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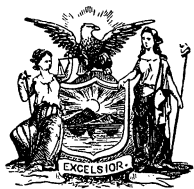
DECEMBER, 1899.

New York Agricultural Experiment Station.

GENEVA, N. Y.

REPORT OF ANALYSES OF COMMERCIAL
FERTILIZERS FOR THE FALL OF 1899.

L. L. VAN SLYKE.



PUBLISHED BY THE STATION.

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The Bulletins published by the Station will be sent free to any farmer applying for them.

* Connected with Fertilizer Control.

† Connected with Second Judicial Department Branch Station.

REPORT OF ANALYSES OF COMMERCIAL
FERTILIZERS FOR THE FALL OF 1899.

SUMMARY.

(1) **Samples Collected.** During the fall of 1899, the Station collected 138 samples of commercial fertilizers, representing 130 different brands. Of these different brands 101 were complete fertilizers; of the others, 15 contained phosphoric acid and potash without nitrogen; 3 contained nitrogen and phosphoric acid without potash; and 10 contained phosphoric acid alone.

(2) **Nitrogen.** The 101 brands of complete fertilizers contained nitrogen varying in amount from 0.59 to 4.91 per ct. and averaging 1.65 per ct. The average amount of nitrogen found by the Station analysis exceeded the average guaranteed amount by 0.13 per ct., the guaranteed average being 1.52 per ct. and the average found being 1.65 per ct.

In 79 brands of complete fertilizers, the amount of nitrogen found was equal to or above the guaranteed amount, the excess varying from 0.01 to 1.35 per ct. and averaging 0.23 per ct.

In 22 brands, the nitrogen was below the guaranteed amount, the deficiency varying from 0.03 to 0.62 per ct. and averaging 0.21 per ct. In 18 cases, the deficiency was less than 0.5 per ct.

The amount of water-soluble nitrogen varied from 0.03 to 4.79 per ct. and averaged 0.62 per ct.

(3) **Available Phosphoric Acid.** The 101 brands of complete fertilizers contained available phosphoric acid varying in amount from 3.44 to 13.08 per ct. and

averaging 9.04 per ct. The average amount of available phosphoric acid found by the Station analysis exceeded the average guaranteed amount by 0.74 per ct., the guaranteed average being 8.30 per ct. and the average found being 9.04 per ct.

In 87 brands of complete fertilizers, the amount of available phosphoric acid found was above the amount guaranteed, the excess varying from 0.03 to 3.28 per ct. and averaging 0.93 per ct.

In 14 brands, the available phosphoric acid was below the guaranteed amount, the deficiency varying from 0.04 to 2.64 per ct. and averaging 0.49 per ct. In 10 cases the deficiency was below 0.5 per ct.

The amount of water-soluble phosphoric acid varied from 0.40 to 10.80 per ct. and averaged 6.07 per ct.

(4) Potash. The complete fertilizers contained potash varying in amount from 0.48 to 10.75 per ct. and averaging 4.30 per ct. The average amount of potash found by the Station analysis exceeded the average guaranteed amount by 0.22 per ct., the guaranteed average being 4.08 per ct. and the average found being 4.30 per ct.

In 74 brands of complete fertilizers, the amount of potash found was above the guaranteed amount, the excess varying from 0.01 to 2.75 per ct. and averaging 0.54 per ct.

In 27 brands, the potash was below the guaranteed amount, the deficiency varying from 0.01 to 3.72 per ct. and averaging 0.65 per ct. In 15 of these cases the deficiency was less than 0.5 per ct.

In 15 cases among the 101 brands of complete fertilizers the potash was contained in the form of sulphate free from an excess of chlorides.

(5) The retail selling prices of the complete fertilizers varied from \$16.50 to \$35.00 a ton and averaged \$23.25. The retail cost of the separate ingredients unmixed averaged \$17.00 or \$6.25 less than the selling price.

INTRODUCTION.

NUMBER AND KINDS OF FERTILIZERS COLLECTED.

During the spring and fall of 1899, the Station's collecting agents visited 210 towns, obtaining 1004 samples of commercial fertilizers. These samples represent 776 different brands, the product of 132 different manufacturers, each manufacturer being represented by from one to 39 brands.

The subjoined tabulated statement indicates the different classes included in the collection.

CLASSES OF FERTILIZERS COLLECTED IN 1899.

1899.	Brands containing only nitrogen .	Brands containing only phosphoric acid .	Brands containing only potash .	Brands containing nitrogen and phosphoric acid without potash.	Brands containing potash and phosphoric acid without nitrogen.	Brands of complete commercial fertilizers.
Spring collection ...	7	37	14	36	70	482
Fall collection	0	10	1	3	15	101
Total for year	7	47	15	39	85	583

COMPOSITION OF FERTILIZERS COLLECTED IN 1899.

The tabulated statement below shows the average composition of the complete fertilizers collected during the year, together with a comparison of the guaranteed composition and that found by analysis.

AVERAGE COMPOSITION OF COMPLETE FERTILIZERS COLLECTED.

