons for the years ended 31st March are as follows: 1914, 22,093; 1915, 23,983; 1916, 39,366; 1917, 24,993; 1918, 37,037; 1919, 31,351.

A number of samples of reputed phosphates have been received and tested.

Inquiry has been instituted with regard to a patent phosphate made by an electrolytic method, called Palmaer phosphate, which it is considered might be useful for New Zealand soils, and possibly might be manufactured in the Dominion.

A practice of adulterating in Australia bonedust intended for export to New Zealand with from 10 to 15 per cent. of superphosphate, which has sprung up during the last year, has been brought to light, and the importers in New Zealand have all been warned in order that they may protect themselves.

The supplies of basic slag have recently been scarce, and some of low grade contained only about 10 per cent. of insoluble phosphoric acid. The question of the supply of basic slag is deemed so important in Great Britain that a conference of scientific men of the highest standing was recently convened to consider the whole question of supply.

Early in the year the top-dressing experiments with New Zealand artificial slag (manufactured in Dunedin) at Wallaceville Laboratory Farm were reported upon. The results of hay from experiments with the artificial product made in the South Island, as compared with basic slag, were as follows, both being applied as a top-dressing on 14th April, 1918, at 4 cwt. per acre, and the hay being cut on 18th January, 1919: Artificial slag, 9½ cwt. of hay per acre; basic slag, 14½ cwt. of hay per acre.

Recently the quality of a new basic slag manufactured in Auckland was analysed, and it appeared that the phosphate (the valuable part of the slag) was not naturally present, but had been added for the purpose of making the slag useful as a fertilizer.

The supply of phosphates for departmental use has been attended to from time to time. A consignment of 50 tons of bone-char was procured from Australia. This fertilizer contained about 70 per cent. of tri-calcic phosphate, and was finely ground—the residue on $\frac{1}{30}$ in. sieve being only 2 per cent., while 38 per cent. of the material passed through a $\frac{1}{20}$ in. sieve. This fertilizer was distributed to the various experimental farms. In addition, 50 tons of Ephos phosphate was purchased for the Department.

Nitrogenous Fertilizers.

There has been a movement afoot to establish the local manufacture of nitrogen compounds from the air. But it appears that, while the New Zealand demand for nitrates is limited, the supply available from Chile is enormously large, and the prospect of successfully competing against other countries in electrically manufactured nitrogen compounds is small. Moreover, it has been pointed