

As required by the Fertilizers Act, Table I also contains a column in which 'the relative value of each fertilizer calculated from the contents in fertilizing ingredients' is given, the prices of these ingredients being taken as follows:—

	Cents per lb.
Nitrogen in salts of ammonia or nitrates as well as in compound fertilizers.....	13
Organic nitrogen in ground bone, fish blood or tankage.....	12
Phosphoric acid:—	
Soluble in water.....	6
Soluble in 1 p.c. citric acid.....	5½
Insoluble in 'Thomas' Phosphate Powder.....	3½
Insoluble in ground rock phosphate and fertilizers generally.....	1½
Potash from high grade salts.....	5½

The valuation of each brand is calculated on the results of the analysis of the standard samples, but it has been omitted in the case of the guaranteed contents on account of the imperfect character of the information supplied in the majority of cases.

I have also to submit a description of the fertilizer samples which were collected, as sold in the open market, in accordance with your instructions of 14th January last. This description is called Table II, and contains the date of collecting the samples, the names of the vendors and manufacturers, the designation of the brands, and the results of the analysis. The figures obtained in examining the samples as sold are given on the same line which shows the name of the fertilizer. On the second line will be found the particulars of the manufacturers' guarantee, when the brand has been registered. On the third line is given the analysis of the corresponding standard sample, if it has been supplied to the department. In cases where no standard samples have been sent in to the department and nevertheless, in contravention of the Fertilizers Act, the fertilizers have been offered for sale, it has of course not been found possible to give either the guaranteed contents or the analysis of a standard sample. The number of such fertilizers not registered and therefore illegally sold amounts to 24, more than twice as many as in former years. It would appear to be necessary to take some action to suppress this selling of fertilizers, in regard to which the vendors have made no effort to comply with the law.

According to the opinions expressed by the district analysts 13 out of the 96 samples collected have been found to be adulterated according to the Act, being deficient in available phosphoric acid or other fertilizing constituent. Further action under the Act would also seem to be necessary in these cases.

In my report of May 13, 1901 (Bulletin No. 75), the proceedings were fully detailed with regard to an alteration in the method of determining the available phosphoric acid in fertilizers, the adoption of which was then authorized by the Commissioner of Inland Revenue. This method has since been carried out in this laboratory, and in those of the district analysts, and has worked very satisfactorily. From its results it would appear that the solubility of the phosphoric acid in non-acidulated samples increases in the following order:—1, bonemeal; 2, tankage; 3, Thomas' Phosphate Powder or basic slag. The "citric soluble" phosphoric acid of our analysis corresponds pretty closely with the "reverted" claimed by United States manufacturers. Since they still continue to mention, in their guarantees, a percentage of "reverted" phosphoric acid, it seems necessary to state that in Canada, a determination of "citric soluble" phosphoric acid is substituted for that of "reverted." The details of the process adopted here for ascertaining the percentage of "available" phosphoric acid contained in agricultural fertilizers will be found in Bulletins 75 and 86.

I beg to recommend the publication of this report, together with Tables I and II as well as the memoranda on manures, which it has been customary to print at the end of the annual Fertilizer Bulletin.

I have the honour to be sir, your obedient servant,

THOMAS MACFARLANE,

Chief Analyst.