

120073

The Connecticut Agricultural Experiment Station.

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THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION was established in accordance with an Act of the General Assembly, approved March 21, 1877, "for the purpose of promoting Agriculture by scientific investigation and experiment."

The Station is prepared to analyze and test fertilizers, cattle-foods, seeds, soils, water, milk, and other agricultural materials and products, to identify grasses, weeds, and useful or injurious insects, and to give information on the various subjects of Agricultural Science, to the Citizens of Connecticut.

The Station makes analyses of Fertilizers, Seed-Tests, &c., for the Citizens of Connecticut *without charge*, provided: 1. That the results are of use to the public and are free to publish. 2. That the samples are taken by *consumers* from stock now in the market, and in accordance with the Station instructions for sampling. 3. That the samples are fully described on the Station "Forms for Description," or otherwise as may be required.

All other work proper to the Experiment Station that can be used for the public benefit will be made without charge. **Work done for the use of individuals** will be charged for at moderate rates. The Station will undertake no work, the results of which are not at its disposal to use or publish, if deemed advisable.

Results that are of general interest will be published in Bulletins (of which copies are sent to each Post Office in this State, addressed to the Postmaster), and will be summed up in the Annual Reports made to the Legislature.

Every Connecticut citizen who is concerned in agriculture, has the right to apply to the Station for any assistance that comes within its province to render, and the Station will respond to all applications as far as lies in its power.

Instructions and Forms for taking samples, and Terms for testing Fertilizers, Seeds, etc., for private parties, sent on application.

Station Grounds, Laboratory and Office are on Suburban St., in the city of New Haven, between Whitney Avenue and Prospect St., $1\frac{1}{4}$ miles North of City Hall. Suburban St. may be reached by Whitney Lake Horse Cars, which leave corner of Chapel and Church Sts. each hour and half hour. Return cars may be taken by leaving the Station on the hour or half hour.

The Station and Director's house (54 Trumbull St., near Whitney Avenue) have Telephone connection and may be spoken from the Central Telephone Office, 346 State St., or from Peck & Bishop's Office in Union R. R. Depot, New Haven, and from other Telephone Offices.

Parcels by Express, to receive attention, should be prepaid, and all communications should be directed, not to individual officers, but simply to the

AGRICULTURAL EXPERIMENT STATION,
NEW HAVEN, CONN.

CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

BULLETIN No. 73.

APRIL, 1883.

AN ACT CONCERNING COMMERCIAL FERTILIZERS.

GENERAL ASSEMBLY,
January Session, A. D. 1882.

*Be it enacted by the Senate and House of Representatives in
General Assembly convened:*

SECTION 1. Every person or company who shall sell, offer, or expose for sale, in this State, any commercial fertilizer or manure the retail price of which is ten dollars, or more than ten dollars per ton, shall affix conspicuously to every package thereof a plainly printed statement clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand, or trade-mark under which the fertilizer is sold, the name and address of the manufacturer, the place of manufacture and the chemical composition of the fertilizer, expressed in the terms and manner approved and currently employed by the Connecticut Agricultural Experiment Station.*

If any such fertilizer be sold in bulk, such printed statement shall accompany and go with every lot and parcel sold, offered, or exposed for sale.

* A statement of the per cents. of Nitrogen, Phosphoric Acid (P_2O_5) and Potash (K_2O), and of their several states or forms, will suffice in most cases. Other ingredients may be named if desired.

In all cases the per cent. of *nitrogen* must be stated. Ammonia may also be given when actually present in ammonia-salts, and "ammonia equivalent to nitrogen" may likewise be stated.

The per cent. of soluble and reverted phosphoric acid may be given separately or together, and the term "available" may be used in addition to, but not instead of soluble and reverted.

Insoluble phosphoric acid may be stated or omitted.

In case of Bone, Fish, Tankage, Dried Meat, Dried Blood, etc., the chemical composition may take account of the two ingredients: Nitrogen, Phosphoric acid.

For Potash Salts give always the per cent. of Potash (potassium oxide); that of Sulphate of potash or Muriate of potash may also be stated.

