

The Connecticut Agricultural Experiment Station.

BULLETIN No. 80.

SEPTEMBER, 1884.

OBSERVANCE OF THE FERTILIZER LAW.

MANUFACTURERS *who have paid Analysis Fees as required by the Fertilizer Law, since the issue of the last Bulletin, and FERTILIZERS for which the Fees have thus been paid.*

FIRM.	ARTICLE.	DATE.
H. J. Baker & Bro., 215 Pearl New York,	Special Oat Manure; Special Tobacco Manure; Special Grass Manure,	July 17
Russell Coe, Linden, N. J.,	Special Favorite; Potato Manure,	Aug. 12
Peter Cooper's Glue Factory, 17 Burling Slip, New York,	Bone Dust,	Aug. 27
Lombard & Matthewson, Warren- ville, Ct.,	Ground Bone,	Aug. 23
Geo. W. Miles Co., Milford, Ct.,	I. X. L. Bone Superphosphate. Fish and Potash Fertilizer.	
National Fertilizer Co., Bridgeport, Ct.,	Cooke's Dissolved Ground Bone,	July 3

FERTILIZER ANALYSES.

FERTILIZING CHEMICALS.

1244. Nitrate of Soda. Stock of H. J. Baker & Bro., N. Y. From lot purchased by J. M. Milbank, Greenfield Hill. Sampled and sent by J. M. Milbank.

ANALYSIS.

Nitrogen,	16.13
Equivalent nitrate of soda,	97.93

Cost 3 cents per lb. in N. Y., or \$61.50 per ton in Southport. Nitrogen in this fertilizer costs 19.1 cents per lb.

1257. Sulphate of Ammonia. From stock purchased of National Fertilizer Co., Bridgeport, by the Conn. Valley Orchard Co. of New Britain. Sampled and sent by R. A. Moore, Kensington.

ANALYSIS.

Nitrogen guaranteed,	19-20.6
Nitrogen found,	20.63
Equivalent sulphate of ammonia,	97.3

Cost \$65.00 per ton in Bridgeport, \$67.00 in New Britain. Nitrogen in this fertilizer costs 16.2 cents per lb.

1247. Kainit. Stock of H. J. Baker & Bro., N. Y. From stock purchased by J. M. Milbank, Greenfield Hill. Sampled and sent by J. M. Milbank.

1255. Muriate of Potash. From stock purchased of National Fertilizer Co., Bridgeport, by the Conn. Valley Orchard Co. of New Britain. Sampled and sent by R. A. Moore, Kensington.

ANALYSES.

	1247	1255
Potash guaranteed,		50.50
Potash found,	12.47	47.65
Equivalent sulphate of potash,	23.06	
Equivalent muriate of potash,		75.47
Cost per ton, with freight added,	\$12.00	\$39.00
Potash costs per lb.	4.8 cts.	4.1 cts.

POTASH FERTILIZERS.

Six samples of "Potash Fertilizers," in one case "said to be ashes of Cotton Seed Hulls," and in another called "Sulphate of potash," have been analyzed for parties in Suffield and Warehouse Point. All of them were bought of R. E. Pinney, Suffield. The results are as follows :

	1112	1147	1087	1088	1125	1268
Soluble Phosphoric acid,	1.34	2.14	1.47	.25	.94	.73
Reverted " "	5.59	4.72	4.18	4.40	4.69	5.88
Insoluble " "	3.13	2.77	.52	.51	.45	3.34
Potash soluble in water,	23.80	27.73	32.52	21.87	17.81	19.13
Potash insoluble in water,	1.19					2.78
Cost per ton,	\$39.00	39.00			39.00	39.00
Valuation,	\$50.07	55.34	58.08	40.59	36.54	42.79

This material, as the analyses show, is not uniform in composition. The phosphoric acid varies from 5.2 per cent. to 10.0, and the potash from 17.8 to 32.5 per cent. The samples which are dark in color, **1088**, **1125** and **1268**, are inferior to those which are light gray.

The water-soluble potash is valued at $7\frac{1}{2}$ cents per lb. since chlorine is not present in any considerable quantity. The potash insoluble in water is disregarded in the valuation.

Phosphoric acid is valued at 10, 9 and $4\frac{1}{2}$ cents, as in superphosphates. These articles furnish potash in a cheap and desirable form for tobacco, and we understand they were used chiefly on tobacco land.