1899.	Per ct. guaranteed.			Per ct. found.			Average per ct. found above guarantee.
	Lowest.	Highest.	Average.	Lowest.	Highest.	Average.	
Spring.							
Nitrogen	0.39	8.25	1.89	0.37	8.50	2.04	0.15
Available phosphoric acid....	1.93	14.00	7.78	1.20	15.12	8.76	0.98
Insoluble phosphoric acid....	—	—	—	0.13	10.80	2.22	—
Potash	0.75	15.00	4.56	0.43	12.95	4.86	0.30
Water-soluble phosphoric acid	—	—	—	0.00	4.43	5.40	—
Water-soluble nitrogen	—	—	—	0.00	10.28	0.80	—
Fall.							
Nitrogen	0.41	4.95	1.52	0.59	4.91	1.65	0.13
Available phosphoric acid....	3.55	11.00	8.30	3.44	13.08	9.04	0.74
Insoluble phosphoric acid....	—	—	—	0.63	9.64	2.24	—
Potash	1.00	10.00	4.08	0.48	10.75	4.30	0.22
Water-soluble phosphoric acid	—	—	—	0.40	10.80	6.07	—
Water-soluble nitrogen	—	—	—	0.03	4.79	0.62	—
Average for year.							
Nitrogen	—	—	1.83	—	—	1.97	0.14
Available phosphoric acid....	—	—	7.87	—	—	8.80	0.93
Insoluble phosphoric acid....	—	—	—	—	—	2.23	—
Potash	—	—	4.48	—	—	4.76	0.28
Water-soluble phosphoric acid	—	—	—	—	—	5.55	—
Water-soluble nitrogen	—	—	—	—	—	0.75	—

TRADE VALUES OF PLANT-FOOD ELEMENTS IN RAW MATERIALS AND CHEMICALS.

The trade-values in the following schedule have been agreed upon by the Experiment Stations of Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Vermont, as a result of

study of the prices actually prevailing in the large markets of these states.

These trade-values represent, as nearly as can be estimated, the average prices at which, during the six months preceding March, the respective ingredients, *in the form of unmixed raw materials*, could be bought at retail for cash in our large markets. These prices also correspond (except in case of available phosphoric acid) to the average wholesale prices for the six months preceding March plus about 20 per ct. in case of goods for which there are wholesale quotations.

TRADE-VALUES OF PLANT-FOOD ELEMENTS IN RAW MATERIALS AND CHEMICALS.

	1899. Cts. per pound.
Nitrogen in ammonia salts.....	15
“ in nitrates.....	12 ½
Organic nitrogen in dry and fine-ground fish, meat and blood, and mixed fertilizers	14
“ in cotton-seed meal and castor-pomace.....	12
“ in fine-ground bone and tankage.....	14
“ in coarse bone and tankage.....	10
Phosphoric acid, water-soluble.....	4 ½
“ citrate-soluble	4
“ in fine-ground fish, bone and tankage.....	4
“ in coarse fish, bone and tankage.....	2
“ in cotton-seed meal, castor-pomace and wood ashes	4
“ in mixed fertilizers, insoluble in ammonium citrate and water.....	2
Potash as high-grade sulphate, in forms free from muriates (chlorides), in ashes, etc.....	5
Potash in muriate	4 ¼

COMPARISON OF SELLING PRICE AND COMMERCIAL VALUATION.

Giving to the different constituents the values assigned in the schedule for mixed fertilizers, 14 cents a pound for nitrogen, 4 ½ cents a pound for water-soluble phosphoric acid, 4 cents a pound for citrate-soluble phosphoric acid, 2 cents a pound for insoluble phosphoric acid, and 4 ¼ cents a pound for potash, we can calculate the commercial valuation, or the price at which the separate unmixed materials contained in one ton of fertilizer, having the composition indicated in the preceding table, could be purchased for cash at retail at the seaboard. Knowing the retail prices at which these goods were offered for sale, we can also

readily estimate the difference between the actual selling price of the mixed goods and the retail cash cost of the unmixed materials; the difference covers the cost of mixing, freight, profits, etc. We present these data in the following tables :

COMMERCIAL VALUATION AND SELLING PRICE OF COMPLETE FERTILIZERS.

1899.	Commercial valuation of complete fertilizers.	Selling price of one ton of complete fertilizer.			Average increased cost of mixed materials over unmixed materials for one ton.
	Average.	Lowest.	Highest.	Average.	
Spring	\$18.28	\$17.00	\$45.00	\$26.66	\$8.38
Fall	17.00	16.50	35.00	23.25	6.25
Average for year	18.06	16.50	45.00	26.07	8.01

COST OF ONE POUND OF PLANT FOOD IN FERTILIZERS AS PURCHASED BY CONSUMERS.

In the table below we present figures showing the average cost to the purchaser of one pound of plant-food in different forms in mixed fertilizers.

AVERAGE COST OF PLANT FOOD IN MIXED FERTILIZERS AS PURCHASED BY CONSUMERS.