The chemical composition of other fertilizers may be given as found in the Station Reports.

SEC. 2. Before any commercial fertilizer, the retail price of which is ten dollars, or more than ten dollars per ton, is sold, offered, or exposed for sale, the manufacturer, importer, or party who causes it to be sold, or offered for sale, within the State of Connecticut, shall file with the director of the Connecticut Agricultural Experiment Station two certified copies of the statement named in section one of this act, and shall deposit with said director a sealed glass jar or bottle containing not less than one pound of the fertilizer, accompanied by an affidavit that it is a fair average sample thereof.*

SEC. 3. The manufacturer, importer, agent, or seller of any commercial fertilizer, the retail price of which is ten dollars or more than ten dollars per ton, shall pay on or before the first of May, annually, to the director of the Connecticut Agricultural Experiment Station, an analysis fee of ten dollars for each of the fertilizing ingredients† contained or claimed to exist in said fertilizer: *provided*, that whenever the manufacturer or importer shall have paid the fee herein required for any persons acting as agents or sellers for such manufacturer or importer, such agents or sellers shall not be required to pay the fee named in this section.

SEC. 4. Every person in this State who sells, or acts as local agent for the sale of any commercial fertilizer of whatever kind or price, shall annually, or at the time of becoming such seller or agent, report to the director of the Connecticut Agricultural Experiment Station his name, residence, and post-office address, and the name and brand of said fertilizer, with the name and address of the manufacturer, importer, or party from whom such fertilizer was obtained, and shall, on demand of the director of the Connecticut Agricultural Experiment Station, deliver to said director a sample suitable for analysis of any such fertilizer or manure then and there sold or offered for sale by said seller or agent.‡

* The analysis of samples sent in accordance with section two is discretionary with the Station. Such samples are intended for preservation as manufacturers' standards.

† The Station understands "the fertilizing ingredients" to be those whose determination in an analysis is necessary for a valuation, viz: Nitrogen, Phosphoric acid and Potash. The analysis-fees in case of any fertilizer will therefore be ten, twenty or thirty dollars, according as one, two or three of these ingredients are contained or claimed to exist in the fertilizer. On receipt of statements, samples and analysis-fees, the Station will issue Certificates of compliance with the law.

‡ Blanks for Dealers' Reports will be mailed to applicants.

SEC. 5. No person or party shall sell, offer, or expose for sale, in the State of Connecticut, any pulverized leather, raw, steamed, roasted, or in any form, as a fertilizer or as an ingredient of any fertilizer or manure, without explicit printed certificate of the fact, such certificate to be conspicuously affixed to every package of such fertilizer or manure, and to accompany and go with every parcel or lot of the same.

SEC. 6. Every manufacturer of fish guano, or fertilizer of which the principal ingredient is fish or fish-mass from which the oil has been extracted, shall, before manufacturing or heating the same, and within thirty-six hours from the time such fish or mass has been delivered to him, treat the same with sulphuric acid or other chemical, approved by the director of said experiment station, in such quantity as to arrest decomposition: *provided*, however, that in lieu of such treatment such manufacturers may provide a means for consuming all smoke and vapors arising from such fertilizers during the process of manufacture.

SEC. 7. Any person violating any provision of the foregoing sections of this act shall be fined one hundred dollars for the first offense, and two hundred dollars for each subsequent violation.

SEC. 8. This act shall not affect parties manufacturing, importing, or purchasing fertilizers for their own private use, and not to sell in this State.

SEC. 9. The director of the Connecticut Agricultural Experiment Station shall pay the analysis-fees received by him into the treasury of the station, and shall cause one or more analysis of each fertilizer to be made and published annually. Said director is hereby authorized, in person or by deputy, to take samples for analysis from any lot or package of manure or fertilizer which may be in the possession of any dealer.

SEC. 10. The director of the Connecticut Agricultural Station shall, from time to time, as bulletins of said station may be issued, mail or cause to be mailed two copies, at least, of such bulletins to each post-office in the State.*

SEC. 11. Title sixteen, chapter fifteen, sections fifteen and sixteen, and title twenty, chapter twelve, section five of the general statutes, and chapter one hundred and twenty of the public acts of 1881, being an act concerning commercial fertilizers, are hereby repealed.