GROUND BONE.

1219. Darling's Fine Ground Bone. Made by L. B. Darling & Co., Pawtucket, R. I. From stock of J. B. Barstow & Co., Norwich. Sample drawn by Station Agent.

1273. Forrester's Pure Ground Bone. Made by G. B. Forrester, N. Y. From stock purchased by S. B. Wakeman, Saugatuck, and sampled and sent by him.

1265. Ground Bone. *Manufacturer's Sample.* Made by G. W. Miller, Middlefield. Sampled and sent by him.

1266. Slade's Ground Bone. Made by F. C. Slade, Oakville. Sample drawn by Station Agent.

MECHANICAL ANALYSES.

	1219	1273	1265	1266
Finer than $\frac{1}{25}$ inch,	77	80	26	29
" " $\frac{1}{25}$ "	16	20	23	36
" " $\frac{1}{12}$ "	7	0	32	14
" " $\frac{1}{6}$ "	0	0	19	10
Coarser than $\frac{1}{5}$ "	0	0	0	11
	<hr/> 100	<hr/> 100	<hr/> 100	<hr/> 100

CHEMICAL ANALYSES AND VALUATION.

	1219	1273	1265	1266
Nitrogen,	3.51	3.97	4.17	4.15
Phosphoric acid,	22.98	22.99	21.10	21.59
Cost per ton,	\$42.00	39.00	36.00*	35.00*
Valuation per ton,	39.10	41.10	34.90	35.57

* At the mill.

FISH FERTILIZERS.

Station No.	Name or Brand.	Manufacturer.	Dealer from whom sample was taken.	Station Agent.
1201	Bowker's Dry Ground Fish.	Bowker Fert. Co., Boston, Mass.	Usher & Tinker, Plainville.	Station Agent.
1217	Preston's Dried and Ground Fish Guano.	Preston Fert. Co., Greenpoint, Long Island.	Wilson & Burr, Middletown.	" "
1135	Quinnipiac Dry Ground Fish.	Quinnipiac Fert. Co., N. London.	Olds & Whipple, Hartford.	" "
1159	Stearns' Dry Ground Fish Guano.	Stearns & Co., N. Y. and Fall River, Mass.	A. S. Russell, Meriden.	" "
1211	Bowker's Fish and Potash.	Bowker Fert. Co., Boston, Mass.	Usher & Tinker, Plainville.	" "
1221	Chittenden's Fish and Potash.	National Fert. Co., Bridgeport.	Southmayd & Gardiner, Midd't'n	" "
1132	Quinnipiac Fish and Potash, Crossed Fishes brand.	Quinnipiac Fert. Co., N. London.	Olds & Whipple, Hartford.	" "
1204	Quinnipiac Fish and Potash, Plain brand.	" " "	Usher & Tinker, Plainville.	" "
1213	Williams, Clark & Co's Fish and Potash.	Williams, Clark & Co., N. Y.	J. A. Lewis, Willimantic.	" "

FISH FERTILIZERS. ANALYSES AND VALUATIONS.

Station No.	Name or Brand.	NITROGEN.				PHOSPHORIC ACID.						POTASH.		Cost.	Valuation.
		From Ammonia.	From Organic Matter.	Total Nitrogen Found.	Nitrogen guaranteed.	Soluble in Water.	Soluble in Ammonium Citrate.	Insoluble.	Total Phos. Acid Found.	Total Phos. Acid guaranteed.	Available.	Found.	Guaranteed.		
1201	Bowker's Dry Ground Fish	--	8.44	8.44	8.	.90	3.78	2.73	7.41	--	--	--	--	\$40.00	\$44.82
1217	Preston's Dried and Ground Fish Guano.....	--	4.26	4.26	4.1	2.01	3.60	.85	6.46	5.0	5.61	--	--	35.00	28.30
1135	Quinnipiac Dry Ground Fish.....	.46	7.79	8.25	7.4	1.22	3.37	1.37	6.56	6.	4.59	2	--	40.00	43.46
1159	Stearns' Dry Ground Fish Guano. ....	.68	8.13	8.81	7.4	.80	4.79	2.89	8.48	7.	5.59	--	--	40.00	48.33
1211	Bowker's Fish and Potash.....	--	2.00	2.00	2.2	3.59	2.09	2.95	8.63	8.	5.68	--	4.41	35.00	25.34
1221	Chittenden's Fish and Potash.....	.11	2.94	3.05	2.9	.64	2.00	4.33	6.97	6.	2.64	--	6.38	35.00	26.44
1132	Quinnipiac Fish and Potash, Crossed Fishes brand..	.66	3.26	3.92	3.2	2.05	2.49	1.28	5.32	5.	4.54	3	3.52	38.00	28.66
1204	Quinnipiac Fish and Potash, Plain brand.....	.41	2.11	2.52	2.	.32	4.25	4.08	8.65	6.	4.57	4	4.44	33.00	25.97
1213	Williams, Clark & Co., Fish and Potash .....	.31	3.70	4.10	3.3	.24	3.01	3.22	6.87	3.	3.25	--	5.15	34.00	29.66