1899.	One pound of nitrogen.	One pound of available phosphoric acid.	One pound of potash.
Spring	20.4	6.2	6.2
Fall	19.2	5.8	5.8
Average for year	20.2	6.1	6.1

TERMS USED IN STATING RESULTS OF ANALYSIS.

In the tables following, the terms used to express results of analysis are self explanatory for the most part. Attention is called, however, to "water-soluble" phosphoric acid and nitrogen.

While manufacturers are required to guarantee only the amount of available phosphoric acid (water-soluble plus reverted or citrate-soluble), yet it seems desirable that consumers should know what proportion of the available is water-soluble. The amounts of available phosphoric acid being equal, one would choose by preference a fertilizer containing the larger amount of water-soluble phosphoric acid.

The water-soluble nitrogen includes nitrogen present in the form of ammonia salts and nitrates together with that present in small amounts of soluble organic matter. It should not be inferred that water-soluble nitrogen is of more value than the rest. It is of course, more readily available, so far as it consists of nitrates, but it must be remembered that nitrogen in this form leaches and is lost to plants more readily than nitrogen in other forms.

For extended details regarding the value of different forms of plant-food, the reader is referred to Bulletin No. 94.

RESULTS OF ANALYSES OF COMMERCIAL FERTILIZERS COL-

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
American Reduction Co., Pittsburg, Pa.	Common sense.	Raymond.	6450
Bowker Fertilizer Co., Boston and New York	Addison Baldrige's Seneca County special.	McDougall.	6432
Bowker Fertilizer Co., Boston and New York	Addison Baldrige's Seneca County queen.	McDougall.	6429
Bowker Fertilizer Co., Boston and New York	Brisbin & Douglass grain special.	Clyde.	6470
Bowker Fertilizer Co., Boston and New York	Fayette special.	McDougall.	6431
Bowker Fertilizer Co., Boston and New York	Hopkin's special fertili- zer.	Canandaigua.	6383
Bowker Fertilizer Co., Boston and New York	Kainit.	Canandaigua.	6384
Bowker Fertilizer Co., Boston and New York	Kinne's selected.	Ovid.	6488
Bowker Fertilizer Co., Boston and New York	New York special.	Webster.	6462
Bowker Fertilizer Co., Boston and New York	Wilson's special fertili- zer.	Rushville.	6358
Bradley Fertilizer Co., Boston, Mass.	Crop producer.	Fairport. Macedon.	6425 6414
Bradley Fertilizer Co., Boston, Mass.	English lawn fertilizer.	Brighton.	6437
Bradley & Green, Philadelphia, Pa.	Dissolved bone and pot- ash.	Fairport.	6417
Bradley & Green, Philadelphia, Pa.	Potato guano.	Fairport.	6415
Bradley & Green, Philadelphia, Pa.	Potato and truck.	Fairport.	6416
Brisbin & Douglass, Clyde, N. Y.	Wheat grower.	Clyde.	6471
Clark's Cove Fertilizer Co., New York	C fertilizer.	Port Byron.	6476

LECTED IN NEW YORK STATE DURING THE FALL OF 1899.

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash.	Pounds of water- soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	1.65	6	—	1	—	—
Found	2.01	5.48	7.52	1.02	0.28	2.04
Below guarantee		0.52				
Guaranteed	0.75	10	—	4	—	—
Found	1.27	11.64	13.76	4.77	0.48	8.52
Guaranteed	—	14	—	—	—	—
Found	—	16.56	17.48	—	—	11.48
Guaranteed	0.75	8	—	4	—	—
Found	0.96	8.88	11.96	4.33	0.36	4.36
Guaranteed	—	12	—	5	—	—
Found	—	14.80	15.96	5.66*	—	10.28
Guaranteed	1	10	—	4	—	—
Found	1.29	10.12	11.92	4.79	0.57	7.56
Guaranteed	—	—	—	11	—	—
Found	—	—	—	11.29	—	—
Guaranteed	1	9	—	2.50	—	—
Found	1.25	9.56	11.84	2.57	0.41	6.32
Guaranteed	1	10	—	6	—	—
Found	1.31	10.28	12.88	6.67	0.37	8.48
Guaranteed	1	10	—	3	—	—
Found	1.45	11.64	14.04	3.98	0.39	9.84
Guaranteed	1.65	8	—	4	—	—
Found	1.86	8.24	10.72	4.48	0.63	6.68
Guaranteed	4.95	5	—	2.50	—	—
Found	4.91	5.52	7.32	3.76*	4.79	1.84
Guaranteed	—	11	—	3	—	—
Found	—	11.24	13.44	2.72	—	6.24
Below guarantee				0.28		
Guaranteed	2	7	—	7	—	—
Found	2.21	8.60	10.24	5.25	0.47	2.60
Below guarantee				1.75		
Guaranteed	2.50	6	—	9	—	—
Found	2.64	7.04	8.88	9.03*	0.94	5.20
Guaranteed	1.64	10	—	4	—	—
Found	2.00	10.08	12.22	3.39	0.30	5.88
Below guarantee				0.61		
Guaranteed	—	10	—	4	—	—
Found	—	11.47	12.88	4.07	—	5.20

* Potash present in form of sulphate, free from chlorides.