SEC. 12. This act shall take effect on the first day of September, 1882.

* The Station will hereafter mail a package of its Bulletins to each postmaster in Connecticut, and will send, up to reasonable limits, as many copies as it may receive notice are desired.

OBSERVANCE OF THE FERTILIZER LAW.

MANUFACTURERS who up to April 20, 1883, have fully or in part complied with Sections 2 and 3 of the Act concerning Commercial Fertilizers, which went into effect September 1, see page 3:

FIRM.	ARTICLE.
Glidden & Curtis, Boston, Mass.,	Soluble Pacific Guano.
G. W. Dickinson, Essex, Ct.,	Ivory and Bone Dust.
Geo. W. Miles Co., Milford, Ct.,	I. X. L. Ammoniated Bone Superphosphate. "C" Island Dry Fish Guano. Fish and Potash.
Quinnipiac Fertilizer Co., New London, Ct., ..	Quinnipiac Phosphate. Dry Ground Fish. Fish and Potash, crossed Fishes brand. Fish and Potash, plain brand.
L. L. Crocker, Buffalo, N. Y.,	Ammoniated Bone Superphosphate. Potato, Hop and Tobacco Phosphate.
Bradley Fertilizer Co., 27 Kilby St., Boston, Mass.,	Bradley's Superphosphate. B. D. Sea-Fowl Guano. Original Coe's Superphosphate.
Russell Coe, Linden, N. J.,	Russell Coe's Ammoniated Bone Superphosphate.
Preston Fertilizer Co., Greenpoint Station, Brooklyn, N. Y.,	Ammoniated Bone Superphosphate. Dried and Ground Fish Guano. Ground Bone.
Clark's Cove Guano Co., New Bedford, Mass.,	Bay State Fertilizer.
Paul Thomson, Hartford, Conn.,	Mineral Manure for Tobacco.
F. Ellsworth, Hartford, Conn.,	Castor Pomace.
Rogers & Hubbard Co., Middletown, Conn., ..	Pure Raw Knuckle Bone Meal. Pure Raw Knuckle Bone, "Fine A."
Williams, Clark & Co., 109 Pearl St., New York,	Fish and Potash. Ammoniated Dissolved Bone. Americus Ammoniated Bone Superphosphate.
L. B. Darling & Co., Pawtucket, R. I.,	Ground Bone. Animal Fertilizer.
Geo. L. Harris & Son, Eagleville, Conn.,	Pure Ground Bone. Pure Bone Phosphate.
The Mapes Formula and Peruvian Guano Co., 158 Front St., New York,	The Mapes Potato Manure. The Mapes Corn Manure. The Mapes Complete Manure for light soils. The Mapes Tobacco Manure, Connecticut Brand. The Mapes Tobacco Manure for use with stems. The Mapes Grass and Grain Spring Top Dressing. The Mapes Complete Manure, "A" Brand. Plain Superphosphate, <i>High Grade.</i>

FIRM.	ARTICLE.
Bowker Fertilizer Co., 43 Chatham St., Boston, Mass.,	Stockbridge Grain Manure. Stockbridge Vegetable Manure. Stockbridge Forage Crop Manure. Bowker's Hill and Drill Phosphate. Bowker's Brighton Phosphate. Bowker's Fish and Potash. Bowker's Fine Ground Dry Fish. Bowker's Fresh Milled Kainit.
F. C. Slade, Oakville, Conn.,	Ground Bone.
Robt. B. Brown Oil Co., St. Louis, Mo.,	Castor Pomace.
National Fertilizer Co., Bridgeport, Conn.,	Chittenden's Complete Fertilizer for Roots, Potatoes and Vegetables. Chittenden's Complete Manure for Grain. Chittenden's Universal Phosphate. Chittenden's Ammoniated Bone Superphosphate. Chittenden's Fish and Potash. Chittenden's Dry Ground Fish.
E. Frank Coe, 16 Burling Slip, New York,	E. Frank Coe's Ammoniated Bone Superphosphate.
Dole Common Sense Fertilizer Co., 42 Congress St., Boston, Mass.,	Common Sense Fertilizer No. 2. Common Sense Fertilizer No. 3.
Edmund Smith, South Canterbury, Conn.,	Ground Bone.
Peck Brothers, Northfield, Conn.,	Peck Brothers' Ground Bone.
Wm. P. Lawrence, Mill Brook, Conn.,	Ground Bone.