SUPERPHOSPHATES AND GUANOS.

Station No.	Name or Brand.	Manufacturer.	Dealer from whom Sample was taken.	Sampled by
1206	A. A. Ammoniated Superphosphate.	H. J. Baker & Bro., N. Y.	J. H. Ives, Danbury.	Station Agent.
1235	A. A. Ammoniated Superphosphate.	H. J. Baker & Bro., N. Y.	W. W. Cooper, Suffield.	F. B. Hathaway, Suffield.
1264	A. A. Ammoniated Superphosphate.	H. J. Baker & Bro., N. Y.	J. E. Andrews, Mt. Carmel.	S. A. Smith, Cheshire.
1207	Pelican Bone Phosphate.	H. J. Baker & Bro., N. Y.	Cochrane Bros., West Cornwall.	Station Agent.
1272	Dissolved Bone.	Baker Fertilizer Co., N. Y.*	Hubbell & Bradley, Saugatuck.	S. B. Wakeman, Saugatuck.
1218	Bosworth's Superphosphate of Lime.	Bosworth Bros., Putnam.	J. A. Paine, Danielsonville.	Station Agent.
1141	Bowker's Hill and Drill Phosphate.	Bowker Fertilizer Co., Boston.	Coburn & Gale, Hartford.	" "
1209	Original Coe's Superphosphate.	Bradley Fertilizer Co., Boston.	Smith & Sons, West Cornwall.	" "
1137	Bradley's Patent Superphosphate.	Bradley Fertilizer Co., Boston.	A. C. Sternberg, Hartford.	" "
1157	Ammoniated Bone Superphosphate.	" "	S. J. Hall, Meriden.	" "
1205	Potato, Hop and Tobacco Phosphate.	" "	S. W. Foote, Danbury.	" "
1222	Bay State Fertilizer.	Clark's Cove Guano Co., N. B'fd.	J. E. Leonard, Jewett City.	" "
1140	E. F. Coe's Ammoniated Bone Superphosphate.	E. Frank Coe, Burling Slip, New York.	R. B. Bradley, New Haven.	" "
1210	Russell Coe's Ammoniated Bone Superphosphate.	Russell Coe, Linden, N. J.	Smith & Sons, West Cornwall.	" "
1208	Cooke's Blood Guano.	National Fertilizer Co., B'dgeport.	Burtis & Mead, New Canaan.	" "
1216	Darling's Animal Fertilizer.	L. B. Darling & Co., P'cket, R. I.	J. B. Barstow, Norwich.	" "
1236	Darling's Animal Fertilizer.	L. B. Darling & Co., Pawtucket, R. I.	The T. Pease & Sons Co., Windsor Locks.	F. B. Hathaway, Suffield.

* The firm of H. J. Baker & Bro. also manufacture Dissolved Bone having a different guarantee and composition from this article.

SUPERPHOSPHATES AND GUANOS—Continued.