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Clark's Cove Fertilizer Co., New York	Defiance complete manure.	Skaneateles Junc.	6398
E. Frank Coe Co., New York	Columbian corn fertilizer.	Geneva.	6373
E. Frank Coe Co., New York	Dried blood.	Pittsford.	6463
E. Frank Coe Co., New York	Empire State No. 1.	Rushville.	6404
E. Frank Coe Co., New York	No. 1 ammoniated bone superphosphate.	Rushville.	6405
E. Frank Coe Co., New York	Onondaga special.	Skaneateles.	6393
E. Frank Coe Co., New York	Vegetable and vine.	Geneva.	6374
E. Frank Coe Co., New York	Western New Yorker.	Geneva.	6372
E. Frank Coe Co., New York	Wonder superphosphate.	Geneva.	6375
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Alkaline bone and potash.	Romulus.	6427
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Complete manure.	Romulus.	6430
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Dissolved bone.	Romulus.	6428
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Dissolved bone black.	Reed's Corners.	6380
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Erie.	Fairport.	6433
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Hanlon Bros. high grade special.	County Line.	6489
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Hanlon Bros. special.	County Line.	6490
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Holman's leader.	Fairport.	6426
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	N. Y. Standard.	Skaneateles.	6395

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash.	Pounds of water- soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	0.82	6	8	2	—	—
Found	1.14	8.20	10.20	2.53	0.43	7.40
Guaranteed	1.20	8.50	—	2.50	—	—
Found	1.38	9.92	12.73	2.86*	0.75	6.56
Guaranteed	9.85	—	—	—	—	—
Found	9.80	—	—	—	0.45	—
Guaranteed	1.58	8	—	4	—	—
Found	1.70	9.15	11.12	3.79*	0.88	8
Below guarantee	—	—	—	0.21	—	—
Guaranteed	0.80	8	—	1.50	—	—
Found	1.04	8.16	10.96	2.07	0.49	6.84
Guaranteed	0.82	7.50	9	1	—	—
Found	0.79	9.00	12.40	1.72	0.07	8.16
Guaranteed	2	8	—	6	—	—
Found	1.86	8.68	10.72	6.58*	1.02	6.96
Guaranteed	0.80	8	10	4	—	—
Found	1.07	8.88	10.76	3.95	0.27	7.28
Guaranteed	1	10	12	3	—	—
Found	1.14	10.03	13.17	4.19*	0.52	7.68
Guaranteed	—	8	—	5	—	—
Found	—	8.72	9.56	4.29*	—	5.64
Below guarantee	—	—	—	0.71	—	—
Guaranteed	0.82	8	—	4	—	—
Found	1.06	9	10.20	4.37	0.35	5.80
Guaranteed	—	14	—	—	—	—
Found	—	16.08	17.96	—	—	11.64
Guaranteed	—	16	—	—	—	—
Found	—	16.80	17.12	—	—	16.30
Guaranteed	—	11	—	—	—	—
Found	—	13	13.84	—	—	6.52
Guaranteed	1.64	10	—	8	—	—
Found	1.41	10.14	11.88	10.75	0.07	7.72
Below guarantee	0.23	—	—	—	—	—
Guaranteed	0.82	10	—	8.10	—	—
Found	0.90	10.31	10.94	9.11	0.12	7.56
Guaranteed	0.82	8	—	2	—	—
Found	1.02	7.80	10.05	1.98	0.12	4.40
Guaranteed	1.23	10	—	3	—	—
Found	1.41	11.12	12.16	4	0.49	8.28

*Potash present in form of sulphate, free from chlorides.

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Snyder's IXL.	Port Gibson.	6411
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Snyder's grain grower.	Port Gibson.	6408
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Snyder's pride.	Port Gibson.	6409
Crocker Fertiliz'r & Chemical Co., Buffalo, N. Y.	Snyder's wheat and corn.	Port Gibson.	6410
E. A. Cross, Hilton, N. Y.	The king superphosphate.	Hilton.	6451
E. A. Cross, Hilton, N. Y.	The queen superphosphate.	Hilton.	6452
E. D. Crowninshield & Son, Cato, N. Y.	A fertilizer.	Cato.	6478
Louis Fechter, East Buffalo, N. Y.	East star.	East Buffalo.	6448
Geneva Coal Co., Geneva, N. Y.	Harvest king phosphate.	Geneva. Green's.	6369 6403
Geneva Coal Co., Geneva, N. Y.	Mortgage raiser for peas and fruit.	Geneva.	6370
Geneva Coal Co., Geneva, N. Y.	N. Y. Standard wheat grower.	Geneva.	6365
Geneva Coal Co., Geneva, N. Y.	Oats and barley special.	Geneva.	6367
Geneva Coal Co., Geneva, N. Y.	Ontario grain special.	Geneva. Green's.	6368 6402
Geneva Coal Co., Geneva, N. Y.	Orchard king.	Geneva.	6364
Geneva Coal Co., Geneva, N. Y.	Reclaimer animal bone.	Geneva.	6366

