

FERTILIZERS.

Forty-one unofficial samples of commercial fertilizers were received and examined during the year; all were found to comply with the vendors' invoice certificates where these were sent for comparison. No official samples were taken under the Fertilizers Act, 1927, which came into force on 1st June, 1928. In the past there has been a certain amount of difficulty in securing formal samples, owing to the fact that the Inspectors under the Act were officers of the Department whose time was fully occupied with other duties. An appointment has now been made of a full-time Inspector, whose duties will include the work of registration of vendors, as well as the taking of all official samples required.

The arrangement by which all samples of shipments of basic slag from Great Britain and the Continent to New Zealand were analysed by the Imperial Institute, London, has been terminated after being in operation for over twelve months. This systematic examination has shown that the basic slag imported is of high grade, and in general is up to the standard of quality guaranteed by the manufacturers. No low-phosphate slag (less than 15 per cent. phosphoric acid) has been imported, and such deficiencies as were observed were in nearly all cases within the limits of error allowed.

Regulations under the Fertilizers Act, 1927, were drafted, and, after consideration of the representations of manufacturers and traders concerned, were formally gazetted on 1st October, 1928. The regulations prescribe the methods of sampling and of analysis, the limits of error allowed, standards of quality, &c., forms of declaration, and other matters necessary to the enforcement of the Act.

The returns of importation of fertilizers have been compiled and published in the *Journal*, as in previous years.

Samples of a number of shipments of meat-works manure have been analysed and reported on at the request of the manufacturers to enable them to comply with the overseas purchasers' requirement of a Government analyst's certificate.

REPUTED FERTILIZERS, PHOSPHATE ROCKS, ETC.

Nineteen samples were submitted for examination during the year. None were found to be of any commercial value. Several samples of diatomaceous and fine siliceous deposits occurring on farmers' lands were also received. These substances are used in the arts for a wide variety of purposes—as heat and sound insulators, for filtering colloidal liquids, as abrasive and polishing materials, &c. Unless the deposits occur in considerable quantities, however, and are handy to cheap transport facilities, they are of little or no commercial value.

WORK FOR THE DEPARTMENTAL DIVISIONS.

In addition to advising the various Divisional officers on chemical aspects of their work, a large number of samples has been analysed for the Divisions during the year.

For the Live-stock Division the periodical examination of the public cattle-dips of the Auckland and Taranaki Districts has been continued, 163 samples having been received and reported on. Additional outfits and supplies for testing dips in the field have been supplied as required. Some further samples of wool-branding fluids have been examined, no tarry matter or other harmful ingredients being detected. Various proprietary stock-licks and veterinary preparations have also been examined and reported on, and several cases of water-supplies suspected of being detrimental to the health of stock have been investigated.

Officers of the Dairy Division have submitted samples of dairy-products in connection with the routine instructional or special investigational work of the Division. Samples of water for dairy-factory use, and of dairy salt, cattle-licks, and other preparations used in the industry, have also been reported on. This Section has also co-operated with the Dairy Division in testing the accuracy of Babcock ware and dairy thermometers.

For the Horticulture Division samples of honey, soil, fungicides, and insecticides have been analysed. The variation of specific gravity in honey, and its relation to the volume weight of standardized cartons, has been investigated. As the result of examination of samples from all the principal honey-producing centres it was found that the variation in specific gravity was equivalent to a variation of not more than $\frac{1}{10}$ oz. in the contents of a 1 lb. carton. The specific gravity in fifteen samples varied from 1.422 to 1.435, with an average of 1.426.

Officers of the Fields Division forwarded samples of soils (for determination of lime-requirement and for special analysis), fertilizers, limestones, pastures, root crops, &c., mainly in connection with the experimental work of the Division.

The eminent British agricultural chemist, Sir John Russell, Director of the Rothamsted Experimental Station, paid a brief visit to New Zealand in August, 1928, and was accompanied by the writer on his tour of the northern districts. Unfortunately, his time in New Zealand was limited to a period of eighteen days, and Sir John was unable to see much that would have interested him, but he expressed himself as being very favourably impressed by the agricultural research work in progress in the Dominion, and in particular with the work on soil-deficiency problems and on the mineral content of pastures. (See his paper in "Agricultural Research in 1927," Royal Ag. Soc., London, 1929.)

SUMMARY OF SAMPLES RECEIVED DURING THE YEAR.

Soils collected by officers of Chemistry Section, 152; soils sent by Instructors in Agriculture, 8; soils, miscellaneous, 41; lime and limestones, 103; reputed fertilizers and rock phosphates, 19; fertilizers, miscellaneous, 41; pasture samples, 331; dipping-fluids, 163; milks, 17; butters, 5; cheese, 31; honeys, 24; stock licks and medicines, 8; waters, 25; sugar-beet and turnips, 7; toxicological specimens, 10; wools, 28; caseins, 10; Babcock ware, 198; miscellaneous samples, 55; total, 1,276.

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