DEALERS who up to April 20, 1888, have complied with Section 4 of the Act concerning Commercial Fertilizers (see page 4), and reported to the Director of this Station their names, residences and post office addresses, and the names and brands of fertilizers sold, with the name and address of the manufacturers, importers or parties from whom such fertilizers were obtained.

DEALER.	ARTICLE.	MANUFACTURER.
J. P. Barstow, Norwich,	Americus Bone Meal,	Rafferty & Williams, New York.
"	Crescent Ground Bone,	Lister Bros., Newark, N. J.
"	Ammoniated Bone Superphosphate,	E. F. Coe, New York.
"	Stockbridge Fertilizers for Corn, Potatoes & Grass,	Bowker Fertilizer Co., New York.
"	Bradley's Superphosphate,	Bradley Fertilizer Co., Boston, Mass.
"	Darling's Pure Fine Bone,	L. B. Darling & Co., Pawtucket, R. I.
"	Darling's Animal Fertilizer,	"
"	Quinnipiac Phosphate,	Quinnipiac Fertilizer Co., New London.
"	Fish and Potash,	"
"	"A" Bone,	Rogers & Hubbard Co., Middletown.
J. S. Benton, Guilford,	Pure Ground Bone, extra fine,	Mapes F. & P. G. Co., New York.
"	Mapes' Complete Manure for light soils,	"
"	Mapes' Complete Manure, "A" Brand,	"
"	Mapes' Corn Manure,	"
"	Mapes' Potato Manure,	"
C. E. Chapman, Westbrook,	Geo. W. Miller's Bone,	Geo. W. Miller, Middlefield.
"	Geo. W. Miller's Raw Bone Phosphate,	"
"	Mapes' Corn Manure,	Mapes F. & P. G. Co., New York.
"	Mapes' Potato Manure,	"
G. S. Clark, Washington Depot,	Mapes' Complete Manure, "A" Brand,	"
G. W. Denison, Old Saybrook,	Lister Bros. Ground Bone,	Lister Bros., Newark, N. J.
"	Lister Bros. Phosphate,	"
F. Ellsworth, Hartford,	Castor Pomace,	"
A. A. Hubbard, Canaan,	Nova Scotia Plaster,	Collier White Lead & Oil Co., St. Louis, Mo.
"	Bradley's Superphosphate of Lime,	H. C. Higginson, Newburg, N. Y.
"	Soluble Pacific Guano,	Bradley Fertilizer Co., Boston, Mass.
"		Pacific Guano Co., Boston, Mass.

DEALER.	ARTICLE.	MANUFACTURER.
A. A. Hubbard,	Stockbridge Manure for Potatoes,	Bowker Fertilizer Co., New York.
"	Bowker's Fish and Potash,	"
J. A. Lewis,	Darling's Animal Fertilizer,	L. B. Darling & Co., Pawtucket, R. I.
"	Darling's Fine Ground Bone,	"
"	Ammoniated Bone Superphosphate,	L. L. Crocker, Buffalo, N. Y.
"	Potato, Hop and Tobacco Phosphate,	"
"	Bowker's Dry Ground Fish,	Bowker Fertilizer Co., New York.
"	Brighton Phosphate,	"
"	Stockbridge Manure for Potatoes,	"
"	Stockbridge Manure for Grain,	"
"	Bowker's Fish and Potash,	"
"	Bay State Fertilizer,	"
F. M. Loomis,	Buffalo Ammoniated Bone Superphosphate,	Clark's Cove Guano Co., New Bedford, Mass.
North Granby,	"	L. L. Crocker, Buffalo, N. Y.
Oscar Munyan,	Bradley's Superphosphate of Lime,	Bradley Fertilizer Co., Boston, Mass.
Thompson,	"	"
W. H. Scott & Co.,	Peck Bros. Ground Bone,	Peck Bros., Northfield.
"	Peruvian Guano,	Hobson, Hurtado & Co., New York.
Southmayd & Gardiner,	Russell Coe's Ammoniated Bone Superphosphate,	Russell Coe, Linden, N. J.
Middletown,	Muriate of Potash, 80%,	H. J. Baker & Bro., New York.
"	Baker's "A. A." Ammoniated Superphosphate,	"
"	Castor Pomace,	"
"	Potato Manure,	"
"	Wheat Manure,	"
"	Grass Manure,	"
"	Lawn Dressing,	"
"	Cotton Manure,	"
"	Coru Manure,	"
"	Sugar Cane Manure,	"
"	Tobacco Manure,	"
"	Orange Tree Manure,	"