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash	Pounds of water- soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	1.64	10		4		
Found	1.52	10.80	12.24	3.13	0.06	9.64
Below guarantee				0.87		
Guaranteed	0.82	10		5		
Found	0.71	12.40	13.56	3.48*	0.04	10.68
Below guarantee				1.52		
Guaranteed	0.82	8		4		
Found	1.12	7.96	9.28	4.33	0.40	5.84
Guaranteed	2	10		5		
Found	1.66	9.90	11.39	5.95*	0.05	7.96
Below guarantee	0.34					
Guaranteed	2.35	8		3.40		
Found	2.41	8.52	11	3.78	1.65	2.84
Guaranteed	2	8		3		
Found	2.25	8.36	11.32	3.52	1.47	2.44
Guaranteed	1.65	8		4		
Found	1.67	9.20	11.56	3.99	0.56	4.80
Guaranteed	3.85	3.55		1.31		
Found	4.12	3.44	13.08	0.48	1.31	0.40
Below guarantee				0.83		
Guaranteed	0.82	9		2		
Found	1.03	9.12	11.64	2.27	0.49	6.88
Guaranteed	0.82	10		8		
Found	0.95	11.16	12.24	7.02	0.55	9.20
Below guarantee				0.98		
Guaranteed	1.65	9		2		
Found	1.52	9.16	12.28	2.08	0.49	7.40
Guaranteed	0.82	8		4		
Found	0.91	9.12	10.72	4.43	0.45	7.56
Guaranteed	0.82	7		3		
Found	0.75	8.12	11.20	3.49	0.42	4.64
Guaranteed		10		10		
Found		8.91	10.76	9.93		5.12
Below guarantee		1.09				
Guaranteed	1.85	9		4		
Found	2.10	9.92	14.08	3.62	0.83	7.28
Below guarantee				0.38		

* Potash present in form of sulphate, free from chlorides

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Geneva Coal Co., Geneva, N. Y.	Standard corn and potato manure.	Geneva.	6371
Griffith & Boyd, Baltimore, Md.	XX potato manure.	Gorham.	6362
G. W. Harris, Webster, N. Y.	Black diamond guano.	Webster.	6456
G. W. Harris, Webster, N. Y.	Onion and cabbage special.	Webster.	6458
G. W. Harris, Webster, N. Y.	Wheat, oats and barley special.	Webster.	6457
Hewitt Bros., Locke, N. Y.	Bone and potash.	Locke.	6486
Hewitt Bros., Locke, N. Y.	Cayuga Co. pride.	Locke.	6487
Hewitt Bros., Locke, N. Y.	Special grain and grass.	Locke.	6485
International Seed Co., Rochester, N. Y.	Grain and grass.	Phelps.	6376
Lazaretto Guano Co., Baltimore, Md.	High grade ammoniated bone.	Clifton Springs.	6377
Liebig Manufacturing Co., New York.	VanDuyne & O'Hara's dissolved bone.	Moravia.	6480
Liebig Manufacturing Co., New York.	VanDuyne & O'Hara's H. G. bone and potash.	Moravia.	6481
Liebig Manufacturing Co., New York.	VanDuyne & O'Hara's standard.	Moravia.	6479
Lister's Agric'l Chemical Works, Newark, N. J.	Corn and potato.	Canandaigua.	6382
Locke Fertilizer Co., Locke, N. Y.	Corn or vegetable guano.	Locke.	6484
Locke Fertilizer Co., Locke, N. Y.	Farmer's favorite.	Locke.	6483
Locke Fertilizer Co., Locke, N. Y.	Full value animal bone.	Locke.	6482
Fred'k Ludlam, New York.	Dragon's tooth brand.	East Williston. Calverton.	5588 5628
Fred'k Ludlam, New York.	P. G. brand.	Aurelius.	6391

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash.	Pounds of water- soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	2.47	7		8		
Found	2.35	9.20	11.88	4.28	0.80	6.72
Below guarantee				3.72		
Guaranteed		10		5.50		
Found		10.04	12.18	5.34		7.20
Guaranteed	1.85	9		4		
Found	2.02	8.40	10.96	5.36	0.51	4.80
Below guarantee		0.60				
Guaranteed	0.82	10		8		
Found	0.74	13.08	13.84	8.93	0.32	8.32
Guaranteed	0.82	8		4		
Found	0.79	9.68	10.68	3.92	0.31	7.08
Guaranteed		10		2		
Found		10.12	12.22	2.70		5.56
Guaranteed	1.85	8		4		
Found	1.69	8.92	11.48	4.85	0.28	4.96
Guaranteed	0.82	8		4		
Found	0.71	8.20	10.00	4.37	0.25	4.44
Guaranteed	1.65	10		2		
Found	1.89	10.12	13.12	2.25	0.47	6.40
Guaranteed	0.82	8		6		
Found	1.00	8.96	10.56	6.14	0.49	5.60
Guaranteed		14				
Found		13.92	16.96			6.48
Guaranteed		10		5		
Found		10.36	11.56	5.34		5.24
Guaranteed	1.25	10		2.50		
Found	1.65	11.20	12.56	3.23*	0.90	7.24
Guaranteed	1.65	8		3		
Found	1.74	8.80	11.76	2.99	0.62	5.72
Guaranteed	2.47	7		8		
Found	2.54	9.96	11.76	6.46	1.21	5.92
Below guarantee				1.54		
Guaranteed	1.23	10		3		
Found	1.26	10.52	12.28	3.01	0.59	7.12
Guaranteed	1.65	9		4		
Found	1.94	10.12	13.52	4.05	0.83	5.96
Guaranteed	3	7		7		
Found	3.31	8.64	11	7.77	1.34	5.60
Guaranteed		10		6		
Found		10.75	12.74	6.82		7.08