Station No.	Name or Brand.	Manufacturers.	Dealer from whom Sample was taken.	Sampled by
1230	Warranted No. 1 Peruvian Guano.	Hurtado & Co., N. Y.	Southmayd & Gardiner, Middle-town.	Station Agent.
1144	Lister's Ammoniated Dissolved Bone.	Lister Bros., Newark.	R. E. Bradley, New Haven.	"
1128	Mapes Complete Manure "A" Brand.	Mapes Formula and Guano Co., N. Y.	R. E. Bradley, New Haven.	"
1143	Mapes Complete Manure, for light soils.	Mapes Formula and Peruvian Guano Co., N. Y.	Birdsey & Foster, Meriden.	"
1223	Mitchell's Standard Superphosphate.	A. Mitchell, Linden, N. J.	J. A. Paine, Danielsonville.	"
1226	Chittenden's Complete Fertilizer for Roots.	National Fertilizer Co., Bridgeport.	Manufacturer.	Josiah Hawkins, Southport.
1256	Plain Superphosphate.	-----	Nat. Fertilizer Co., Bridgeport.	R. A. Moore, Kensington.
1215	Preston's Ammoniated Bone Super-phosphate.	H. Preston & Sons, Greenpoint, L. I.	J. B. Merrow & Sons, Merrow.	Station Agent.
1130	Quinnipiac Phosphate.	Quinnipiac Fer. Co., N. London.	Olds & Whipple, Hartford.	"
1202	Universal Ammoniated Dissolved Bone.	Williams, Clark & Co., N. Y.	Uslter & Tinker, Plainville.	"
1203	Americus Ammoniated Bone Super-phosphate.	"	"	"
1214	Wilcox Prepared Fertilizer.	L. Wilcox & Co., Mystic Bridge.	J. A. Lewis, Willimantic.	"
1267	Home Made Fertilizer.	John Mason, Warehouse Point.	-----	Manufacturer.

SUPERPHOSPHATES AND GUANOS.—ANALYSES AND VALUATIONS.

Station No.	Name or Brand.	NITROGEN.					PHOSPHORIC ACID.						POTASH.		Chlorine.	Cost per Ton.	Valuation per Ton.	
		From Nitrates.	From Ammonia.	From Organic Matters.	Total Nitrogen Found.	Nitrogen guaranteed.	Soluble in Water.	Reverted.	Insoluble.	Total Phos. Acid Found.	Phos. Acid guaranteed.	Available.		Found.				Guaranteed.
												Found.	Guaranteed.					
1206	Baker's A. A. Superphosph.		1.63	.80	2.53	2.5	9.29	1.01	.55	10.85		10.30	10.	2.83	2.	2.55	\$40.00	\$34.07
1235	" "		1.62	1.26	2.88	2.5	9.33	.85	.49	10.67		10.17	10.	2.66	10.		40.00	34.66
1264	" "		1.98	.46	2.44	2.5	8.85	1.32	.78	10.95		10.17	10.	3.00	2.		40.00	33.88
1207	H. J. Baker's Pelican Bone Fertilizer		1.54	.65	2.19	1.9	8.30	.23	.36	8.89		8.53	8.	2.82	2.	4.14	35.00	29.11
1272	Baker's Dissolved Bone			1.42	1.42	1.6	7.60	.52	1.33	9.45	3.	8.12	5.	1.66	1.3	3.79	36.00	24.43
1218	Bosworth's Superphosphate		1.00	1.14	2.14	2.	4.64	5.32	5.20	15.36	14.	10.16	7.	2.32	2.	1.55	35.00	34.83
1141	Bowker's Hill and Drill Phosphate		.79	1.47	2.26	1.6	7.62	.97	.96	9.55	10.	8.59	8.	2.29	2.	3.00	40.00	29.16
1209	Original Coe's Superphosph.		2.31	2.31	2.1	7.31	1.75	3.32	12.58	11.	9.06	9.				40.00	30.18	
1137	Bradley's Patent Superphosphate		2.32	2.32	2.3	8.53	1.39	2.88	12.80	11.	9.92	9.		2.08	1.5	1.40	42.00	33.20
1157	Buffalo Fertilizer Company's Superphosphate		.32	3.08	3.40	2.5	7.06	.91	2.20	10.17	9.	7.97	8.	1.32	1.0	1.00	43.00	32.59
1205	Potato, Hop and Tobacco Phosphate		.56	3.10	3.10	2.	6.60	.61	2.16	9.37	9.	7.21	8.	4.76	3.2	2.79	*45.00	33.31
1222	Bay State Fertilizer	.58		1.77	2.51	2.1	7.76	1.24	1.99	10.99	9.5	9.00	8.	3.17	2.	2.28	35.00	29.30
1140	E. F. Coe's Superphosphate		2.17	2.17	2.1	7.73	1.42	2.89	12.04	11.	9.15	9.				40.00	26.62	
1210	Russell Coe's Superphosph.		2.21	2.21	1.9	5.54	1.15	3.48	10.17	11.	6.69	10.		1.76	1.5	2.45	40.00	26.62
1208	Cooke's Blood Guano	.07		1.66	1.73	1.7	4.85	1.30	4.49	10.64	10.	6.15	7.	3.10		3.16	46.00	25.58
1216	Darling's Animal Fertilizer		.39	3.00	3.39	4.	.67	6.58	7.57	14.82	10.	7.25	7.	4.35	5.	5.16	45.00	37.77
1236	Darling's Animal Fertilizer		3.91	3.91	4.	.75	6.19	8.42	15.96	10.	7.54	7.	4.47	5.	3.84	45.00	40.74	

