

produce high-class superphosphates; but this is not important so long as good, genuine, medium-class superphosphates are supplied at their true value.

A few examples will now be given of badly-made and adulterated phosphates.

Table VII.—Analyses of Inferior Superphosphates.

Laboratory No.	District received from.	Moisture.	Organic Matter.	Silica.	Monocalcic Phosphate.	Dicalcic Phosphate.	Tricalcic Phosphate.	Ferric and Aluminic Phosphate.	Calcic Sulphate.	Calcic Carbonate.	Alkalies, &c.	Nitrogen.	Money-value, per Ton.
510	Otaio ..	6.11	14.82	1.54	1.31	6.68.	16.56	1.10	41.21	9.77	0.96	0.81	£ s. d. 4 2 9
512	Makikihi ..	5.31	13.95	2.50	1.64	6.89	6.98	3.20	36.78	22.35	5.80	0.36	3 1 0
513	St. Andrews ..	6.72	35.05	3.42	6.59	12.45	2.83	1.40	23.84	3.17	4.53	2.17	5 9 6
681	Timaru ..	25.48		34.26	Nil	..	4.14	2.71	4.02	29.39	..	0.28	0 13 9
762	Temuka ..	11.42		73.00	Nil	..	3.50	3.53	4.90	1.57		0.44	0 13 9
262	Ruapuna ..	10.66	31.01	4.32	11.20	..	Nil	..	25.81	16.15	0.85	2.43	4 14 6
119	Ngahauranga ..	4.30	49.96	2.60	Nil	..	16.65	Trace	10.89	12.98	2.62	0.52	2 2 3

The first three of the above manures have been manufactured from material containing calcic-carbonate, and, insufficient sulphuric acid having been used, the carbonate of lime remaining has converted much of the monocalcic phosphate into dicalcic and tricalcic phosphates. Nos. 681 and 682 are largely adulterated with sand, and contain no monocalcic phosphate whatever.

No. 262 is a manure that was fairly made in the first place, but calcic carbonate has been added, probably to dry the superphosphate. This manure was probably newly made, as none of the soluble phosphate had been reduced, but under the conditions it would no doubt, if kept, retrograde considerably.

No. 119. This manure was intended to be a superphosphate, but the manufacturer, probably to dry the mixture, added caustic lime, which had the effect of completely neutralising the effect of the acid added, and also driving off most of the nitrogen in the form of ammonia.

Nitrogenous and Special Manures.

The use of nitrogenous manures is not so general in New Zealand as that of phosphatic ones; the principal manures of this kind imported are nitrate of soda and sulphate of ammonia, together with a little dissolved guano and a few special manures. Dissolved guano is generally Peruvian guano that has been treated with sulphuric acid, for the purpose of rendering the phosphates contained in it soluble and fixing the ammonia; it is consequently a nitrophosphatic manure. It also contains more or less potash. Special manures are generally formed with a basis of superphosphate of lime, to which is added the food constituent specially required by the crop it is intended for. Thus grain and grass manures contain nitrogen, while for beans and other leguminous crops and potatoes potash is added. Turnip manures are generally simple superphosphates.

The composition of those received for analysis is shown in Table VIII.

Table VIII.—Analyses of Dissolved Guano and Special Manures.

Name of Manure.	Laboratory No.	District received from.	Moisture.	Organic Matter.	Silica.	Monocalcic Phosphate.	Tricalcic Phosphate.	Ferric and Aluminic Phosphate.	Calcic Sulphate.	Alkalies, &c.	Potash.	Nitrogen.	Money-value per Ton.
Dissolved guano ..	242	Christchurch ..	6.15	39.24	13.20	17.14	Nil	2.90	14.28	7.09	..	6.23	£ s. d. 9 15 0
" ..	398	" ..	8.30	31.07	9.08	13.18	2.62	4.70	28.07	2.98	..	5.67	8 15 6
" ..	406	" ..	7.70	30.40	8.24	12.52	2.62	4.38	29.54	4.38	..	5.53	8 10 6
" ..	751	" ..	43.10		5.84	10.82	9.15	4.60	26.49	5.60	8 13 0
Ammonic phosphate ..	155	College farm ..	10.72	14.22	1.52	23.07	1.31	4.60	43.45	1.11	..	2.17	7 19 3
Imperial manure ..	244	Christchurch ..	6.20	30.76	8.70	6.26	4.36	2.30	34.34	7.08	0.81	2.24	4 12 0
Universal " ..	245	" ..	13.75	22.11	5.24	8.24	0.87	2.30	38.76	8.73	2.49	1.45	4 10 6
Potato " ..	402	" ..	12.05	13.88	4.56	15.82	3.49	3.30	41.44	4.16	1.30	2.17	7 6 0
Turnip " ..	401	" ..	15.98	11.63	5.74	12.19	2.18	10.40	37.91	2.54	1.46	0.53	5 1 6
Special " ..	752	" ..	51.23		8.48	10.49	0.43	3.80	24.36	1.20	1.21	3.89	6 10 6

In addition to these manures, all of which are imported, there is now in our local market several excellent manures which originate from our meat-freezing industry, and of which dried blood forms the basis. These are probably the cheapest forms of nitrogenous manure that we have in New Zealand. As to the efficacy of dried blood, the researches of Petermann, extending over eight years, go to show that, compared with other nitrogenous manures, dried blood is only inferior to nitrate of soda. Two samples of this manure were found to have the following composition.