* Potash present in form of sulphate, free from chlorides.

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Fred'k Ludlam.	Tring's Lehigh fertilizer.	Honeoye Falls.	6149
Maryland Fertilizer Co., Baltimore, Md.	Bono superphosphate.	Fairport.	6423
Maryland Fertilizer Co., Baltimore, Md.	Globe.	Fairport.	6422
Maryland Fertilizer Co., Baltimore, Md.	Sangston's cereal and plant food.	Fairport.	6420
Maryland Fertilizer Co., Baltimore, Md.	Tornado fertilizer.	Fairport.	6421
T. A. McCauley, Stanley, N. Y.	Empire grain special.	Stanley.	6385
T. A. McCauley, Stanley, N. Y.	Harvest King.	Stanley.	6386
Milsom Rendering & Fer- tilizer Co., E. Buffalo, N. Y.	Cabbage special.	Gorham.	6363
Milsom Rendering & Fer- tilizer Co., E. Buffalo, N. Y.	No. 2.	Canandaigua.	6381
Milsom Rendering & Fer- tilizer Co., E. Buffalo, N. Y.	Seneca chief.	Penn Yan. Rushville.	6357 6361
Milsom Rendering & Fer- tilizer Co., E. Buffalo, N. Y.	Vegetable bone.	Sennett.	6392
Oakfield Fertilizer Co., Buffalo, N. Y.	Genesee County wheat grower.	Chapinville. Clyde.	6378 6475
Oakfield Fertilizer Co., Buffalo, N. Y.	Golden sheaf.	Clyde. Oakfield.	6474 6443
Oakfield Fertilizer Co., Buffalo, N. Y.	Great value.	Clyde. Oakfield.	6472 6445
Oakfield Fertilizer Co., Buffalo, N. Y.	Special corn and wheat manure.	Oakfield.	6446
Oakfield Fertilizer Co., Buffalo, N. Y.	Weed's special fertilizer.	Clyde.	6473

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water soluble potash.	Pounds of water soluble nitrogen.	Pounds of water soluble phos- phoric acid.
Guaranteed	0.75	10		8		
Found	0.90	10.04	13.72	6.10	0.20	3.88
Below guarantee				1.90		
Guaranteed	—	10		2	—	
Found		10.56	13.36	2.08		8.92
Guaranteed	1.65	9		1.50		
Found	1.90	9.31	11.80	1.80	0.81	7.72
Guaranteed	1.03	10		2.25		
Found	1.12	9.93	13.40	2.47	0.64	7.92
Guaranteed	0.41	11		3.25		
Found	0.59	12.64	13.60	3.92	0.03	10.80
Guaranteed	1.65	8		4		
Found	1.77	8.80	11.20	3.89	0.52	6.96
Guaranteed	0.82	8		4		
Found	1.39	9.18	11.06	4.30	0.40	7.08
Guaranteed	1.65	7		9		
Found	1.74	7.26	9.36	8.42	0.83	5.64
Below guarantee				0.58		
Guaranteed	1.25	10		4		
Found	1.29	10.14	11.56	4.38	0.53	7.36
Guaranteed	1.25	10		7		
Found	1.29	8.31	10.88	6.43	0.65	5.48
Below guarantee		1.69		0.57		
Guaranteed	4.12	8		5		
Found	3.71	7.62	10.38	4.91	1.19	5.12
Below guarantee	0.41	0.38				
Guaranteed	1	10		5		
Found	1.18	10.43	12.39	5.23	0.11	5.52
Guaranteed	1.23	7		1.89		
Found	1.23	7.84	9.72	2.10	0.31	4.68
Guaranteed	0.82	6		1.08		
Found	0.96	7.16	7.84	1.17	0.08	3.80
Guaranteed	3.70	8		6		
Found	3.08	9.73	10.48	6.59	2.32	6.76
Below guarantee	0.62					
Guaranteed	1.64	4		4		
Found	1.65	4.36	5.84	4.18	0.18	1.88