DEALER.	ARTICLE.	MANUFACTURER.
Southmayd & Gardiner, Middletown,	Strawberry Manure,	H. J. Baker & Bro., New York.
"	Asparagus Manure,	"
"	Cabbage Manure,	"
"	Fruit Tree Manure,	"
"	Grape Vine Manure,	"
"	Hop Manure,	"
"	Oat Manure,	"
"	Onion Manure,	"
"	Cucumber Manure,	"
"	Turnip Manure,	"
"	Americus Brand Ammon. Bone Superphosphate,	Williams, Clark & Co., New York.
"	Fish and Potash,	"
"	Fish and Potash,	Bowker Fertilizer Co., New York.
"	Rogers & Hubbard Co's Pure Ground Bone,	Rogers & Hubbard Co., Middletown.
"	Ground Land Plaster,	G. A. London, Berlin.
R. H. Tucker, Saybrook,	Soluble Pacific Guano,	Pacific Guano Co., Boston, Mass.
Wilson & Burr, Middletown,	Stockbridge Manure for Grain,	Bowker Fertilizer Co., New York.
"	Stockbridge Manure for Potatoes,	"
"	Stockbridge Manures,	"
"	Quinnipiac No. 1. Fish and Potash,	Quinnipiac Fertilizer Co., New London.
"	Quinnipiac Phosphate,	"
"	Ground Land Plaster,	"
"	Pure Ground Bone,	Geo. W. Miller, Middlefield.
G. H. Alford & Co., Winsted, Conn.,	H. J. Baker & Brothers' Special Manure for Potatoes, Strawberries, etc.,	Rogers & Hubbard Co., Middletown.
"	Pelican Bone Fertilizer,	"
"	Bowker's Dissolved Bone with Potash,	H. J. Baker & Brother, New York.
"	Brighton Phosphate,	"
"	Peck Brothers' Ground Bone,	Bowker Fertilizer Co., New York.
"	Ground Nova Scotia Plaster,	"
"		Peck Brothers, Northfield, Conn.
"		Bought of J. Hurd, Bridgeport, Conn.

