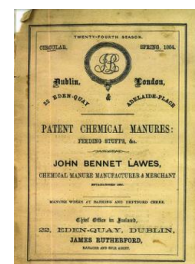


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Analysis and Report of Lawes' Manures for 1862-3

Professor Apjohn and Professor Cameron

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Manures, Feeding Stuffs, &c.

**ANALYSES AND CHEMISTS' REPORTS
FOR THE YEAR 1862.**

*South Hill, Blackrock,
24th February, 1862.*

I have just concluded my analysis of Mr. Lawes' Superphosphate, which I undertook at your desire, and I have now to report to you the results at which I have arrived. In 100 parts by weight I find it to include the following constituents:—

Moisture, expelled at 212°	13.80
Organic matter and Salts of	
Ammonia	6.65
Sand	3.60
Phosphate of Lime	12.20
Biphosphate of Lime	15.00=
23.04 of Phosphate of Lime.	
Hydrated Sulphate of Lime	46.95
Alkaline Salts	1.80
	<hr/>
	100.00
Ammonia	0.51

This is a superphosphate of first quality, for 36 per cent. of phosphate of lime has been employed in its manufacture, and of this two-thirds have been rendered soluble by the action of sulphuric acid. Using the data which I am in the habit of employing, I find that its money value is £8 14s. 6d. per ton. I should not omit to mention that the sample to which this report refers was got by taking at your store, at the Canal Docks, a shovelful from several bags of a large cargo just imported, mixing these well, and then separating for analysis about a pound weight from the mixture. This method of ensuring an average specimen for experiment was adopted at my instance, and carried out in my presence, and I am therefore enabled to state with confidence that the results above given are true of the entire cargo. The purchaser, therefore, of this valuable manure, in applying it to his crops as a fertilizing agent, need not apprehend any disappointment.

JAMES APJOHN.

*6, Waterloo-terrace, Upper Leeson-street,
24th February, 1862.*

At the request of Mr. Rutherford I have visited the depôt of Mr. Lawes' Artificial Manures, Canal Docks, and selected from a large cargo of superphosphate of lime, just delivered from the ship, a specimen of that manure; this specimen, on being submitted to analysis, gave the following results:—

100 parts contained.	
Moisture	13.23
Nitrogenous Organic matter	12.46
(Yielding 2 per cent. of Ammonia.)	
Biphosphate of Lime	16.40
Phosphates of Lime & Magnesia	12.24
Hydrated Sulphate of Lime	30.34
Alkaline Salts	2.06
Insoluble matters	4.27
	<hr/>
	100.00

The above figures prove this superphosphate to be of the very best description. It contains about 40 per cent. of phosphates, of which nearly 26 per cent. are soluble. The insoluble phosphate being derived from bone, is consequently of great value, and will aid in prolonging the growth of tubers and roots late into the autumn. I cannot too highly recommend Mr. Lawes' Superphosphate.

CHARLES A. CAMERON.

**ANALYSES AND CHEMISTS' REPORTS
FOR YEAR 1863.**

*South Hill, Blackrock,
23rd February, 1863.*

Underneath you have the composition of the specimen of Lawes' superphosphate, or patent manure, which I selected at your stores on the 16th inst.

Moisture	13.60
Sand	3.80
Biphosphate of Lime	14.62
(Equivalent to phosphate of lime made soluble	
22.82.)	
Phosphate of Lime	18.90
Hydrated Sulphate of Lime	39.14
Organic matters	7.14
(Yielding ammonia 0.34.)	
Salts of Soda and Potash	2.80
	<hr/>
	100.00

In the preparation of this artificial manure, which is found, particularly in the case of green crops, so energetic a fertilizing agent, 41 per cent. of phosphate of lime must have been employed, and of this amount more than one-half has been rendered soluble. Its money value is, by my method of estimation, £8 12s. 11d. per ton, a sum I understand considerably higher than that at which it is sold.

To what precedes, I may add that the sample, whose composition is given above, was selected by myself from a cargo which was being unshipped at the canal docks, in the immediate vicinity of the depôt, in which Mr. Lawes' Manures are stored; from several bags equal portions were taken, and these, when well mixed, constituted the specimen submitted to analysis, the results obtained corresponding closely with those at which I arrived in February, 1862, in analyzing for you the superphosphate of the same manufacturer; and having had this manure repeatedly under examination, I can state with confidence that the method of manufacture employed by Mr. Lawes is most complete, and that the product of his process does not, at least practically, vary in composition.

JAMES APJOHN.

*6, Waterloo-terrace, Upper Leeson-street,
23rd February, 1863.*

I certify that I have made a careful analysis of a specimen of Mr. Lawes' Superphosphate, and have found it to contain the following:—

Moisture	12.98
Nitrogenous organic matter	8.95
(Yielding ammonia 1.23)	
Biphosphate of Lime	16.32
Phosphate of Lime	10.80
Hydrated Sulphate of Lime	45.03
Alkaline Salts	2.00
Insoluble matters	3.92
	<hr/>
	100.00

This is a very superior superphosphate, well prepared, and very dry. It contains nearly one and a-half per cent. of ammonia, and about 36 per cent. of phosphates, nearly three-fourths of which are in a soluble, and therefore immediately available condition. I may mention that the sample analyzed by me was selected from a large stock by Dr. Apjohn, sealed and sent to me by that gentleman, as I was unable to comply, as intended, with Mr. Rutherford's request, that I should visit the stores and select a sample from the bulk.

CHARLES A. CAMERON,
Public Analyst to the City of Dublin