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Ohio Farmers' Fertilizer Co., Columbus, O.	Corn, oats and wheat, fish guano.	Chapinville.	6379
Ohio Farmers' Fertilizer Co., Columbus, O.	Tobacco grower and potato and truck fertilizer.	Medina.	6449
Pacific Guano Co., New York	Alkaline bone.	Fairport.	6424
Pacific Guano Co., New York	Dissolved bone.	Skaneateles.	6394
Parmenter & Polsey Fertilizer Co., Peabody, Mass.	Grain grower.	Auburn. Skaneateles Jun.	6468 6397
Parmenter & Polsey Fertilizer Co., Peabody, Mass.	Plymouth Rock brand.	Auburn.	6464
Parmenter & Polsey Fertilizer Co., Peabody, Mass.	Potato fertilizer.	Auburn. Skaneateles Jun.	6465 6396
Parmenter & Polsey Fertilizer Co., Peabody, Mass.	Special fertilizer for strawberries and small fruits.	Auburn.	6466
Parmenter & Polsey Fertilizer Co., Peabody, Mass.	Star brand superphosphate.	Auburn.	6467
A. Peterson, Penfield, N. Y.	Farmers' brand.	Penfield.	6435
A. Peterson, Penfield, N. Y.	Ground bone.	Penfield.	6436
A. Peterson, Penfield, N. Y.	Penfield standard.	Penfield.	6434
Potomac Fertilizer Co., Boston, Mass.	Dissolved bone.	Fairport.	6419
Potomac Fertilizer Co., Boston, Mass.	Wheat special.	Fairport.	6418
Quinnipiac Co., New York	Wheat and seeding special.	Rushville.	6360
Rasin-Monumental Co., Baltimore, Md.	Acid-phosphate.	Green's. Penn Yan.	6399 6355
Rasin-Monumental Co., Baltimore, Md.	Ammoniated superphosphate.	Green's.	6401
Rasin-Monumental Co., Baltimore, Md.	Brisbin & Douglass special grain.	Clyde.	6469

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash.	Pounds of water soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	1.25	9		2		
Found	0.71	6.36	9.56	1.70	0.03	0.84
Below guarantee	0.54	2.64		0.30		
Guaranteed	2.50	8		4		
Found	1.97	7.86	10.42	3.42	0.22	2.24
Below guarantee	0.53			0.58		
Guaranteed		10		4		
Found		11.60	13.76	4.09		6.88
Guaranteed		14				
Found		15.83	17.72			9.64
Guaranteed	0.82	7	8	2		
Found	0.91	7.06	8.72	2.41	0.04	3.20
Guaranteed	2.47	8	9	4		
Found	2.56	9.48	11.36	4.03	0.77	3.80
Guaranteed	1.64	6	7	5.50		
Found	2.24	7.44	8.56	6.52	1.34	2.36
Guaranteed	2.47	9	10	6		
Found	2.84	9.40	10.84	5.57*	1.42	5.40
Below guarantee				0.43		
Guaranteed	1.64	7	8	2.50		
Found	2.13	7.28	9.32	3.05	0.79	2.20
Guaranteed	1.25	6		2		
Found	2.60	9.28	13.72	2.57	1.39	5.32
Guaranteed			18			
Found	3.44		25.60		1.85	
Guaranteed	2.25	8		4		
Found	2.60	10	13.72	6.02	1.38	4.88
Guaranteed		14				
Found		16.16	17.60			12.92
Guaranteed	0.82	8		4		
Found	1.07	9.04	11.48	4.03	0.24	5.48
Guaranteed	1.64	8		3		
Found	2.16	8.84	12.72	3.52*	0.75	5.08
Guaranteed		14				
Found		14.84	17.40			11.76
Guaranteed	0.82	8		1		
Found	0.88	10.04	12	0.78	0.10	9.56
Below guarantee				0.22		
Guaranteed	0.82	8		4		
Found	0.78	7.92	9.72	4.29	0.15	4.08

* Potash present in form of sulphate, free from chlorides.

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Raisin-Monumental Co., Baltimore, Md.	Empire guano.	Greene's.	6400
Read Fertilizer Co., New York	Prime wheat and rye.	Rushville.	6359
Read Fertilizer Co., New York	Sharp's special.	Webster.	6459
John S. Reese & Co., Baltimore, Md.	Elm phosphate.	Penn Yan.	6356
Rochester Fertilizer Works, Rochester, N. Y.	Guano XX.	Rochester.	6440
Rochester Fertilizer Works, Rochester, N. Y.	Perfection brand.	Rochester.	6438
Rochester Fertilizer Works, Rochester, N. Y.	Tankage.	Rochester.	6441
Rochester Fertilizer Works, Rochester, N. Y.	Universal phosphate.	Rochester.	6439
Sessions & Leonard, Palmyra, N. Y.	Guano ammoniated bone.	Palmyra.	6412
Sessions & Leonard, Palmyra, N. Y.	Wayne Co. special.	Palmyra.	6413
Sharpless & Carpenter, Philadelphia, Pa.	Farmers' alliance special.	Grand Island.	6447
Wm. Shoemaker, Oakwood, N. Y.	Animal bone special.	Aurelius.	6387
Wm. Shoemaker, Oakwood, N. Y.	Ammoniated bone phos- phate.	Aurelius.	6389
Wm. Shoemaker, Oakwood, N. Y.	Grain standard guano.	Aurelius.	6390
Wm. Shoemaker, Oakwood, N. Y.	Soluble bone and potash.	Aurelius.	6388
Standard Fertilizer Co., Boston, Mass.	A brand.	Newark.	6406
Standard Fertilizer Co., Boston, Mass.	Dissolved bone.	Port Byron.	6477
Standard Fertilizer Co., Boston, Mass.	Potato and tobacco.	Newark.	6407
H. F. Tucker, Boston, Mass.	Imperial bone.	Billsborough.	6491
H. F. Tucker, Boston, Mass.	Original Bay State bone superphosphate.	Billsborough.	6492
G. O. P. Turner, Churchville, N. Y.	None such.	Churchville.	6442