DEALER.	ARTICLE.	MANUFACTURER.
E. R. Beman, East Hartford, Conn.,	Buffalo Ammoniated Bone Superphosphate,	L. L. Crocker, Buffalo, N. Y.
J. B. Merrow & Sons, Merrow, Conn.,	H. Preston & Sons' Superphosphate,	Preston Fertilizer Co., Greenpoint, L. I.
Quinebaug Store, Danielsonville, Conn.,	H. Preston & Sons' Ground Bone,	"
"	Darling's Animal Phosphate,	L. B. Darling & Co., Pawtucket, R. I.
"	Bradley's Patent Fertilizer,	Bradley Fertilizer Co., Boston, Mass.
Stevens & Bragg, Canaan, Conn.,	High Grade Bone Fertilizer, Americus Brand,	Williams, Clark & Co., New York.
J. A. Ives, Danbury,	Mapes' Complete Manures,	Mapes F. & P. G. Co., New York.
"	Ammoniated Bone Superphosphate,	L. L. Crocker, Buffalo, N. Y.
"	Bay State Fertilizer,	Clark's Cove Guano Co., New Bedford, Mass.
Wilson & Burr, Middletown,	H. J. Baker & Brother's Fertilizers,	H. J. Baker & Brother, 215 Pearl St., New York.
"	Mapes' Tobacco Manure,	Mapes Formula and P. G. Co., New York.
"	Mapes' Corn Manure,	"
"	Mapes' Potato Manure,	"
"	Peruvian Guano No. 1, Lobos,	"
"	Nitrate of Soda,	Quinnipiac Fertilizer Co., New London.
"	Quinnipiac No. 2, Fish and Potash,	"
"	Quinnipiac No. 1, Fish and Potash,	"
"	Quinnipiac Phosphate,	"
"	Muriate of Potash,	"
"	Cayuga Land Plaster,	Cayuga Plaster Co., New York.
"	Stockbridge Grass Top Dressing,	Bowker Fertilizer Co., Boston, Mass.
"	Stockbridge Potato Manure,	"
"	E. Frank Coe's Phosphate,	E. Frank Coe, New York.
"	Rogers & Hubbard's Ground Bone,	Rogers & Hubbard Co., Middletown.
Apothecaries' Hall Co., Waterbury,	G. W. Miles' Superphosphate Lime,	G. W. Miles Co., Milford.
"	G. W. Miles' Fish and Potash,	"
"	Peck Brothers' Ground Bone,	Peck Brothers, Northfield.
"	Stockbridge Manures,	Bowker Fertilizer Co., Boston, Mass.

FERTILIZER ANALYSES.

SUPERPHOSPHATES.

845. "C" Island Dry Fish Guano.

846. I. X. L. Phosphate.

847. Fish and Potash XX.

Nos. 845, 846 and 847 were made and sent to the Station by the Geo. W. Miles Co., Milford, Ct.

862. Chittenden's Complete Fertilizer for Roots, Potatoes and Vegetables.

864. Chittenden's Universal Phosphate.

866. Chittenden's Ammoniated Bone Superphosphate.

867. Chittenden's Complete Manure for Grain.

Nos. 862, 864, 866 and 867 were made by the National Fertilizer Co., Bridgeport, Ct., and were sampled by the Station.

844. G. W. Miller's Raw Bone Phosphate, made and sent by G. W. Miller, Middlefield, Ct.

861. Raw Bone Superphosphate, made by G. W. Miller, Middlefield; sent by Jas. H. Barker, Branford, Ct.

869. Baker's A.A. Ammoniated Superphosphate. Made by H. J. Baker & Bro., New York City. From stock of John Alvord. Sent by Franklin Sherwood, Greens Farms.

FISH MANURES.

Analyses on page 13.

865. Chittenden's Fine Ground Fish.

863. Chittenden's Fish and Potash.

Nos. 865 and 863 were made by the National Fertilizer Co., Bridgeport, Ct., and were sampled by the Station.

BONE MANURES.

Analyses on page 13.

859. Raw Knuckle Bone—"Meal."

860. Raw Knuckle Bone—"A"—Extra fine.

Nos. 859 and 860 were made and sent by the Rogers & Hubbard Co., Middletown, Ct.

871. Rotted Bone, made and sold by Jas. H. Baker, Brooklyn, N. Y., sent by S. Hoyt's Sons, New Canaan, Ct.

ANALYSES OF SUPERPHOSPHATES.

	845	846	847	862	864	866	867	844	861	869
Nitrogen as nitrates,.....					.68					
Nitrogen as ammonia salts,.....										1.92
Organic nitrogen,.....	4.32	2.04	2.89	2.30	1.90	1.74	3.07	3.08	2.80	.56
Soluble phosphoric acid,.....	2.47	7.11	4.81	5.71	6.75	5.19	5.31	2.80	3.16	8.52
Reverted phosphoric acid,.....	3.09	.75	1.55	1.00	1.00	1.21	.72	3.21	3.57	.59
Insoluble phosphoric acid,.....	2.09	3.51	2.11	.73	.95	2.14	.68	2.80	4.10	.64
Potash,.....		1.61	3.60	7.04	3.60	2.38	4.87	5.91	5.13	2.88
Cost per ton,.....	\$40.00	40.00	40.00	50.00	42.00	36.00	50.00		50.00	42.00
Estimated value per ton,*.....	\$32.75	31.80	31.94	31.60	32.11	25.94	31.91	33.84	34.82	35.46

* These "Estimated values" are comparisons based on the use of the Trade Values on page 16, as fully explained in the Annual Report of the Station. They show at what retail rates the fertilizing element usually may be bought for cash, in the large cities. The difference between cost and estimated value is what the consumer pays for having the goods brought to his door, for credit and its risks, and for manipulation.