* Reckoned from price per 100 lbs.

SUPERPHOSPHATES AND GUANOS.—ANALYSES AND VALUATIONS—Continued.

Station No.	Name or Brand.	NITROGEN.				PHOSPHORIC ACID.						POTASH.		Chlorine.	Cost per Ton.	Valuation per Ton.	
		From Nitrates.	From Ammonia.	From Organic Matters.	Total Nitrogen	Found.	Nitrogen guar-anteed.	Soluble in Water.	Reverted.	Insoluble.	Total Phos. Acid	Phos. Acid guar-anteed.	Available.				Found.	Guarant'd.
1220	No. 1 Peruvian Guano Standard	.26	6.37	.90	7.53	7.4	2.16	4.88	9.06	15.90	13.	11.22	2.72	2.	1.47	\$57.00	\$55.77
1144	Lister's Dissolv'd Bone Phosphate		.56	1.48	2.04	1.7	8.24	1.60	1.61	11.45	10.	9.84	1.89	1.5	1.20	35.00	30.80
1128	Mapes' Complete Manure,		.80	.70	1.07	2.57	2.5	8.98	2.74	15.36	12.	11.72	2.74	2.5	2.60	42.00	38.73
1143	Mapes' Complete Manure for light soils		.84	2.89	2.17	5.90	4.9	6.15	1.33	9.34	7.	7.48	8.04	6.	6.28	52.00	47.61
1223	Mitchell's Standard Superphosphate		.14	1.73	1.87	2.1	3.64	2.09	4.50	10.33	10.	5.73	1.69	3.	3.55	38.00	24.07
1226	Chittenden's Complete Fertilizer for Roots		.77	2.37	1.08	4.22	3.3	6.54	1.13	9.02	8.	7.67	5.56	6.	4.44	45.00	38.57
1256	Plain Superphosphate						8.04	1.66	3.48	13.18		9.70	10.	2.		20.00	20.64
1215	Preston's Bone Superphosphate						7.14	1.34	3.29	11.77		8.48	9.			35.00	28.79
1130	Quinnipiac Phosphate		.43	2.43	2.86	2.5	7.52	1.32	.90	9.74	9.	8.84	8.	2.62	1.77	40.00	32.07
1202	Williams, Clark & Co.'s Universal Dissolved Bone						6.91	3.58	1.57	12.04	10.	10.48	9.			36.00	28.95
1203	Williams, Clark & Co.'s Bone Superphosphate		.11	2.12	2.23	1.7	6.93	2.38	1.11	10.42	10.	9.31	1.16	1.	1.14	38.00	29.01
1214	Wilcox Prepared Fertilizer.		.83	3.05	3.88	3.3	3.89	2.87	3.03	9.79		6.76	5.5	5.06	3.83	36.00	35.80
1267	Home Made Fertilizer			4.42	4.42		2.68	.99		3.67		2.68	7.13			33.70	31.96

SPECIAL MANURES.