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phoric acid.	Pounds of water- soluble potash.	Pounds of water- soluble nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed	2.06	8		1.50		
Found	1.45	9.20	11.64	1.47	0.15	9.20
Below guarantee	0.61					
Guaranteed	1.64	8		4		
Found	2.08	9.44	12.88	4.65	0.45	7.24
Guaranteed	1.85	9		4		
Found	2.04	8.86	10.63	4.23	0.21	6.52
Guaranteed		14				
Found		14.08	17.40			5.96
Guaranteed	0.82	8		4		
Found	0.83	8.80	9.56	4.29*	0.39	5.72
Guaranteed	2.46	8		3		
Found	2.89	9.48	11.32	3.28	1.80	6.08
Guaranteed	7.40					
Found	7.70	5.64	7.80		4.61	1.32
Guaranteed	3.30	8		10		
Found	3.44	8.20	9.64	10.61*	2.13	5.96
Guaranteed	0.82	8		4		
Found	1.02	8.30	10.45	4.38	0.51	7.12
Guaranteed	1.85	9		4		
Found	2.02	9.59	11.55	4.03	0.77	7.08
Guaranteed	0.82	8		4		
Found	1.14	9.48	10.84	3.89	0.93	8.12
Guaranteed	1.85	9		4		
Found	2.04	10.41	14.60	4.31	0.92	7.36
Guaranteed	0.82	8		5		
Found	0.94	8.48	10.24	5.19	0.40	5.84
Guaranteed	1.65	8		3		
Found	1.71	8.03	11.07	3.08	0.41	4.08
Guaranteed		10		6		
Found		10.08	11.60	6.85		7
Guaranteed	0.82	7		1		
Found	1.11	7.24	10.52	1.77	0.24	3.40
Guaranteed		14				
Found		14.36	16.72			5.32
Guaranteed	2.05	8		3		
Found	2.17	8.12	10.92	2.93	0.52	5.48
Guaranteed	1.03	8		2.15		
Found	0.99	8.57	10.32	3.62	0.41	7
Guaranteed	1.64	9		2		
Found	1.55	9.16	10.36	2.01	0.55	7.28
Guaranteed	0.82	10		8		
Found	0.91	9.84	11.76	9.02	0.35	6.72

* Potash present in form of sulphate, free from chlorides.

MANUFACTURER.	Trade name or brand.	Locality where sample was taken.	Station No.
Wooster & Mott, Union Hill, N. Y.	Alkaline bone.	Union Hill.	6444
Wooster & Mott, Union Hill, N. Y.	Bone and potash.	Union Hill	6455
Wooster & Mott, Union Hill, N. Y.	Special manure for pota- toes and onions.	Union Hill.	6454
Wooster & Mott, Union Hill, N. Y.	Storm king.	Union Hill.	6453
Zell Guano Co., Baltimore, Md.	Alkaline bone.	Webster.	6460
Zell Guano Co., Baltimore, Md.	Farmers' guano.	Webster.	6461

In 100 pounds of fertilizer.

	Pounds of nitrogen	Pounds of available phos- phoric acid.	Pounds of total phos- phor c acid.	Pounds of water- soluble potash.	Pounds of water- so ule nitrogen.	Pounds of water- soluble phos- phoric acid.
Guaranteed Found	—	13 14.16	— 15.24	3 2.79	—	— 10.80
Below guarantee				0.21		
Guaranteed Found	—	10 10.76	— 11.40	8 7.13	—	— 8.44
Below guarantee				0.87		
Guaranteed Found	2.47 2.57	7 8.04	— 9.88	7 7.48	— 0.35	— 5.12
Guaranteed Found	1.85 1.94	9 10.32	— 11.64	4 4.01	— 0.57	— 8.04
Guaranteed Found	—	13 14.12	— 16.44	3 2.98	—	— 12.36
Guaranteed Found	0.80 1.08	9 10.20	— 12.76	4 5.16	— 0.05	— 8.92

NOTE.—The figures in lower section are analyses of brands given above.