COTTON SEED MEAL.

876. Sampled and sent by William Smith, Plainville. From stock of G. C. Richards & Co., Unionville.

MECHANICAL ANALYSES OF BONE.

	859	860
Fine, smaller than $\frac{1}{6}$ inch,.....	50.0	35.0
Fine-medium, smaller than $\frac{1}{6}$ inch,.....	43.0	33.0
Medium, smaller than $\frac{1}{2}$ inch,.....	7.0	24.0
Coarse-medium, smaller than $\frac{1}{8}$ inch,.....	---	8.0
Coarse, larger than $\frac{1}{8}$ inch,.....	---	---
	100.0	100.0

CHEMICAL ANALYSES OF FISH, BONE AND COTTON SEED MEAL.

	865	863	859	860	871	876
Nitrogen,.....	8.35	2.92	3.87	3.92	2.65	6.95
Phosphoric acid,.....	5.92	6.50	23.36	23.61	1.59	2.51
Potash,.....	---	4.67	---	---	---	1.91
Chlorine,.....	---	---	---	---	---	---
Cost per ton,.....	\$45.00	36.00	40.00	37.50	*16.00	31.00
Estimated value per ton,.....	\$45.51	25.20	39.04	37.65	14.10	29.65

* In New York.

GROUND GYPSUM.

849. Nova Scotia Land Plaster, ground by G. W. Miller, Middlefield.

858. Nova Scotia Land Plaster, ground by V. C. & C. V. Rings, New York City.

850. Onondaga Land Plaster, ground by E. B. Alvord & Co., Jamesville, N. Y.

The above were sent to the Station by Harvey Elliot, North Guilford. **849** and **858** were sampled at the mill March 5th and 10th, 1883. **850** was received by mail from Jamesville.

ANALYSES.

	849	858	850
Pure Gypsum (Hydrated sulphate of lime),.....	93.84	94.56	73.92
Matters insoluble in acids,.....	1.88	2.67	4.64
Carbonates of lime and undetermined matters,....	4.28	2.77	21.44
	100.00	100.00	100.00
Cost per ton,.....	\$8.00*	\$5.50†	\$6.00‡

* In car lots at New Haven.

† In car lots at New Haven. In bags, \$1.00 extra.

‡ In barrels at New York.

870. Infusorial Earth ("Marl"), sent by Ellis Bagley, Branford.

872. Infusorial Earth, sent by Joseph Sellers, Portland.

ANALYSES.		
	870	872
Sand and insoluble,	94.70	92.07
Oxides of iron and alumina,	2.18	
Phosphoric acid,	none	
Lime,	none	
Loss on ignition (moisture and organic matter),	2.57	4.44
Undetermined,55	3.49
	100.00	100.00

These gray or white "Infusorial Earths" occur below Swamp Muck (peat), and consist chiefly of the siliceous skeletons of microscopic water-plants. They have no fertilizing value. When clean and free from sand or grit they make an excellent polishing material. "Electro Silicon" is an example.

853. Saltpeter Refuse, sent by S. J. Archer, New York City; sent by S. S. Green, New Milford, Ct.

RESULTS OF ANALYSES.	
Potash,	4.27
Soda,	48.21
Nitric acid,*	4.44
Chlorine,	54.41
Insoluble in acid,88
Undetermined,05
	112.26
Deduct oxygen equivalent to chlorine,	12.26
	100.00
Cost per ton, on car in New York,	\$10.00
Estimated value, exclusive of salt,	8.23

* Equivalent to nitrogen, 1.15.