Station No.	Name or Brand.	Manufacturer.	Dealer from whom sample was taken.	Sampled by
1212	Baker's Special Tobacco Manure.	H. J. Baker & Bro., N. Y. City.	Southmayd & Gardiner, Middle-town.	Station Agent.
1155	Stockbridge Grain Manure.	Bowker Fert. Co., Boston, Mass.	Coburn & Gale, Hartford.	" "
1274	Forrester's Corn Manure.	G. B. Forrester, New York.	Manufacturer.	S. B. Wakeman, Saugatuck.
1131	Mapes' Corn Manure.	Mapes' Formula and Peruvian Guano Co., N. Y.	R. B. Bradley, New Haven.	Station Agent.
1160	Stockbridge Vegetable Manure.	Bowker Fert. Co., Boston, Mass.	Coburn & Gale, Hartford.	" "
1275	Forrester's Potato Manure.	G. B. Forrester, New York.	Manufacturer.	S. B. Wakeman, Saugatuck.
1138	Mapes' Potato Manure.	Mapes' Formula and Peruvian Guano Co., New York.	R. B. Bradley, New Haven.	Station Agent.
1271	Forrester's Onion Manure.	G. B. Forrester, New York.	Manufacturer.	S. B. Wakeman, Saugatuck.

SPECIAL MANURES.—ANALYSES AND VALUATIONS.

Station No.	Name or brand.	NITROGEN.						PHOSPHORIC ACID.						POTASH.		Valuation per Ton.		
		From Nitrates.	From Ammonia.	From Organic Matter.	Total Nitrogen Found.	Nitrogen Guaranteed.	Soluble.	Reverted.	Insoluble.	Total Phos. Acid Found.	Total Phos. Acid Guaranteed.	Available.		Found.	Guaranteed.		Chlorine.	Cost per Ton.
												Found.	Guaranteed.					
1212	Baker's Tobacco Manure	--	4.34	.67	5.01	4.5	3.91	1.27	.35	5.53	--	5.18	4.0	9.47	8.0	.2	---	\$45.94
1155	Bowker's Grain Manure	--	1.55	1.76	3.31	3.3	7.58	.40	1.12	9.10	7	7.98	6.	5.51	4.	4.20	\$45.00	35.43
1274	Forrester's Corn Manure	--	4.71	--	4.71	3.9	8.73	.45	.71	9.89	--	9.18	6.5	7.84	8.0	5.69	49.50	46.47
1131	Mapes' Corn Manure .....	.87	2.16	1.01	4.04	3.7	6.07	2.73	3.71	12.51	10	8.80	--	6.82	6.	6.60	*50.00	42.86
1160	Bowker's Vegetable Manure	--	1.09	2.16	3.25	3.3	6.21	.51	2.04	8.76	--	6.72	8.	10.12	7.	5.80	45.00	38.68
1275	Forrester's Potato Manure	--	4.68	--	4.68	3.7	7.06	.81	.68	8.55	--	7.87	5.25	9.83	10.	5.89	49.50	46.35
1138	Mapes' Potato Manure .....	.91	1.96	1.40	4.27	3.7	5.85	3.07	3.74	12.66	8	8.92	--	6.82	6.	3.71	*51.00	44.96
1271	Forrester's Onion Manure	--	5.58	--	5.58	5.35	9.05	.40	--	9.45	--	9.45	3.5	7.58	7.0	4.44	48.50	50.83

* Reckoned from price per 200 lbs.

In the preceding tables the manufacturer's *minimum* guarantee has in all cases been given. The "cost per ton" is that quoted by the retail dealer at the point where the sample was taken, unless otherwise stated.

TRADE VALUES IN SUPERPHOSPHATES, SPECIAL MANURES, AND
MIXED FERTILIZERS OF HIGH GRADES.

The Organic Nitrogen in these classes of goods has been reckoned at the highest figure laid down in the Trade-Values of Fertilizing Ingredients in Raw Materials, namely, 20 cents per pound. Insoluble Phosphoric acid has been reckoned at $4\frac{1}{2}$ cents, and Potash at $4\frac{1}{4}$ cents if sufficient chlorine was present in the fertilizer to combine with it. If there was more Potash present than would combine with the chlorine, then this excess of Potash has been reckoned as sulphate.

In most cases the calculated value of Superphosphates and Specials falls considerably below the retail price. The difference between the two represents the manufacturer's expenses in converting raw materials into the manufactured articles. These expenses include grinding and mixing, bagging or barreling, storage and transportation; commission to agents or dealers; long credits, interest on investment, bad debts, and finally profits.

In the season of 1883 the selling price of superphosphates and specials in Connecticut was on the average 18 per cent. greater than the Station valuations, or 38 per cent. in advance of the wholesale cost of the fertilizing elements in the raw materials.

S. W. JOHNSON, *Director.*