The elements of the Saltpeter Refuse probably exist in the following compounds:

Saltpeter (nitrate of potash),	8.31
Muriate of potash,	0.61
Common salt,	90.20
Insoluble matter (sand),	0.88
	100.00

854. Waste Lime from the Paper Mills of F. Whittlesey, Windsor Locks, Ct.; sent by R. E. Pinney, Suffield, Ct.

ANALYSIS OF PARTLY DRIED SAMPLE.

Insoluble in acid,.....	1.99	Insoluble in acid,.....	1.99	
Oxide of iron and alumina, .	.87	Oxide of iron and alumina, .	.87	
Lime,	45.08	} = {	Carbonate of lime,.....	13.52
Carbonic acid,.....	5.95		Slaked lime,.....	49.57
Water,	45.25		Moisture,.....	33.19
Undetermined,.....	.86	Undetermined,.....	.86	
	<hr/>		<hr/>	
	100.00		100.00	

SWAMP MUCK.

842. Peat. No. 1.

843. Peat. No. 2.

These two samples were sent by G. M. Denison, New London, Ct.

857. Muck, sent by A. P. Hine, Torrington, Ct.

ANALYSES.

	842	843	857
The fresh material contains—			
Water,.....	85.46	74.47	75.03
Organic and volatile matters,*.....	13.88	10.21	17.31
Ash,.....	.66	15.32	7.66
	<hr/>	<hr/>	<hr/>
	100.00	100.00	100.00
* With Nitrogen,.....	.23	.32	.46
The ash contains—			
Silica and insoluble,.....	.30	14.38	7.25
Oxide of iron, alumina and phosphoric acid,52	.14
Lime,.....	.12	.17	.16
Undetermined,.....	.24	.25	.11
	<hr/>	<hr/>	<hr/>
	.66	15.32	7.66
The dry mucks contain—			
Organic and volatile matters,.....	95.46	39.95	69.32
Nitrogen,.....	1.58	1.24	1.84
Silica and insoluble,.....	2.08	56.32	29.03
Oxide of iron, alumina, etc.,.....		2.04	.56
Lime,.....	.82	.68	.64

These samples are of medium quality, judged by their content of nitrogen and lime.

TRADE VALUES FOR 1883.

For 1883 the following revised *Trade Values* will be employed in Massachusetts, New Jersey and Connecticut, for comparing Fertilizers. The values are deduced from the ruling market rates of the six months ending March 1, 1883, and are mostly the average wholesale prices for that period, plus 20 per cent. They signify cash, delivered free on board (f. o. b.) at point of shipment. Due allowance must be made for transportation and long credits, as well as for the fluctuations of the market, which cannot be foreseen. The values used during 1881 and 1882 are given for comparison.

	1881.	1882.	1883.
	Cents per lb.		
Nitrogen in nitrates,	26	26	20
“ in ammonia salts,	22½	29	26
“ in Peruvian Guano, fine steamed bone, dried and fine ground blood, meat and fish, superphosphates and special manures,	20	24	23
“ in coarse or moist blood, meat or tankage, in cotton seed, linseed and Castor Pomace,	16	18	18
“ in fine ground bone, horn and wool dust,	15	17	17
“ in fine medium bone,	14	15	15
“ in medium bone,	13	14	14
“ in coarse medium bone,	12	13	13
“ in coarse bone, horn shavings, hair and fish scrap,	11	11	11
Phosphoric acid soluble in water,	12½	12½	11
“ “ “reverted” and in Peruvian Guano,	9	9	8
“ “ insoluble, in fine bone, fish guano and superphosphates,	6	6	6
“ “ insoluble, in fine medium bone,	5½	5½	5½
“ “ “ in medium bone,	5	5	5
“ “ “ in coarse medium bone,	4½	4½	4½
“ “ “ in coarse bone, bone ash and bone black,	4	4	4
“ “ insoluble, in fine ground rock phosphate,	3½	3	2½
Potash in high grade sulphate,	7½	7	7
“ in low grade sulphate and kainite,	5½	5	4½
“ in muriate or potassium chloride,	4½	5	4½